



HP Access Control (HP AC)

Administrator Guide

© Copyright 2020 HP Development Company,
L.P.

Microsoft, Windows, and Windows NT are U.S.
registered trademarks of Microsoft Corporation.

September, 2020

v16.8.1

c05641610

**Confidential computer software. Valid license
from HP required for possession, use or copying.
Consistent with FAR 12.211 and 12.212,
Commercial Computer Software, Computer
Software Documentation, and Technical Data for
Commercial Items are licensed to the U.S.
Government under vendor's standard
commercial license.**

The information contained herein is subject to
change without notice. The only warranties for
HP products and services are set forth in the
express warranty statements accompanying
such products and services. Nothing herein
should be construed as constituting an
additional warranty. HP shall not be liable for
technical or editorial errors or omissions
contained herein.

Table of contents

1 Introduction	1
1.1 Terminology	1
1.2 Solution benefits	1
1.3 Comparison of Express, Enterprise, and Pull Print Only installation bundles	2
1.4 Solution components	4
1.5 HP Access Control (HP AC) Express	5
1.6 HP Access Control (HP AC) Enterprise	5
1.6.1 Server installation	6
1.6.2 Stand-alone print server installation	6
2 Solution requirements	7
2.1 Minimum server hardware requirements	7
2.2 Server requirements	7
2.2.1 Virtualization	10
2.2.2 Minimum IIS requirements	10
2.3 Database server requirements	11
2.3.1 Job Accounting database server requirements (remote)	12
2.4 Infrastructure requirements	12
2.5 Supported operating systems for Pull Printing	12
2.5.1 Pull Printing using a Shared Server Queue	12
2.5.2 Pull Printing using a Local Queue (Enterprise only)	13
2.6 Client requirements for HP Access Control Print client	13
2.7 Client requirements for card enrollment application	14
2.8 Card Masking utility requirements	14
2.9 Mobile device requirements	14
2.10 HP Printer and MFP requirements	14
2.11 Server components required	15
2.11.1 IPM requirements	15
2.12 Supported HP devices	16
3 Installation	19
3.1 Installing HP AC Express	19
3.2 Installing HP AC Enterprise	24
3.3 Multi-server installation	29
3.4 Modify or Remove HP Access Control	29
3.4.1 Modify an HP AC installation	29

3.4.2 Removing HP Access Control (HP AC)	30
3.5 Upgrading HP Access Control	31
3.6 Installing OXPd Professional Services (OPS) for OfficeJet Pro devices	33
4 HP Access Control Configuration utility	36
4.1 Overview	36
4.1.1 Navigation and Help	37
4.1.1.1 Menus and Tabs	37
4.1.1.2 Help menu	37
4.1.1.3 Settings tile	37
4.1.1.3.1 Pull Print tab	37
4.1.1.3.2 Spooler tab	40
4.1.1.4 Device tile	43
4.1.1.4.1 Masking tab	45
4.1.1.4.2 Printer info tab	46
4.1.1.4.3 Admin tab	46
4.1.1.4.4 Pull Printing tab	47
4.1.1.5 Print server tile	47
4.1.1.6 Server Information tile	48
4.1.1.7 Multi-vendor Management	48
4.2 Configuring general settings	48
4.2.1 Adding devices	53
4.2.1.1 Adding devices individually	54
4.2.1.2 Adding multiple devices	56
4.2.1.3 Discovering devices using SNMP v3	57
4.2.1.4 Adding XT devices	59
4.2.1.5 Copy or Delete a device	59
4.2.1.6 Update a device	59
4.2.1.7 Importing device data	63
4.2.1.8 Block device with no licenses	64
4.2.2 Email	64
4.2.2.1 Set SMTP Server parameters	64
4.2.2.2 Configuring for email notification	64
4.2.3 Configuring the server for device communication	65
4.2.4 Configuring server certificates	66
4.2.4.1 Generating self-signed v3 Certificates	67
4.2.4.2 Creating certificates in a multi-server installation	68
4.2.5 Using the customer's signed certificate	69
4.2.6 Configuring the Agent license service	70
4.2.7 Configuring the server for licensing	71
4.2.7.1 HP AC Product License Processing	71

4.2.8 Set user parameters	72
4.2.9 Configuring Job Accounting general settings	72
4.2.9.1 Configuring database access when using a remote SQL server	72
4.2.9.1.1 Authentication methods	72
4.2.9.2 Configuration for User tracking	74
4.2.9.3 Configuring the server for tracking data	75
4.2.9.3.1 Server Based Tracking	76
4.2.9.3.2 Enable Tracking of Purged jobs	76
4.2.9.4 Quota management	77
4.2.9.5 Tracking management	81
4.2.9.6 Print Server tracking	81
4.2.10 Configuring connection to an SQL Server with AlwaysOn	82
4.2.11 HP AC Configuration Utility Web Console	82

5 Authentication 85

5.1 Authentication methods	85
5.1.1 PIC authentication	85
5.1.2 Card authentication	85
5.1.3 Card and code (two-factor) Authentication	85
5.1.4 Card or code authentication	86
5.1.5 Touch to Authenticate	86
5.2 Enrollment options	86
5.3 Active Directory Authenticator	87
5.3.1 Authentication method and data storage options	87
5.3.2 Set LDAP Server parameters	88
5.3.2.1 Configuring multiple domains	89
5.3.2.2 Card Masking	90
5.3.3 Set Proximity Reader parameters	92
5.3.4 Set Cards parameters	95
5.3.5 Prevent Alternate Windows Authentication when using Card Only Authentication	97
5.3.6 Prevent User Enrollment at the Device	98
5.3.7 Code parameters when storing in Active Directory	99
5.3.8 Code Parameters when storing in SQL	101
5.4 Database storage	101
5.4.1 Common SQL enrollment database	101
5.4.2 Use only SQL database to validate users during authentication	102
5.4.3 Import to IRM database	102
5.4.4 Importing data	104
5.4.5 Exporting data	104
5.5 Authorization	104
5.5.1 Configuring individual rights control	105

5.5.2 Configuring group rights control	107
5.6 Authorization to use device features	109
5.6.1 HP MFPs	109
5.7 Configuring devices	110
5.7.1 HP Multifunction devices	111
5.7.2 HP single-function printers	113
5.7.3 HP OfficeJet Pro printers	114
5.7.4 HP PageWide Pro printers	115
5.7.4.1 Configure the device	116
5.7.5 XT devices	117
5.7.6 HP S900 series devices	117
5.7.6.1 Configuring Guest login	125
5.8 Enrolling a card at the device	127
5.8.1 HP FutureSmart MFP	128
5.8.2 HP non-FutureSmart MFP	129
5.8.3 HP OfficeJet Pro and PageWide Pro devices	129
5.8.4 HP S900	130
5.8.5 Enrolling a card with Two-Factor Authentication (Card + Code)	131
5.8.6 Enrolling a card with Card or Code Authentication	132
5.8.7 Enrolling a card from a client PC	134
5.8.8 Touch-to-Sign in	134
5.8.9 Enrolling a card with an email address	136
6 Secure Pull Printing	139
6.1 Secure Pull Print	139
6.1.1 Introduction	139
6.1.2 Configuring Pull Print Settings	139
6.1.2.1 IPPS inbound support	144
6.1.2.2 Peer Validation	146
6.1.2.3 Configure Print Job Identifier	147
6.1.2.3.1 User Identifier	147
6.1.2.3.2 Configuring to use Domain\Login	148
6.1.2.3.3 Configuring to use userPrincipalName	148
6.1.2.4 Configuring PJI Parsing for Non-Windows Printing	149
6.1.2.5 Configuring PJI Overlap	149
6.1.2.6 Configuring the Pull Print app on devices	149
6.1.3 Adding additional SPP Enterprise servers for pull print remote jobs	150
6.1.4 Adding pull print queues on the server	150
6.1.5 Assured Job Delivery	152
6.2 Configuring Scan to Home Directory	153
6.3 Set up the HP Access Control (HP AC) Secure Pull Print server for email printing	153

6.4 Set up Server for Touch-to-Release	159
6.4.1 One-touch Release	161
6.5 Configuring devices for pull printing	161
6.5.1 HP multi-function printers	162
6.5.2 HP single-function printers	163
6.5.3 HP OfficeJet Pro printers	164
6.5.4 HP PageWide Pro devices	164
6.5.4.1 HP PageWide Pro	164
6.5.4.2 Configuring devices	165
6.5.5 XT devices	165
6.5.6 HP S900 series devices	165
6.6 Submitting jobs for pull print	166
6.6.1 Submit from a PC	166
6.6.2 Submit from email	166
6.7 Pull Printing from the devices	167
6.7.1 HP single-function printers	167
6.7.2 HP single-function printers with a 4.2" display	167
6.7.3 HP multi-function printers	168
6.7.4 HP OfficeJet Pro printers	169
6.7.5 XT card readers	170
6.7.6 HP S900 Series	171
6.7.7 Touch-to-Release	172
6.7.8 Releasing jobs from a web page	173
6.7.9 Releasing print jobs from remote print server - User requested	174
6.7.10 Pull Printing with HP AC Enterprise with Roaming	175
6.7.10.1 HP single-function printers	175
6.7.10.2 HP single-function printers with a 4.2" display	175
7 High availability options	177
7.1 Network Load Balancing configuration	177
7.1.1 Configure HP Access Control for NLB	177
7.1.2 Deploy workflows to devices	180
7.2 Configuring HP AC Secure Enterprise for Pull Printing on a Cluster	180
7.2.1 Preparing the Cluster Server for HP AC Enterprise	181
7.2.2 Step 1: Install HP AC on both Nodes	187
7.2.3 Step 2: Prepare HP AC for Clustering	187
7.2.4 Step 3: Modify each Node for Clustering	189
7.2.5 Step 4: Create the Cluster Application	190
7.2.6 Testing	193

8 Configuring Clients	194
8.1 Creating Pull Print Queues	194
8.1.1 Adding a printer when using Client-based pull printing with local job storage	194
8.1.2 Adding a printer to use Internet Printing Protocol (IPP)	197
8.1.3 Adding a printer to use Line Printer Remote (LPR) protocol	199
8.1.4 Add a traditional shared printer on the HP AC server	204
8.1.5 Installing a shared printer with the HP AC Secure Pull Print Port	209
8.1.6 HP Access Control Express Print Client	213
8.1.7 HP Access Control Enterprise Print Client	214
8.1.7.1 Check Status	217
8.1.7.2 Manage my print jobs	218
8.1.7.3 Direct Print Failover	219
8.1.7.4 Delegate printing / Group printing	220
8.1.7.4.1 Releasing delegate jobs	220
8.1.7.4.2 Configuring the Client for Delegate and Group printing	221
8.1.7.4.3 Deleting a delegate user or group	223
8.1.7.4.4 Managing the Display of the delegate web page	224
8.1.7.4.5 Delegating documents	224
8.1.8 Silent installation of the HP AC Express Print Client	225
8.1.9 Silent installation of the HP AC Enterprise Print client	226
8.1.10 Quota Notification	227
8.1.11 Quota Notification with Quota Client	227
8.1.12 MyQuota	229
8.2 Macintosh Clients	229
8.2.1 Adding a printer using LPR protocol	229
8.2.2 Adding a shared pull print queue	233
8.2.3 Mac encryption	237
8.3 HP Access Control Card Enrollment application	241
8.4 EcoReporting Client	243
8.4.1 Configure the EcoReporting Client	243
8.4.2 Install the EcoReporting Client	244
8.4.3 Use the EcoReporting Client	244
9 Manage users and jobs	246
9.1 Managing access to the Admin console	246
9.2 Managing users	250
9.2.1 Alias	251
9.2.2 Deleting users	251
9.2.3 Look up a user	252
9.2.4 Auto purge inactive users	252
9.3 User Tab	253

9.3.1 Change User Card or Code Parameters	253
9.3.2 Change a user's device feature rights	253
9.3.3 Email a user's PIC and rights information	253
9.4 AD Group Manager	254
9.4.1 Download User AD-Authenticator information	255
9.4.2 Email PIC and device function rights information	255
9.4.3 Assign new PIC and device function rights	256
9.4.4 Encrypt or decrypt user PICs	258
9.5 Manage users AD Group Manager	259
9.6 DB User Editor	260
9.7 Review and change User Code and device feature rights with DB User Editor	261
9.7.1 Add users to the database	261
9.7.2 Modify user codes	261
9.7.3 Modify user cards	261
9.7.4 Delete users from the database	262
9.7.5 Search for users	262
9.8 Device-based User List management	262
9.8.1 User List Editor	262
9.8.2 Manually enter user information	263
9.8.3 Import users from AD	263
9.8.4 Import users from a CSV file	265
9.8.5 Generate PINs	265
9.8.5.1 Alphanumeric Password	265
9.8.5.2 Password length	265
9.8.5.3 Reset All	265
9.8.6 Email PINs	265
9.8.7 Upload a list to a device	267
9.9 Managing jobs	270
9.9.1 Deleting jobs	270
9.10 Using myCode	271

10 Intelligent Print Management 273

10.1 Introduction	273
10.2 General configuration	274
10.2.1 Failover	274
10.2.2 Desktop notification settings	274
10.2.3 Installing the IPM desktop notification client	275
10.2.3.1 Do not show IPM pop-up if rule is followed	277
10.2.3.2 Use client IP address instead of host name for IPM notification pop-up	277
10.2.3.3 Enable HTML/Rich Text Box for IPM pop-up	277
10.2.3.4 Show savings in pop-up when rules are followed	278

10.2.4	Cost per page	279
10.2.5	User grouping for Job Stamps	280
10.2.6	IPM Authentication	281
10.2.7	Email notification	282
10.2.8	Activity logging	283
10.2.9	Configuring the Intelligent Print Management (IPM) Archive action	283
10.3	Using IPM to create rules	284
10.3.1	Create a rule	285
10.3.2	Notifying users of Cost per page	294
10.3.3	Configure IPM on a printer	295
10.3.4	Print activity log tab	296
10.3.5	Modifying messages to end users	296

11 Device Analysis 298

11.1	Introduction	298
11.2	Operation	298
11.2.1	Settings	298
11.2.1.1	Scan settings	298
11.2.1.1.1	Concurrent connections	299
11.2.1.1.2	Multicast DNS	299
11.2.1.1.3	Locally attached	299
11.2.1.2	Column settings	300
11.2.1.3	Analysis settings	300
11.2.1.4	Cost settings	301
11.2.1.5	PDF settings	301
11.2.1.5.1	Display options table	302
11.2.1.5.2	Title	302
11.2.1.5.3	Format	302
11.2.1.5.4	Orientation	302
11.2.1.5.5	Page number and Page number format	303
11.2.1.6	Scheduler settings	303
11.2.1.6.1	Create a new schedule	303
11.2.1.6.2	Modify a schedule	304
11.2.1.7	FTP settings	305
11.2.2	Scanning devices	305
11.2.2.1	Create a new scan	306
11.2.2.1.1	SNMP discovery	306
11.2.2.1.2	Start multicast DNS discovery	306
11.2.2.1.3	IP range discovery	307
11.2.2.1.4	Locally attached discovery	308
11.2.2.1.5	Rescan all	308

11.2.2.1.6 Rescan selected rows	308
11.2.2.2 Open a previous scan report	309
11.2.2.3 Insert a scan	309
11.2.2.4 Edit menu	309
11.2.3 Scan data	309
11.2.3.1 Customize column display	310
11.2.3.2 View options	311
11.2.3.2.1 Total	312
11.2.3.2.2 Duplex	312
11.2.3.2.3 Format	312
11.2.3.2.4 Toner	313
11.2.3.2.5 Supplies	313
11.2.3.2.6 Cost	313
11.2.3.2.7 Column	313
11.2.3.2.8 Sum/Average	313
11.2.3.2.9 Default	314
11.2.3.2.10 Log	314
11.2.3.3 Search	315
11.2.3.4 Device options	315
11.2.4 Analysis tab	316
11.2.4.1 Added and removed devices	317
11.2.4.1.1 Customize view	317
11.2.4.2 Analysis intervals	317
11.2.4.3 Analysis data	317
11.2.5 Stat tab	318
11.2.5.1 Stat display options	318
11.2.5.2 Statistic menu	319
11.2.5.2.1 Export	320
11.2.5.2.2 Generate PDF report	320

12 Job Accounting 321

12.1 Overview	321
12.2 HP AC Job Accounting Architecture	321
12.2.1 HP AC Job Accounting print system overview	321
12.2.2 Job Accounting clients	321
12.2.2.1 Cost Allocation	322
12.2.2.1.1 Installation of the Allocation Client	322
12.2.2.1.2 Installation and Configuration of the Allocation Printer	324
12.2.2.1.3 Viewing jobs in the Allocation Job Browser	326
12.2.2.1.4 Configuring a Shared Pull Print Printer for Allocation	327
12.2.2.2 Job Accounting Print Client	328

12.3 Information flow	333
12.3.1 In device tracking	333
12.3.2 HP Access Control (HP AC) Job Accounting print server	333
12.4 Getting started	334
12.4.1 Login page	335
12.4.2 Information page	336
12.4.3 License	337
12.4.4 Database Manager	337
12.5 HP AC Job Accounting administration	339
12.5.1 Account options	339
12.5.1.1 Create an account	339
12.5.1.2 Modify an account	340
12.5.1.3 Delete an account	340
12.5.2 Currencies	340
12.5.2.1 Add a currency	341
12.5.2.2 Define an exchange rate	342
12.5.3 Delete an exchange rate	342
12.5.4 Modify a currency	342
12.5.5 Delete a currency	343
12.5.6 Active Directory	343
12.5.7 Retrieving user data	344
12.5.8 Group Organization	346
12.5.9 Group management	346
12.5.10 Group management functions	347
12.5.11 Manual Scan	349
12.5.12 Customize reports	350
12.5.13 Email	351
12.5.14 Create an email address	352
12.5.15 Modify an email address	353
12.5.16 Delete an email address	353
12.5.17 Distribution lists	354
12.5.17.1 Create a distribution list	354
12.5.17.2 Modify a list	355
12.5.17.3 Delete a list	356
12.5.18 Configuring the email server	356
12.5.18.1 Configure the server	357
12.5.18.2 Modify the server configuration	357
12.5.18.3 Delete the server configuration	358
12.5.19 Printer templates	358
12.5.19.1 Create a printer template	359
12.5.19.2 Assign a printer template	360

12.5.19.3	Modify a printer template	361
12.5.19.4	Delete a template	361
12.6	Configuring data collectors	362
12.6.1	HP Access Control (HP AC) Agent	362
12.6.2	HP Statistics	362
12.6.3	HP Access Control (HP AC) Job Accounting print server	364
12.6.4	DesignJet configuration	370
12.6.5	Schedule job retrieval	371
12.6.6	Schedule DesignJet retrieval	372
12.6.7	SAP tracking	373
12.7	Viewing the print server	373
12.7.1	Print servers	374
12.7.1.1	Printers	375
12.8	Manage print costs	376
12.8.1	Cost control overview	376
12.8.2	Cost management page	377
12.8.3	Actual costs: printers	377
12.8.3.1	Manual actual costs	378
12.8.3.2	Create actual printer costs	378
12.8.3.3	Modify a printer actual cost	380
12.8.3.4	Delete a printer actual cost	380
12.8.3.5	Actual costs: media	380
12.8.4	Define fixed costs	381
12.8.4.1	Fixed costs	382
12.8.4.2	Modify a fixed cost	385
12.8.4.3	Delete a fixed cost	386
12.8.4.4	Lease costs	386
12.8.4.5	Schedule: Costs calculation	388
12.9	Cost center	389
12.9.1	Managing or creating	389
12.9.1.1	Manage a cost center	390
12.9.1.1.1	Add a cost center	390
12.9.1.1.2	Import a cost center	390
12.9.1.1.3	Delete a cost center	391
12.9.1.2	Assign users to a cost center	391
12.9.1.3	Assign printers	392
12.10	HP AC Job Accounting user options	393
12.10.1	Options	393
12.10.1.1	User options	394
12.10.1.1.1	Language/currency	395
12.10.1.1.2	Number of lines in lists	395

12.10.1.1.3	Email address	396
12.10.1.1.4	Data format	396
12.10.1.2	Set passwords	397
12.10.1.3	Queries in progress	397
12.10.1.4	Print organization	398
12.11	Perform a query	399
12.11.1	Queries	399
12.11.1.1	Initiate a query	400
12.11.2	HP Access Control (HP AC) Job Accounting queries	400
12.11.2.1	Query types	401
12.11.2.1.1	Users	401
12.11.2.1.2	Printers	404
12.11.2.1.3	Cost centers	408
12.11.2.1.4	Costs	409
12.11.2.1.5	Printer options	411
12.11.2.1.6	Allocation	412
12.11.2.1.7	Quota	414
12.11.2.2	Launch a query	414
12.11.2.3	Default mode	415
12.11.2.4	Parameterized mode	415
12.11.2.5	Edit results	416
12.11.3	Parameterize queries	416
12.11.3.1	Name a query	417
12.11.3.2	Recipient email addresses	417
12.11.3.3	Select the domain	417
12.11.3.4	Group	417
12.11.3.5	End user	417
12.11.3.6	Document titles starting with..	418
12.11.3.7	Print server	418
12.11.3.8	Printer queue	418
12.11.3.9	Set printer models	418
12.11.3.10	Printer	418
12.11.3.11	Date	418
12.11.3.12	Printing date from	418
12.11.3.13	To	418
12.11.3.14	Time lapse	418
12.11.3.15	Printing for the last..	419
12.11.3.16	First n..	419
12.11.3.17	Number of printed pages	419
12.11.3.18	Printing cost	419
12.11.3.19	Currency	419

12.11.4 Schedule queries	419
12.11.4.1 Once	420
12.11.4.2 Daily	421
12.11.4.3 Weekly	421
12.11.4.4 Monthly	422
12.11.4.5 Monthly with relative interval	423
12.11.4.6 Run when idle	424
12.11.4.7 Modify display parameters	425
12.12 Query results	425
12.12.1 Query table	426
12.12.2 Query status	426
12.12.3 Viewing schedule parameters	427
12.12.4 Display results	427
12.12.4.1 Information provided	427
12.12.5 Display types	428
12.12.5.1 Manage results	432
12.12.5.2 Modify parameters	432
12.12.5.3 Modify the display	433
12.13 Report management	434
12.13.1 Report management page	434
12.13.1.1 Create a report	434
12.14 Allocation	436
12.14.1 Create allocation profiles	437
12.14.2 Modify profile structure	438
12.14.3 Modify field values	438
12.14.4 Modify default value	439
12.14.5 Modify list	439
12.14.6 Delete allocation profiles	440
12.14.7 Link a job to an allocation profile	441
12.14.8 Modify allocation information	443
12.15 Quota module	444
12.15.1 Quota defaults	445
12.15.2 Quota user	447
12.15.3 Quota cost center	448
12.15.4 Quota printers	448
12.15.5 Assign quota printers to cost center	449
12.15.6 Import quota	450
12.15.7 Assign cost centers to quota account	452
12.15.8 Configure quota for printing using print server	453
12.15.9 Adding new users to the quota control	454
12.15.9.1 First print	454

12.15.9.2	First access to the MyQuota	455
12.15.9.3	First install of Quota Client	456
12.15.9.4	Import quota	456
12.15.10	End user notification	457
12.16	Quota Client	457
12.17	MyQuota website	458
12.18	Job Accounting Print Client	458
12.19	External reports	459
12.19.1	Report activities	460
12.19.2	External report management	460
12.19.3	Manage folders	461
12.19.4	Manage data sources	461
12.19.5	Add a data source	461
12.19.6	Manage models	462
12.19.6.1	Add a model	463
12.19.6.2	Delete a model	463
12.19.6.3	Assign data source to model	463
12.19.7	Manage reports	464
12.19.7.1	Add a report	464
12.19.7.2	Assign model to report	465
12.19.7.3	Assign data source to report	466
12.19.7.4	Delete a report	466
12.19.8	Launch external report	466
12.19.9	JA reports in SQL Server Reporting Services	467
12.20	HP AC Job Accounting Dashboard	476
12.20.1	Introduction	476
12.20.1.1	Requirements	476
12.20.1.2	Installation	476
12.20.1.2.1	Silent mode installation	480
12.20.1.3	User guide	481
12.20.1.3.1	Default Dashboard	481
12.20.1.3.2	My Dashboard	485
12.20.1.3.3	Basic Designer	486
12.20.1.3.4	Advanced Designer	488
12.21	Configuring for Print Server tracking	493
13	Pull Print Savings	494
14	Licensing	495
14.1	Licensing the product	495
14.2	License tile	496

14.3 License expiration	496
15 Best practices and troubleshooting	497
15.1 Importing and Exporting settings	497
15.2 Backing up the database for re-installation	497
15.3 Server information	497
15.4 FDT section	497
15.5 Limit the AD-Authenticator managerial websites to specific users	498
15.5.1 IIS 7	498
15.6 Customize the user code and device function rights email message	499
15.7 Logs	500
15.7.1 IPM logs	500
15.8 Troubleshoot the AD-Authenticator	501
15.8.1 Internet Explorer cannot display the web page	501
15.8.2 No LDAP server configured and unable to obtain one automatically	502
15.8.3 Unable to establish a secure connection with the server	502
15.8.4 Unable to auto-detect a SMTP server	502
15.9 Redeploying workflows to devices	502
15.10 Troubleshooting devices	502
15.10.1 Troubleshooting OfficeJet Pro devices	502
15.11 Slow authentication	503
15.12 Blocking disabled AD users	503
15.13 Resetting XT devices	504
15.14 Post installation tasks	504
15.15 Enabling CORS on FutureSmart devices	505
15.16 User rights not being enforced	505
15.17 Reinstalling HP OPS	506
15.18 Changing the drive where HP AC Enterprise stores pull print jobs	511
15.19 Configure a user account to logon as a service without interactive logon rights	511
16 Appendix A: Network ports and firewalls	522
16.1 Secure Pull Print Server ports	522
16.2 Authentication Server ports	524
16.3 Job Accounting and Intelligent Print management Server ports	525
16.4 Client PC and Mobile Devices Ports and Applications	526
16.5 Print device ports	528
16.6 Multi-server communication	529
16.7 Firewall	529

17 Appendix B: Remote SQL Server requirements	532
17.1 HP Access Control (HP AC) Job Accounting Remote SQL Server	532
17.2 Database access when HP Access Control (HP AC) Job Accounting is installed using a remote SQL Server	532
17.2.1 Using Windows Authentication (default)	532
17.2.2 Using SQL Authentication	533
17.2.3 Common steps for Windows and SQL authentication	533
18 Appendix C: Installing and configuring HP AC on the ScanJet Enterprise 8500	534
18.1 Overview	534
18.2 Installing the Agent	534
18.3 Configuring the Agent	535

List of tables

Table 2-1	Supported HP FutureSmart devices	16
Table 2-2	Supported HP non-FutureSmart devices	18
Table 2-3	Supported HP S900 series devices	18
Table 2-4	Supported HP OfficeJet Pro devices	18
Table 2-5	Supported HP PageWide Pro devices*	18
Table 9-1	User List Editor details	262
Table 9-2	User List Editor – LDAP Server login information	263
Table 9-3	User List Editor — SMTP Server login information	266
Table 9-4	User List Editor — Message details	266
Table 12-2	Media priority	385
Table 12-3	Language/currency	395

List of figures

Figure 2-1	Spool settings	16
Figure 4-2	SNMP information	58
Figure 6-1	User identifier in the SPP Enterprise tab	148
Figure 6-2	Agents section in Advanced tab	149
Figure 9-2	DB User Editor	261
Figure 9-3	User List Editor – Import Users	263
Figure 11-2	Bonjour service	299
Figure 11-3	Column settings	300
Figure 11-4	Analysis settings	301
Figure 11-5	Cost settings	301
Figure 11-8	New schedule meeting	304
Figure 11-9	Modify a schedule	304
Figure 11-10	FTP settings	305
Figure 11-12	Start DNS	306
Figure 11-13	Stop multicast DNS discovery	307
Figure 11-14	IP range scan	307
Figure 11-15	Estimated completion time	308
Figure 11-16	Scan completed	308
Figure 11-18	Customize columns	311
Figure 11-19	Sum average	314
Figure 11-20	Log option	314
Figure 11-21	Clear activity log	315
Figure 11-22	Search field	315
Figure 11-23	Device options	315
Figure 11-26	Statistic data display	319
Figure 11-27	Statistics scan	319
Figure 11-28	Statistic graphic	319
Figure 12-1	Go and Cancel icons	340
Figure 12-2	Define exchange rate	342
Figure 12-3	Modify a currency	343
Figure 12-4	Retrieve user data	345
Figure 12-5	Group Organization	346
Figure 12-6	Group selection	347
Figure 12-7	Group management icons	348
Figure 12-8	Manual assignment	349
Figure 12-9	Manual scan	350

Figure 12-10	Customize report	350
Figure 12-11	Customize report columns option	351
Figure 12-12	Email configuration	352
Figure 12-13	Create an address	353
Figure 12-14	Modify an address	353
Figure 12-15	Confirm deleted address	354
Figure 12-16	Create distribution list	355
Figure 12-17	Modify Distribution list	355
Figure 12-18	Modify distribution list content	356
Figure 12-19	Verify distribution list deletion	356
Figure 12-20	Modify server configuration	357
Figure 12-21	Configure email server	358
Figure 12-23	Create a template	360
Figure 12-24	Assign a template	361
Figure 12-25	Select templates to delete	362
Figure 12-26	Verify template selection	362
Figure 12-27	Device Host Name	363
Figure 12-28	Device Name	364
Figure 12-29	Administration / Print server status	364
Figure 12-30	Printers list	365
Figure 12-31	Print server tile	365
Figure 12-32	Device folder	370
Figure 12-33	DesignJet configuration	371
Figure 12-34	Add or remove DesignJet printers	371
Figure 12-35	Schedule job retrieval	372
Figure 12-36	Schedule DesignJet retrieval	372
Figure 12-37	SAP tracking	373
Figure 12-40	Printer internal website	375
Figure 12-41	Manually define printer	376
Figure 12-42	Page cost management	377
Figure 12-43	Processing icon	377
Figure 12-44	Actual printer costs	378
Figure 12-45	Create a cost	379
Figure 12-46	Delete printer cost	380
Figure 12-47	Actual costs: media	381
Figure 12-48	Media costs	381
Figure 12-49	Fixed costs management	382
Figure 12-50	Create a fixed cost	383
Figure 12-51	Costs priority rules	384
Figure 12-52	Costs priority rules defined	384
Figure 12-53	Modify a fixed cost	385

Figure 12-54	Delete a fixed cost	386
Figure 12-55	Leasing costs	387
Figure 12-56	Modify leasing costs	387
Figure 12-57	Modify a cost	388
Figure 12-58	Schedule: Costs calculation	389
Figure 12-60	Import cost center data	391
Figure 12-61	Delete a cost center	391
Figure 12-62	Assign users to cost center	392
Figure 12-63	Assign printers to cost center	393
Figure 12-66	Query table with 10 lines	396
Figure 12-67	Query table with 5 lines	396
Figure 12-68	Change password	397
Figure 12-69	Query columns	398
Figure 12-70	Print organization columns	399
Figure 12-72	New query — users	402
Figure 12-73	Query printers	405
Figure 12-74	Query cost centers	408
Figure 12-75	Query costs	410
Figure 12-76	Query printer options	411
Figure 12-77	Query allocation	412
Figure 12-78	Query quota	414
Figure 12-79	New Query page	415
Figure 12-80	Parameterized mode	416
Figure 12-83	Query frequency: daily	421
Figure 12-84	Query frequency: weekly	422
Figure 12-85	Query frequency: monthly	423
Figure 12-86	Query frequency: monthly, with relative interval	424
Figure 12-87	Query frequency: run when computer dies	425
Figure 12-88	Edit query table	425
Figure 12-89	Queries in progress	426
Figure 12-90	Query status — possible results	427
Figure 12-91	Query information	428
Figure 12-100	Manage results	432
Figure 12-101	Modify query parameters	433
Figure 12-103	Customize report	435
Figure 12-104	View report link	436
Figure 12-106	Create allocation profile	437
Figure 12-107	Allocation profile information	437
Figure 12-108	Change profile structure	438
Figure 12-109	Verify delete fields	438
Figure 12-110	Modify field value	439

Figure 12-111	Modify default value	439
Figure 12-112	Modify list	440
Figure 12-113	Select Allocation to delete	441
Figure 12-114	Verify delete allocation	441
Figure 12-115	Job allocation	442
Figure 12-116	Result display, allocation	442
Figure 12-117	Add allocation profile parameters	443
Figure 12-118	Allocation profile	443
Figure 12-119	Modify allocation information	443
Figure 12-121	Quota defaults	445
Figure 12-122	Quota user	447
Figure 12-123	Quota cost center	448
Figure 12-124	Quota printers	449
Figure 12-125	Assign to cost center	450
Figure 12-126	Import quota	451
Figure 12-127	Create an account	452
Figure 12-128	Assign cost center	452
Figure 12-129	Manage cost center quotas	453
Figure 12-130	Enable quota for print	454
Figure 12-131	Print server quota	454
Figure 12-132	User button	455
Figure 12-133	Welcome screen	456
Figure 12-134	Import Quota	457
Figure 12-135	User quota limit	458
Figure 12-136	MyQuota web interface	458
Figure 12-137	Job Accounting client — Printer configuration	459
Figure 12-138	External report management	460
Figure 12-139	Manage folders button	461
Figure 12-140	Manage data sources	461
Figure 12-141	Add a data source	462
Figure 12-143	Add a model	463
Figure 12-144	Assign data source to model	464
Figure 12-146	Add a report	465
Figure 12-147	Add model to report	465
Figure 12-148	Assign data source to report page	466
Figure 12-149	External report button	467
Figure 12-150	Parameterized query	467
Figure 12-155	Dashboard custom setup	481
Figure 12-157	users area	482
Figure 12-158	Direct reports data	482
Figure 12-159	Data graphs area	483

Figure 12-160	Data graphs popup icon	484
Figure 12-161	Data grid area	484
Figure 12-162	Group data	485
Figure 12-165	Basic Designer toolbar	487
Figure 12-166	Data checklist	488
Figure 12-167	My Dashboard Data grid area	488
Figure 12-169	Advanced Designer toolbar	489
Figure 12-170	Job Accounting report dimensions - drop-down menu	490
Figure 12-171	Columns/Rows/Filter area	490
Figure 12-172	Member editor	491
Figure 12-173	Report viewer	491
Figure 12-174	Filter tab	492
Figure 12-175	Sorting tab	493
Figure 14-1	License tile	496

1 Introduction

With HP Access Control (HP AC), an HP JetAdvantage Security Solution, you can protect confidential information, enhance device security and management, while improving company-wide printing policies. Providing a cost-effective way to create a more secure and efficient imaging and printing environment, HP Access Control Solutions transforms imaging and printing practices while reducing costs and keeping data and devices secure.

This manual covers the installation and configuration of HP AC v16.x. For HP AC Enterprise v15.x, please go to www.hp.com/go/hpacdocumentation to download the appropriate manual.

1.1 Terminology

Due to the fact that there are many components and processes in HP AC, knowing and using the proper terminology when discussing the product is important. The following terminology will be used throughout this manual:

- **MFP** Multi-function printer, or printer. These terms may be used interchangeably.
- **EWS** Embedded Web Service. This refers to an MFP's administrative Web pages.
- **Agent** The term **agent** generally refers to the workflow and all supporting software located on the server and MFP to provide the documented features.
- **Workflow** A workflow is an "app" that gets pushed to the device. It is what the end user interacts with to perform pull-printing or other activities.
- **Install** In the context of HP AC, install, or installation, refers to the installation of components to the HP AC server. Generally, this is done by executing a Windows installer or Microsoft installer (MSI).
- **Deploy** In the context of HP AC, deploy, or deployment, refers to the process of uploading all necessary components to a printer, as well as the automatic configuration that is performed by the HP AC server.
- **Configuration** In the context of an HP AC agent or workflow, configuration generally refers to the manual configuration of a printer. This may be required to complete a deployment or may be optional depending on the printer, vendor, and model.
- **PERSONALQ** A personal print queue designed to hold print jobs until released or deleted.

1.2 Solution benefits

It is now easier than ever to protect print jobs and devices, improve workflows, and monitor printing practices—all while reducing costs and supporting organization-wide security, compliance, and environmental initiatives. Designed to integrate easily with HP and other printing devices, you can select specific HP Access Control Printing Solutions to address your needs.

Some of the benefits you can experience with the HP Access Control Solution include:

- **Secure Authentication:** Access Control Secure Authentication offers a variety of authentication options—including Windows authentication, HP proximity card readers, PIC/PIN codes—to protect your devices and prevent unauthorized use.

[Learn more about Secure Authentication](#)

- **Secure Pull Printing:** HP Access Control Secure Pull Printing reduces unclaimed prints and increases efficiency. Users can print to a secure network, authenticate with ease, and retrieve jobs when necessary—even on the go.

[Learn more about Secure Pull Printing](#)

- **Job Accounting:** HP Access Control Job Accounting makes it easy to accurately track and gather data, analyze the results, and then create and send reports. Apply mined data to allocate print costs, motivate employees to print smarter, and provide IT with the necessary information to improve fleet-wide forecasts.

[Learn more about Job Accounting](#)

- **Intelligent Management:** HP Access Control Intelligent Management solutions help you control device usage, modify behavior, reduce costs, and enforce security goals.

[Learn more about Intelligent Management](#)

1.3 Comparison of Express, Enterprise, and Pull Print Only installation bundles

The following table describes and compares the features available on the three installation bundles.

Solution	Feature Definition	HP AC Express	HP AC Enterprise	HP AC Pull Print Only
Feature List				
Secure Pull Printing				
Enterprise Spooling Systems	Using Enterprise Spooler	Yes	Yes	Yes
Windows Spooling System	Using Windows print servers	Yes	Not Best Practice	Not Best Practice
Windows "Point and Print" support	Supports Windows Point and Print	Yes	Not Best Practice	Not Best Practice
Control built-in MFP features	Allows control of the use of Copy, Scan, Email and Fax functions on a multi-function device (MFP)	Yes	Yes	Yes
Enrollment via LDAP/AD	Using Embedded AD/LDAP for enrollment of user CARD information	Yes	Yes	Yes
Assured Delivery	Job status checked through output on device	No	Yes	Yes
Delegate Printing	Send print job that ANOTHER, DELEGATED User (or Group) can release	No	Yes	Yes
Alias support	LDAP is required for user identification	Yes	Yes	Yes
Client-Based Pull Printing	Print job storage on local user's work station	No	Yes	Yes
End to End Encryption	Print job encryption	Yes	Yes	Yes
Mobile Printing	Printing from Mobile Devices	Yes	Yes	Yes
Central Job Storage	Store all print jobs in a shared storage between servers	No	No	No
Roaming	Print to one server, release from another	No	Yes	Yes
One-Touch-Release	Authentication automatically prints all waiting jobs	Yes	Yes	Yes
Authentication				

Solution	Feature Definition	HP AC Express	HP AC Enterprise	HP AC Pull Print Only
Feature List				
Card authentication	Using a card technology for user identification	Yes	Yes	Yes
Code authentication	Using PIN or PIC codes for user identification	Yes	Yes	Yes
Card or Code authentication	Use of both card and PIC/PIN for user identification	Yes	Yes	Yes
Dual Factor authentication	Requiring both card AND PIN/PIC for user identification	Yes	Yes	Yes
Alternate authentication	Card Authentication or Windows Authentication	Yes	Yes	Yes
Database Storage	Storage of badge and/or PIN/PIC codes in an external DB	Yes	Yes	Yes
Active Directory (AD) Storage	Storage of badge and/or PIN/PIC codes in Active Directory (AD)	Yes	Yes	Yes
Swipe and release all on SFP	Prints all pending jobs upon single user log in	Yes	Yes	Yes
Import users in database (CSV)	Allows uploading of user information via import file	Yes	Yes	Yes
Multi-Domain Support	Supports users across multiple domains	No	Yes	Yes
SFP support via built-in keypad	Solution allows PIN/PIC entry using single-function printer (SFP) built in Keypad	Yes	Yes	Yes
Authorization				
User right management	Allows MFP rights management at the (individual) USER level	Yes	Yes	Yes
Group right management (LDAP)	Allows MFP rights management at the GROUP level (AD Groups)	Yes	Yes	Yes
Rules-based Printing				
Intelligent Print Management (IPM)	Rules-based printing	No	Yes	No
Job Tracking				
Job Accounting	Job tracking	Yes	Yes	No
Allocation	Allows release-time entry of user input metadata	Yes	Yes	No
Quota	Print volume control	Yes	Yes	No
High Availability				
Network Load balancing - <i>Authentication</i>	High availability support for IIS and Web Services	No	Yes	Yes
Network Load balancing - <i>Job Retrieval</i>	High availability support for IIS and Web Services	No	Yes	Yes
Network Load balancing - <i>Job Submission</i>	High availability support for IIS and Web Services	No	Yes	Yes
Load Balancer Group Sync	Allows synchronization with grouped servers	No	Yes	Yes
Central Management & Deployment	Allows central device management and deployment in multi-server environment	No	Yes	Yes
Microsoft Failover Clustering	High availability for print job submission	No	Yes	Yes
Microsoft SQL Always On	Microsoft high availability for SQL databases	Yes	Yes	Yes

Solution	Feature Definition	HP AC Express	HP AC Enterprise	HP AC Pull Print Only
Feature List				
Device Discovery & Analysis				
Device Analysis	Network device scanning	No	Yes	Yes
Multi-vendor Support				
Multi-vendor Support	Solution supports non-HP devices	Yes via MFPsecure	Yes via MFPsecure	Yes via MFPsecure

* Express does not support multiple domains, but it does support using a Global Catalog.

1.4 Solution components

An organization's printing environment can consist of one or more HP AC print servers. As each print server is capable of managing a very large number of printers, the decision to run multiple servers is normally dictated by geographical location or operational units.

Each print server is capable of independent operation but is managed by one or more ServerX servers. Each HP AC print server can register with one or more ServerX servers to enable central control and a single view of all printers across the enterprise.

The ServerX component provides a central directory of all HP AC servers and their associated printers. All HP AC print servers that are registered with ServerX provide continual updates on the status of all devices. This enables ServerX to build a single view of all printers throughout the enterprise. ServerX then acts as the focal point for all access to HP AC servers and printers.

The NetX component is a multi-threading Web application server that provides a common execution environment.

HP Access Control (HP AC) software is comprised of the components and corresponding tasks listed in the following table.

Component	Type	Task
Enrollment Service (IRM Authentication Web Service)	IIS Web Service	Match user's credentials to a PIN or Badge number and store details in Active Directory or SQL.
Authentication Service (IRM Authentication Web Service)	IIS Web Service	Match user's previously stored PIN or Badge number to user authenticating at the device allowing secure access to the function requested (i.e. secure print, email, copy).
User Rights (IRM/DRA Authorization Web Service)	IIS Web Service	Validates user rights to access MFP walk-up functions (i.e. copy in color).
Licensing Service	IIS Web Service	Validates device licensing for pull printing & authentication (24 hours for FutureSmart devices, every hour for non-FutureSmart devices). Validates user licensing for job accounting (checks every 24 hours).
OXPd Professional Service (OPS)	IIS Web Service	Hosts printer configurations for OfficeJet Pro devices.
Intelligent Print Management (IPM) Enterprise Bundle only	IIS Web Service	Manages and controls printing processes by setting conditions, actions and notifications (i.e. force to monochrome).
Print job list retrieval (SPP Web Service)	IIS Web Service	Build a print job list for the authenticated user for job selection or deletion.
Print job retrieval (SPP Web Service)	IIS Web Service	Retrieve requested print job and send to the device the user is authenticated at.

Print job submission (Enterprise Spooler)	HP AC Enterprise Service	Submit print job to be stored in the spool directory for future retrieval.
Print job submission (Enterprise with shared queues)	HP AC Port	Submit print job to be stored in the spool directory (for future retrieval).
Job Accounting Statistics Service	IIS Web Service	Collects XML files from HP FutureSmart devices.
Job Accounting Data Collector	IIS Web Service	Collects XML printer data from devices (push) via HTTP, or HTTPS.
Job Accounting Web Server	IIS Web Service	Queries the Job Accounting Database server to access the data and enables navigation through the application via web browser.
Enterprise License	Windows Service	Allows for a centralized license server without having to duplicate licenses on additional servers. The license service will communicate to the license database.

1.5 HP Access Control (HP AC) Express

HP AC Express includes Job Accounting, Authentication and Authorization, and Secure Pull Printing.

The solution includes the following components:

- **Authorization (Intelligent Rights Management):** Provides individual or group-level access to use device functions (i.e. copy, email, etc.)
- **Authentication:**
 - PIN/PIC (numeric or alphanumeric user ID code)*
 - Proximity Cards
 - Touch-to-Sign-In from mobile devices with NFC support
 - Windows authentication (alternative authentication for proximity cards)*




NOTE: *Not supported on non-FutureSmart single-function printers

- **Job Accounting:** Track print device usage and generate detailed reports.
 - **Job Accounting Server:** Install the Job Accounting component to generate detailed reports of print device usage information.
 - **In-Device tracking:** Through an agent component or as part of the device's firmware for in-printer tracking of printer usage.
 - **Quota (copy and digital sending) and Allocation**
 - **Print Server:** Installs the Printer Configuration component to configure printers for tracking or quota for devices that do not support in-printer agents.
- **Secure Pull Print:** Install the Secure Pull Print component to securely release print jobs.

1.6 HP Access Control (HP AC) Enterprise

HP AC Enterprise includes Job Accounting, Authentication and Authorization, Secure Pull Printing, and Intelligent Print Management (rules based printing).

The Secure Pull Print solution includes the following components:

- **Authorization (Intelligent Rights Management):** Provides individual or group-level access to use device functions (i.e. copy, email, etc.)
 - **Authentication:**
 - PIN/PIC (numeric or alphanumeric user ID code)*
 - Proximity Cards
 - Touch-to-Sign-In from mobile devices with NFC support
 - Windows authentication (alternative authentication for proximity cards)*
-
-  **NOTE:** *Not supported on non-FutureSmart single-function printers.
-
- **Job Accounting:** Track print device usage and generate detailed reports.
 - **Job Accounting Server:** Install the Job Accounting component to generate detailed reports of print device usage information.
 - **In-Device tracking:** Through an agent component or as part of the device's firmware for in-printer tracking of printer usage.
 - **Quota (copy and digital sending) and Allocation**
 - **Intelligent Print Management (IPM):** Create conditions, actions, and notifications for rules-based printing.
 - **Device Analysis:** Gathers information about networked printers and creates detailed analysis reports.
 - **Secure Pull Print:** Install the Secure Pull Print component to securely release print jobs and for remote printing.
 - Enterprise Spooler
 - Pull printing including Roaming
 - Delegate Printing
 - Assured Job Delivery
 - Client-based pull printing (with local job storage)
 - **Job Accounting:** Track print device usage and generate detailed reports.
 - **Print Server:** Installs the Printer Configuration component to configure printers for tracking, quota, or rules-based printing (IPM) for devices that do not support in printer agents.

1.6.1 Server installation

Server installation allows you to choose which options are to be installed on the target server. This allows IT administrators to install only the functions needed in a multi-server environment to support pull printing, authentication, and job accounting requirements. This is most useful when the customer environment requires separate, dedicated servers. For example, some customer environments require one dedicated authentication server, a separate dedicated pull printing server, and yet another dedicated job accounting server.

1.6.2 Stand-alone print server installation


Stand-alone server installation allows you to install either Job Accounting or rules based printing (IPM) on separate servers. This allows IT administrators to install print server functions needed in a multi-server environment to support print server tracking, or rules-based printing from a print server.

2 Solution requirements

The HP Access Control (HP AC) installation detects what components are required to run HP AC on your system, and then automatically installs the required components. The following sections list the required components for HP AC, according to the installation bundles.


2.1 Minimum server hardware requirements

- **CPU:**
 - Dual-core 1.6GHz recommended
 - Medium size production servers (500,000 to 1 million pages/month): 4 x CPU
 - Large size production servers (+ 1 million pages/month): 8 x CPU
- **Memory:**
 - Medium size production servers: 8-12 GB RAM is recommended (500,000 to 3 million pages per month)
 - Large size production servers: 12-16 GB RAM is recommended (beyond 3 million pages per month)
 - Additional 2 GB RAM if SQL is running on the same server as HP AC.
- **Disk Space:**
 - **Job Storage:** 100 MB plus the expected average storage space by user multiplied by number of users (50 MB x 10 users = 500 MB).

 **NOTE:** If print storage is unknown then a good reference number for planning is 50 MB/user.


- **Network Connectivity:**
 - 1NIC with TCP/IP and UDP supported, minimum 1 Gbps recommended

2.2 Server requirements

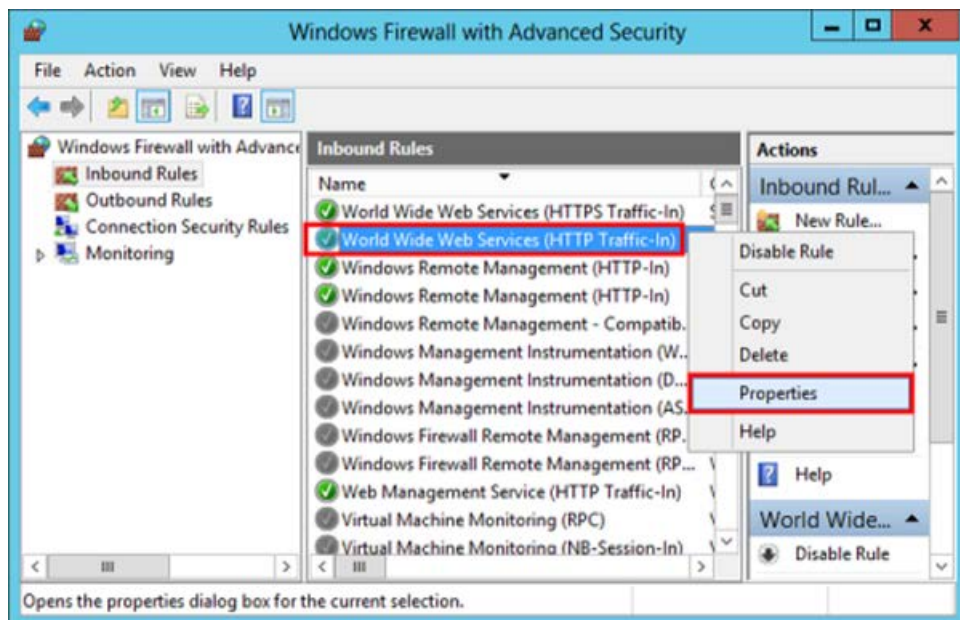
 **NOTE:** Ensure you consult with HP before installing HP Access Control on a server hosting any other software applications.

- **Operating system (64-bit):**
 - Windows Server 2012
 - Windows Server 2012 R2
 - Windows Server 2016
 - Windows Server 2019
- **Job Accounting:**
 - For non-FutureSmart HP devices, Microsoft Internet Information Service requires that HTTP upload (port 80 with basic authentication) be allowed.
 - For Job Accounting tables and charts to display, Microsoft Excel 2007 or newer is required.

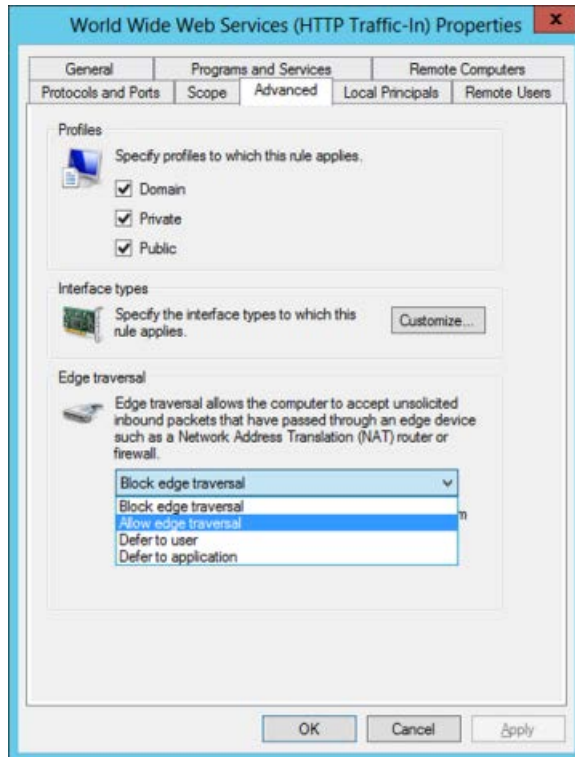
- Other:
 - HP AC requires HTTPS. Make sure IIS has HTTPS binding enabled and a certificate is installed. See [Section 4.2.4.1, Generating self-signed v3 Certificates](#) or [Section 4.2.5, Using the customer's signed certificate](#) in this guide for more information on enabling HTTPS binding and selecting a certificate.
 - Server joined to the same domain as the end-users, or to a domain with a trust relationship with the end users.
 - Static IP address
 - All security patches up to date (as per Windows Update)
 - **HP AC Enterprise:** LPD Service or Unix Printing service disabled, or you will be required to change the default ports HP AC Enterprise Spooler uses.
 - v3 supported printer drivers
 - Microsoft UrlScan (or any similar port/protocol blocking tool) must not be installed on the same server as HP AC.
 - **Antivirus:** To improve performance, it is recommended to exclude the "HP Access Control\Logs" folder and the "HP Access Control\spoolroot" folder from the antivirus scan.
 - HP AC cannot be installed on a server with Windows Server Update Services (WSUS) installed.
 - **Windows Firewall:** To ensure reliable connections between the server and printing devices, it is highly recommended to turn off the firewall on the HP AC server. If the firewall cannot be disabled:

 **NOTE:** The Windows Firewall recommendations apply when connecting to HP FutureSmart devices with firmware older than version 3.2.1, and when connecting to HP non-FutureSmart devices with firmware older than version 13.3.5.

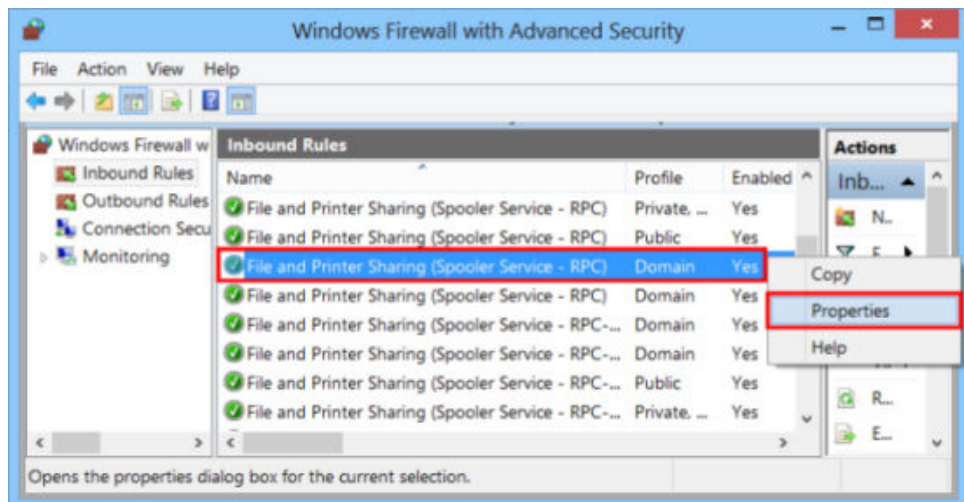
1. Configure the server to accept inbound packets from devices that have passed through the firewall by changing the World Wide Web Services properties. On the HP AC server, go to Control Panel > Windows Firewall > Advanced Settings > Inbound Rules. Right-click the World Wide Web Services (HTTP traffic-in) and select **Properties**.



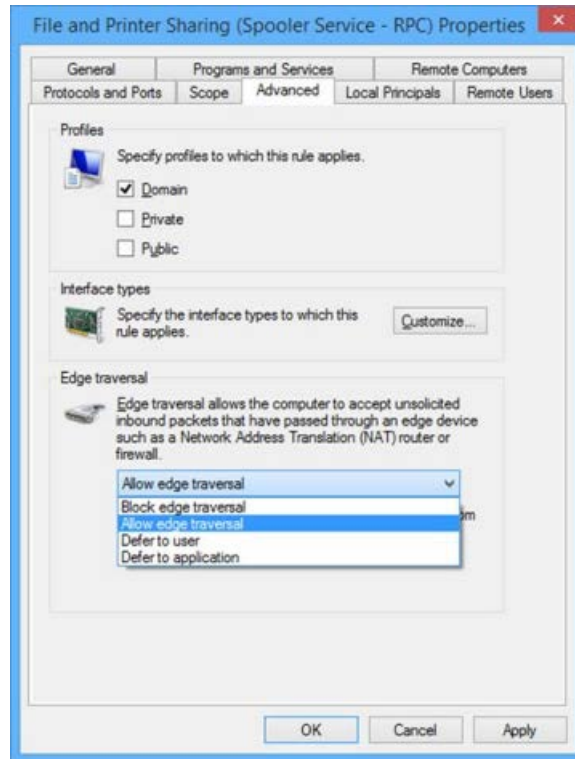
2. In the Advanced tab, under Edge Traversal, select **Allow Edge Traversal** and click OK.



3. Allow the server to accept inbound packets from devices that have passed through the firewall by changing the Spooler Service properties. On the HP AC server, go to Control Panel > Windows Firewall > Advanced Settings > Inbound Rules. Right-click **File and Printer Sharing (Spooler Service – RPC)** and select **Properties**.



4. On the Advanced tab, under Edge Traversal, select **Allow edge traversal** and click **OK**.



2.2.1 Virtualization

HP AC will function in any virtualized environment (e.g. VMWare or Microsoft Hyper-V) capable of running any of the supported operating systems. Virtualization is transparent to HP AC.

2.2.2 Minimum IIS requirements

Web Server (IIS) Features: Required for HPAC websites and web services, including authentication, pull printing, job accounting, and licensing, and for communicating between devices and servers.

- Common HTTP Features
 - Default Document: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - HTTP Errors: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - Static Content: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - WebDAV Publishing: Required for the server to receive tracking files from printers.
- Health and Diagnostics
 - HTTP Logging: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - Request Monitor: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
- Security

- Request Filtering: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
- Basic Authentication: Required for HP non-FutureSmart devices to push tracking files to the Job Accounting server.
- Windows Authentication: Required for authenticating users in the mobile release app.
- Application Development
 - .NET Extensibility 4.5: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - ASP: Required for the Job Accounting webpages.
 - ASP.NET 4.5: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - CGI: Required to display the PersonalQ, Settings, and Devices tiles in the admin console.
 - ISAPI Extensions Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
 - ISAPI Filters: Required for HPAC web services such as authentication, pull print, job accounting, and licensing.
- Management Tools
 - IIS Management Console: Required to use the IIS 7 user interface for managing HPAC web services and webpages.
 - IIS 6 Management Compatibility:
 - IIS 6 Metabase Compatibility: Required to manage HPAC application pools.
 - IIS 6 Management Console: Required to manage HPAC application pools.
 - IIS 6 Scripting Tools: Required to manage HPAC application pools.
 - IIS 6 WMI Compatibility: Required to manage HPAC application pools.


2.3 Database server requirements


Database server requirements are as follows:

- Microsoft SQL:
 - 2008, 2012, 2014, 2016, 2017
- *Sysadmin* or *dbcreator* role for the Windows account used to run the installer or for the SQL account.
 - After installation, the account can be changed to be a member of the *db_owner* database role or a member of the *db_datareader* and *db_datawriter* database roles. The *db_owner* database role can perform all configuration and maintenance activities on the database. The *db_datareader* database role can run a *SELECT* statement against any table or view in the database. The *db_datawriter* database role can add, delete, or change data in all user tables.



IMPORTANT: If the Login is a member of the *db_datareader* and *db_datawriter* database roles, *Execute* permissions (in database Properties) must be granted to the user.

 **NOTE:** If Job Accounting is installed, an SQL account named HPACJA is created. After installation, the HPACJA account has Public rights, so it cannot be used to create new databases, such as for enrollment or license databases. If you want to use the HPACJA account to create other databases, you will have to assign dbcreator rights to the account via SQL Management Studio.

 **NOTE:** Starting with HP AC 16.4, an SQL database in Microsoft Azure can be used for the Job Accounting or IRM database.

2.3.1 Job Accounting database server requirements (remote)

For a remote SQL Server running SQL 2005 or later, the database must be created using an SQL login. The setup does not create an SQL login for HP AC Job Accounting, and a trusted connection will be used with named pipes. The Job Accounting Agent must be started with a domain account, to connect to the remote database.

2.4 Infrastructure requirements

Infrastructure requirements are as follows:

- Information to connect (for user authentication) to Active Directory or LDAP server that contains user details:
 - **Multiple Domains**
 - **User codes/Badge IDs:** If storing in AD, an AD attribute (indexed) with a service account that has write/edit privileges to that attribute.
 - **User Rights:** If storing in AD, an AD attribute (indexed) with a service account that has write/edit privileges to that attribute.
- DNS server to resolve hostnames of the HP AC servers and hostnames of the printers and MFPs.
- Domain account to run solution services:
 - Has local admin rights on the HP AC server.
 - Has logon as a service rights.
 - Has a process to renew password prior to expiration time or set not to expire.
- SMTP gateway to send notifications and Job Accounting reports.
- Required ports open (see Appendix A: Network Ports Required)
- To create a queue for Job accounting, IPM, or Pull Printing, a Windows v3 driver must be used. Windows v4 print drivers are not supported.
- It is recommended to create a separate service account for HP AC, and not use a shared service account that is used by other applications.

2.5 Supported operating systems for Pull Printing

2.5.1 Pull Printing using a Shared Server Queue

Prerequisites

- Shared pull print queue on the HP AC server (Enterprise).

Operating System

- Microsoft Windows 7 (32 or 64 bit)
- Microsoft Windows 8 (32 or 64 bit)
- Microsoft Windows 8.1 (32 or 64 bit)
- Microsoft Windows 10 (32 or 64 bit)
- Macintosh 10.6.5 or newer
- Citrix
 - Print job must include the user's identification in order to associate the job to the Windows user
 - Auto-created shared pull print queues using the SPP Enterprise Port
- Non-Windows clients
 - Must be able to print to a Windows queue that contains a unique username that is not defaulting to a standard service account.

2.5.2 Pull Printing using a Local Queue (Enterprise only)

Operating System

- Microsoft Windows 7 (32 or 64 bit)
- Microsoft Windows 8 (32 or 64 bit)
- Microsoft Windows 8.1 (32 or 64 bit)
- Microsoft Windows 10 (32 or 64 bit)
- Mac OS 10.6.5 or newer
- Citrix
 - Auto-created Pull Print queue with the Citrix UPD and LPR queue
 - XenApp Server with local HP AC LPR queue

2.6 Client requirements for HP Access Control Print client

Operating System

- Microsoft Windows 7 (32- or 64-bit)
- Microsoft Windows 8 (32- or 64-bit)
- Microsoft Windows 8.1 (32- or 64-bit)
- Microsoft Windows 10 (32- or 64-bit)

Other

- To create a queue for Job accounting, IPM, or Pull Printing, a Windows v3 driver must be used. Windows v4 print drivers are not supported.
- The HP AC Enterprise Print Client requires .NET Framework 4.6 on the client workstation.
- Client PC connected to the domain, and logged in as an authenticated user.

Permissions

- To create a local port and queue.
- To connect to shared printer queue on HP AC server.

2.7 Client requirements for card enrollment application

Operating system

- Windows 7, 8, 8.1, 10
- Microsoft .NET Framework 4.8

Other

- Users in Active Directory.
- Card reader connected to a client PC connected to the domain, having access to the HP AC server.

2.8 Card Masking utility requirements

Prerequisites

- Microsoft .NET Framework 4.8
- Windows 7, 8, 8.1, and 10
- Card reader connected to a PC connected to the domain, having access to the AD Authenticator server


2.9 Mobile device requirements

- Smart phone connected to the same network as the HP AC server.
- HP ePrint Enterprise app installed. App can be downloaded from:
 - **iOS:** <http://itunes.apple.com>
 - **Windows Phone:** <http://social.zune.net>
 - **Android:** <https://market.android.com>
 - **Blackberry:** <http://www.blackberry.com/appworld>

2.10 HP Printer and MFP requirements

- Device supported by HP AC - with recommended, supported firmware versions.
 - DNS server configured
 - FutureSmart firmware version 3.7 or higher is recommended
 - Static or dynamic IP configured (DHCP reservation preferred)
 - SNMP v1/v2 enabled (default “public” is sufficient), or SNMP v3 enabled
 - Security settings:
 - EWS password required for installation and configuration
 - Remote firmware updates enabled
 - Information tab requires administration access needs to be disabled.

- 9100 Printing, WS-Discovery, OXPd Services, and Web Services print must be enabled.
- File System Password not set
- Command Load and Execute enabled (non-FutureSmart devices)
- IPPS enabled if requiring encryption between the HP AC server and the device
- Required if disabling device ping in the HP AC configuration utility which forces telnet communications only

 **NOTE:** When devices with FS4 firmware go into deep sleep (1-watt sleep mode), power is turned off to the USB ports. There is a chance the USB ports (and card readers) will not reconnect when power is back on. Devices with FS4 firmware include an option in the device EWS > General tab > Energy Settings > Sleep Settings for "Auto Off After Sleep". It is recommended that this option be disabled on any device that has a USB card reader attached, in order to prevent them from trying to go into deep sleep (1-watt mode).

2.11 Server components required

The HP AC installation detects what components are required on your system and then automatically installs the required components. The following table lists the required components for HP AC, for each bundle.

	HP AC Express/Enterprise
Crystal Reports for .Net Framework 2.0	✓
Internet Information Services (IIS)	✓
Microsoft Visual C++ 2005 Redistributable	✓
Microsoft SQL Server Express	✓
Windows Installer 4.5	✓
Microsoft .Net Framework 4.8	✓
Microsoft ADO.Net Entity Framework 4.1	✓
Microsoft Visual C++2008 Redistributable	✓
Microsoft Visual C++ 2010 x86 Redistributable	✓
Apache CouchDB 1.2.0	✓
GneWin32: OpenSSL-0.9.8h-1	✓
Microsoft SQL Server Compact 4.0 SP1	✓
HP OPS	✓

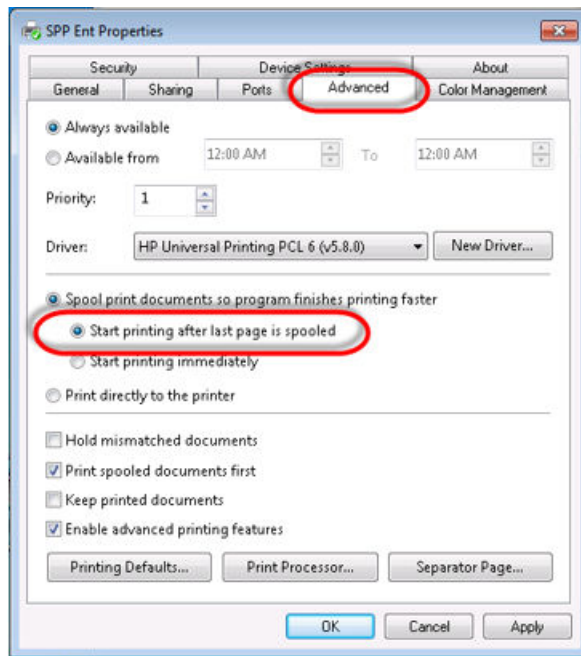
2.11.1 IPM requirements

The installation prerequisites for HP Access Control (HP AC) Intelligent Print Management are:

- Microsoft Office is not required for IPM. However, if Microsoft Office is installed on the same server as IPM, and if IPM is installed on a 64-bit OS, make sure the 64-bit version of Microsoft Office is installed. This is required because Microsoft Access Database Engine x64, which is installed with IPM, works only with the 64-bit version of Microsoft Office.
- Internet Information Services (IIS) with ASP.NET

- A logon with administrative rights
- The print driver set to **Start printing after last page is spooled**

Figure 2-1 Spool settings



- Internet Information Services (IIS) with ASP.NET
 - Verify that IIS is installed correctly by performing the following procedure:
 - Open your Internet browser, and type the Fully Qualified Domain Name of the server in the Address field.
 - The IIS home screen will display.

NOTE: If you are using a proxy server, you may be unable to see this page even if IIS is installed properly. To bypass the proxy server in the web browser, select Tools > Internet Options and select the **Connections** tab. Select **LAN Settings** and check the box to **Use a proxy server for your LAN**. Check **Bypass proxy server for local Addresses** and click **OK**.

If you are still unable to see the page, it may be necessary to restore the browser or default settings in Internet Options. Open a web browser and select Tools > Internet options. Select the **Security** tab and click **Default Level**. Select the **Advanced** tab and click **Restore Defaults**. Click **OK**.

2.12 Supported HP devices

NOTE: For a list of supported multi-vendor devices, please refer to the LRS MFPsecure document.

Table 2-1 Supported HP FutureSmart devices

HP Color LaserJet Enterprise CM4540 MFP series	HP LaserJet Enterprise Flow MFP M525 series
HP Color LaserJet Enterprise CP5520 Printer series	HP LaserJet Enterprise Color Flow MFP M575
HP LaserJet Enterprise 500 Color Printer M551 series	HP LaserJet Enterprise M4555 MFP series
HP LaserJet Enterprise 500 Color MFP M575	HP LaserJet Enterprise MFP M725 series

Table 2-1 Supported HP FutureSmart devices (continued)

HP LaserJet Enterprise 500 MFP M525 series	HP LaserJet Enterprise MFP M830 series
HP LaserJet Enterprise 600 Printer M601 / M602 / M603 series	HP LaserJet Enterprise M806 Printer series
HP LaserJet Enterprise 700 Color MFP M775 series	HP Color LaserJet Enterprise Flow MFP M880 series
HP LaserJet Enterprise 700 Printer M712 series	HP Color LaserJet Enterpriser M855 Printer series
HP Color LaserJet Enterprise M750 Printer series	HP Color LaserJet Enterprise MFP M680 series
HP Color LaserJet Enterprise M651 series	HP OfficeJet Enterprise Color MFP X585 series
HP OfficeJet Enterprise Color X555 series	HP LaserJet Enterprise MFP M630 series
HP Color LaserJet Enterprise M552, M553 series	HP LaserJet Enterprise M604, M605, M606 series
HP Digital Sender Flow 8500*	HP LaserJet Enterprise M506 series**
HP LaserJet Enterprise MFP M527 series**	HP Color LaserJet Enterprise MFP M577 series
HP PageWide Enterprise Color 556	HP PageWide Enterprise Color MFP 586
HP PageWide Managed Color MFP E58650	HP LaserJet Managed MFP E72525, E72530, E72535 series
HP LaserJet Managed MFP E82540, E82550, E82560 series	HP Color LaserJet Managed MFP E77822, E77825, E77830 series
HP Color LaserJet Managed MFP E87640, E87650, E87660 series	HP Color LaserJet Enterprise M652, M653 series
HP LaserJet Enterprise M607, M608, M609 series	HP Color LaserJet Enterprise MFP M681, M682 series
HP LaserJet Enterprise MFP M631, M632, M633 series	HP LaserJet Managed E65050, E65060
HP LaserJet Managed MFP E67550, E67560	HP LaserJet Managed MFP E62555, E62565, E62575
HP LaserJet Managed E60055, E60065, E60075	HP PageWide Color MFP 780, Flow 785, E77650, E77660
HP PageWide Color 765, E75160	HP Digital Sender Flow 8500 fn2 Document Capture Workstation
HP ScanJet Flow N9120 fn2 document scanner	HP PageWide Color P75250dn
HP PageWide Color MFP P77440, P77940, P77950, P77960	HP LaserJet MFP 72425a, 72425dv, E72425, E72430
HP Color LaserJet MFP E77422a, E77422dv, E77422, E77428	HP Color LaserJet Managed MFP E67650, E67660
HP LaserJet Managed MFP E62655, E62665, E62675	HP Color LaserJet Managed E65150, E65160
HP LaserJet Managed E60155, E60165, E60175	HP Color LaserJet Enterprise M751, Managed E75245
HP LaserJet Enterprise M507, Managed E50145	HP LaserJet Enterprise MFP M528, Managed E52645
HP LaserJet Managed MFP E52545	HP Color LaserJet Managed MFP E57540
HP LaserJet Managed MFP E82560du, E82550du, E82540du	HP Color LaserJet Managed MFP E87660du, E87650du, E87640du
HP Color LaserJet MFP E77422, E77428	HP LaserJet MFP E72425, E72430
HP Color LaserJet Managed MFP E67550, E67560	HP Color LaserJet Managed MFP E62655, E62665, E62675
HP Color LaserJet M856, E85055	HP Color LaserJet MFP M776, Flow MFP M776

* The HP Digital Sender Flow 8500 requires the HPAC-SPPE-Agent-FutureSmart-10.bdl file

** The M506 and M527 devices require an HP internal USB port (F2A87A)

** M506dn and M506x require a USB port accessory (part #F2A87A) when using proximity readers. The HIP is not available on the M506n. The M527 only requires a USB port accessory (part # F2A87A) if a second USB accessory (e.g. BarDIMM) needs to be added.

Table 2-2 Supported HP non-FutureSmart devices

HP Color LaserJet CM3530 MFP series	HP LaserJet M3035 MFP series
HP Color LaserJet CM6030 / CM6040 MFP series	HP LaserJet M4345 MFP series
HP LaserJet M5035 MFP series	HP LaserJet M9040 / M9050 MFP series
HP LaserJet Enterprise P3015 Printer	

Table 2-3 Supported HP S900 series devices

HP Color MFP S951dn	HP Color MFP S962dn
HP Color MFP S956dn	HP Color MFP S970dn
HP MFP S965dn	HP MFP S975dn

Table 2-4 Supported HP OfficeJet Pro devices

HP OfficeJet Pro 251 Printer	HP OfficeJet Pro 276 MFP
HP OfficeJet Pro X476 / X576 color MFP series	HP OfficeJet Pro X551 Printer
HP OfficeJet Pro 8730 / 8740	

Table 2-5 Supported HP PageWide Pro devices*

HP PageWide Pro 477	HP PageWide Pro 577z
HP PageWide Pro 577	HP PageWide Pro 522
HP PageWide Managed P57750	HP PageWide Managed P52250
HP PageWide Pro MFP 772dw	HP PageWide Pro MFP 772dn
HP PageWide Pro MFP 777z	HP PageWide Managed MFP P77740dn
HP PageWide Managed MFP P77740dw	HP PageWide Managed MFP P77740z
HP PageWide Managed MFP P77750z	HP PageWide Managed MFP P77760z
HP PageWide Pro 750dn	HP PageWide Pro 750dw
HP PageWide Managed P75050dn	HP PageWide Managed P75050dw

* With a minimum firmware version of 1629F



NOTE: Please refer to the product release notes for the most up to date list of supported devices.

3 Installation


This chapter provides steps for the following:

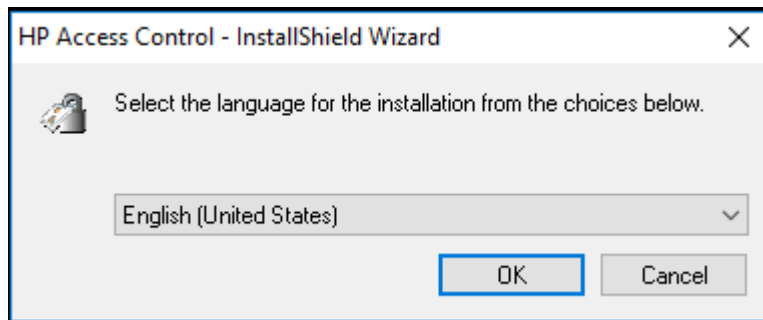
- Installing HP AC Express
- Installing HP AC Enterprise
- Upgrading HP AC
- Installing HP OPS (required for HP OfficeJet Pro Printers)

3.1 Installing HP AC Express

Complete the following steps to install HP Access Control (HP AC) Express. During the installation you may be prompted to restart. The installation will automatically resume after reboot.

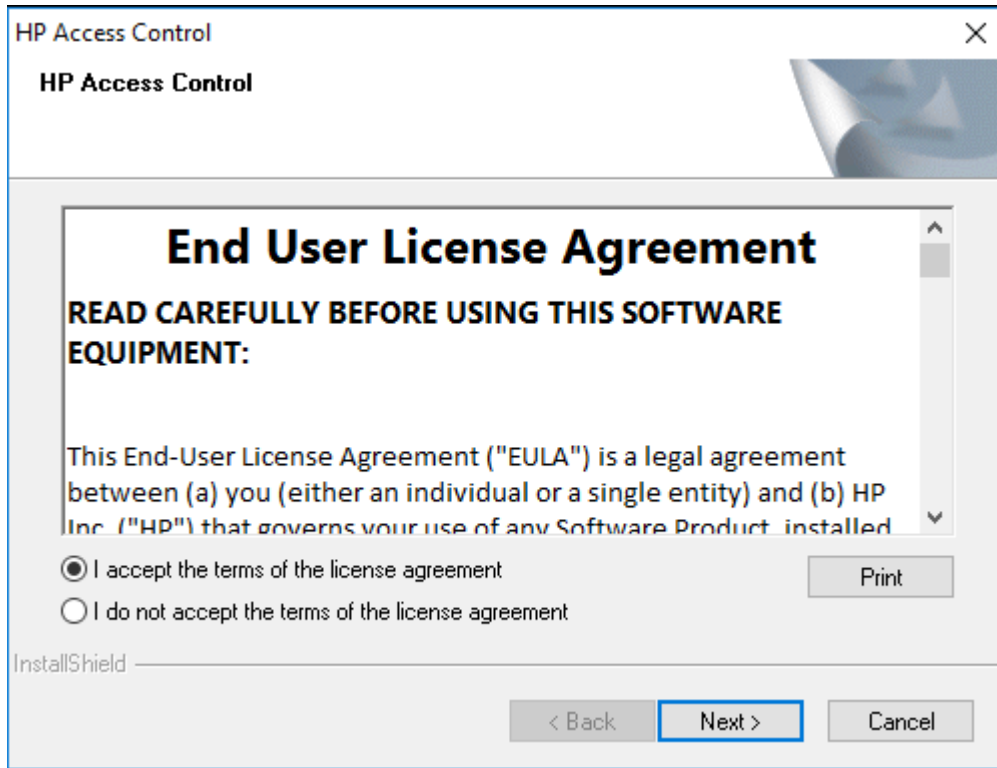
1. Launch the installer as an administrator by right-clicking the **HPAC.exe** file. Select the language for InstallShield Wizard, and then click **OK**.

 **NOTE:** The regional settings of the server will determine the language displayed in the HP AC configuration utility.

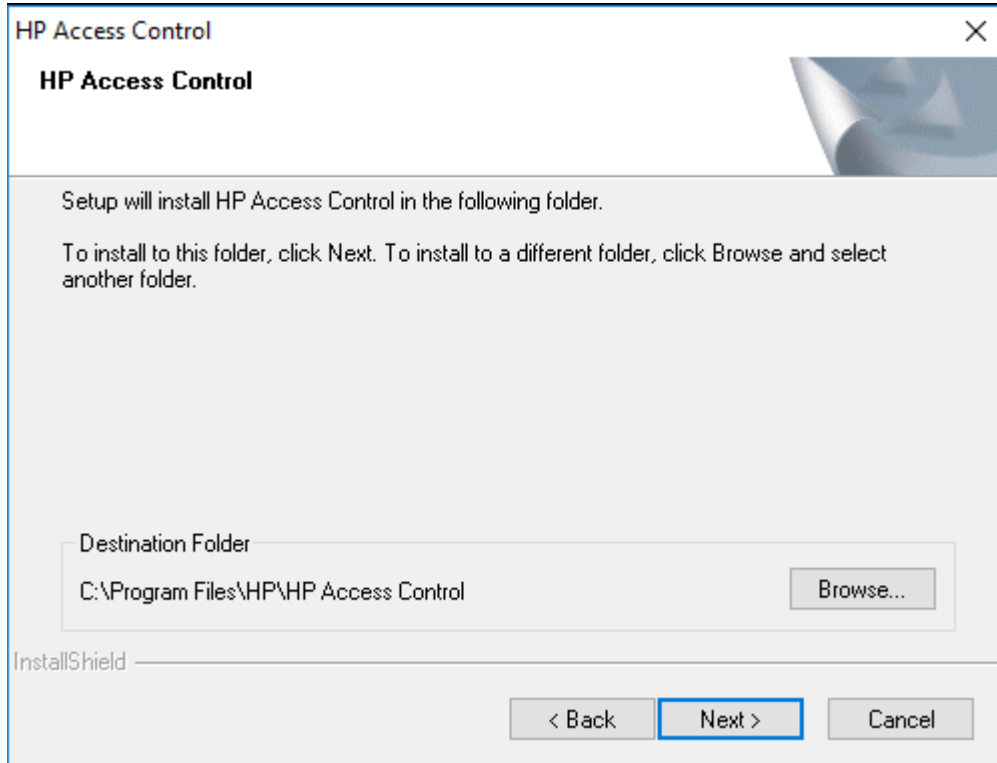


2. Click **Install** to begin the installation of the required components. This may take several minutes.

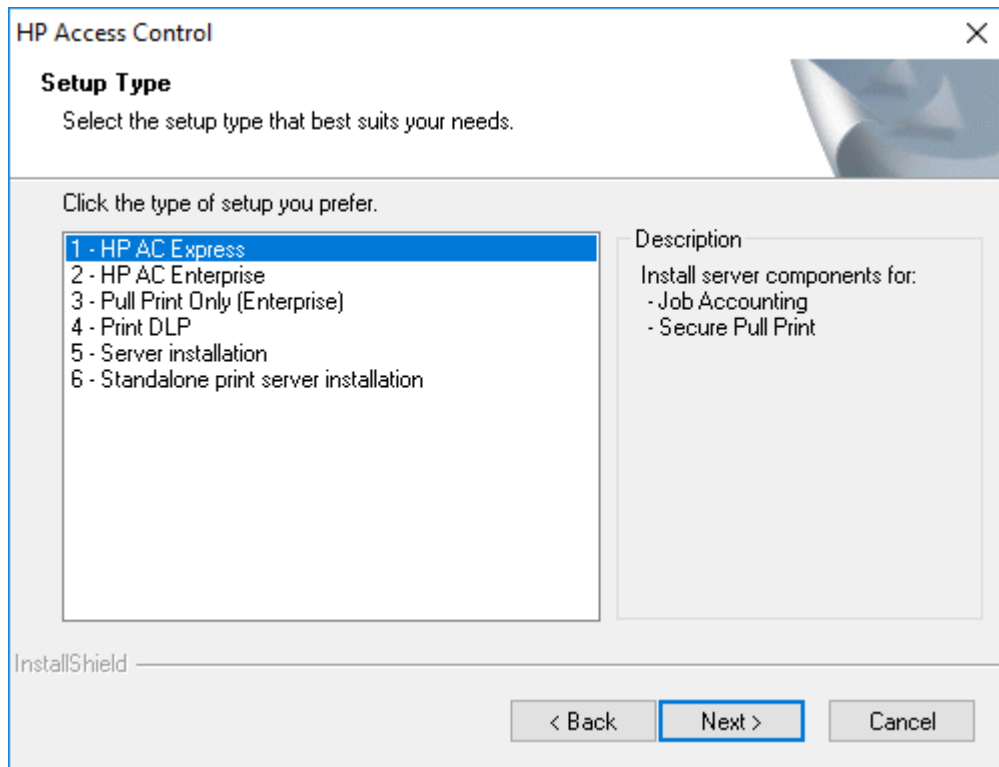
3. Read the End User License Agreement and click **Yes** to accept the terms.



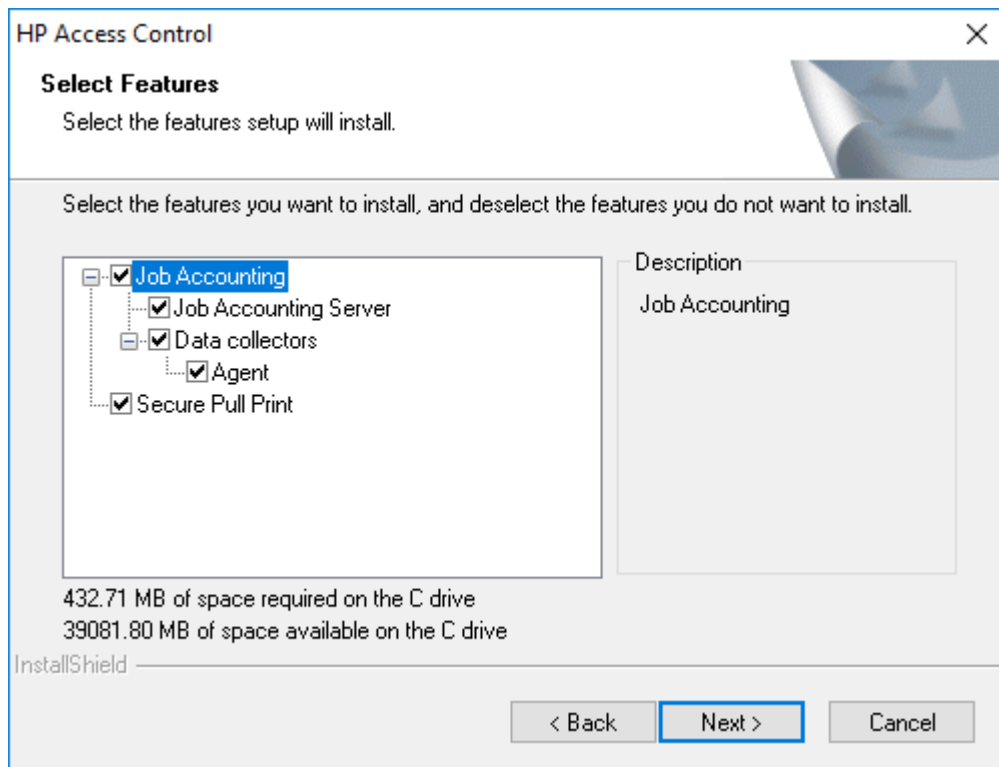
4. Click **Browse** to select a folder for the installation, and then click **Next**.



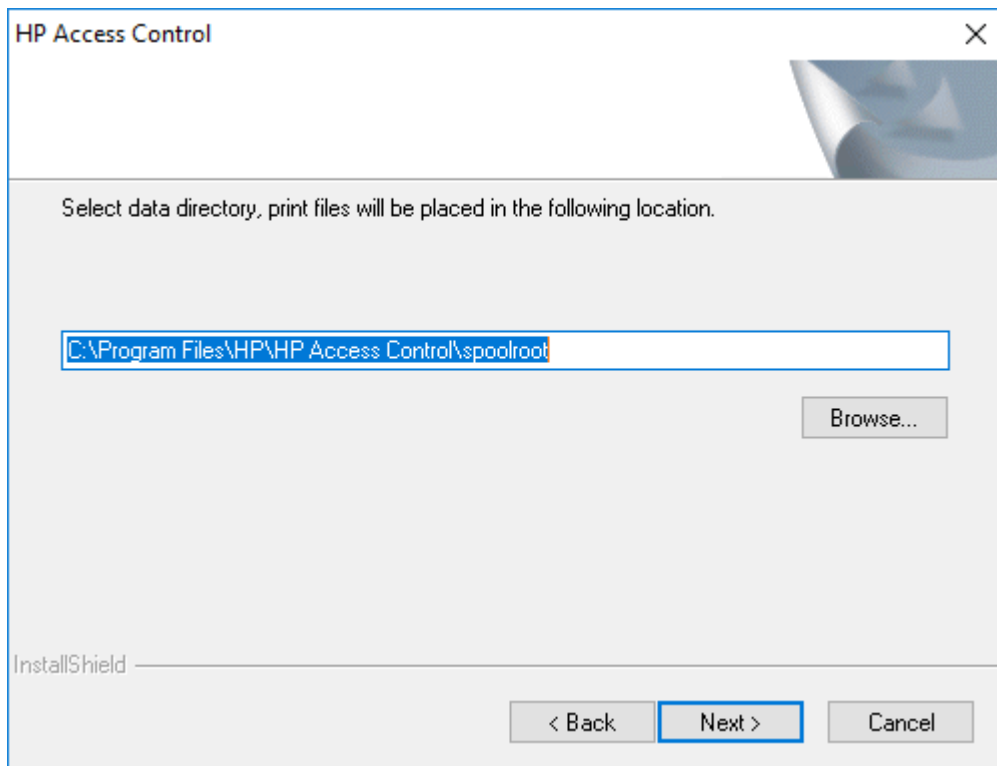
5. On the Setup Type, select **HP AC Express**. A description of the components installed displays on the right side.



6. Leave the default options checked. The installation features are pre-selected with check marks.



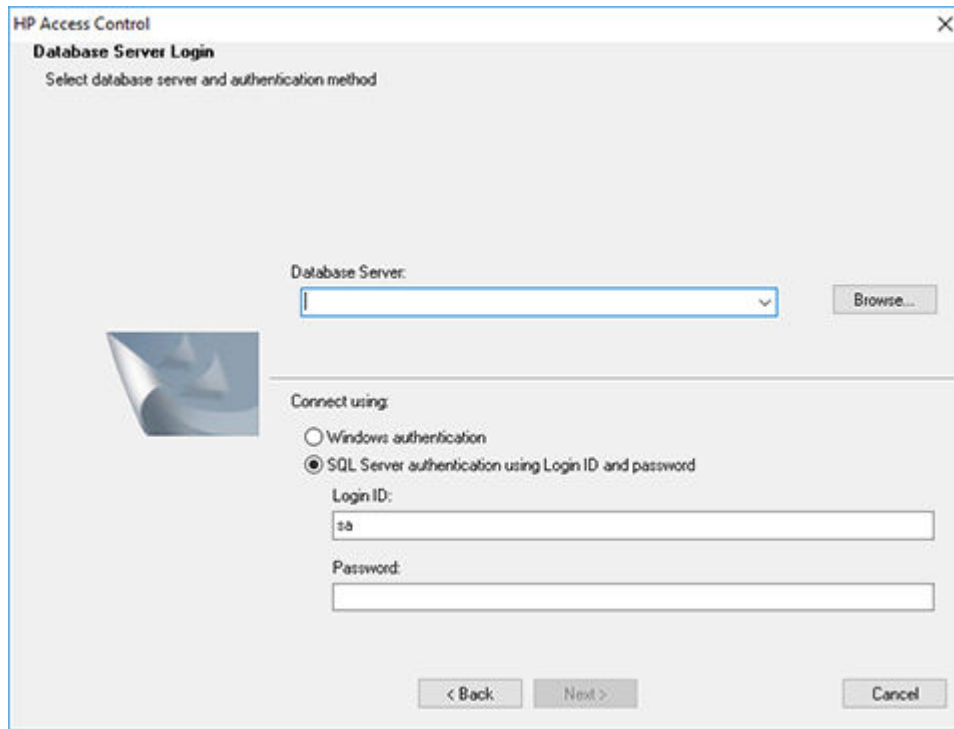
7. On the data directory screen, select the folder location to store pull print jobs. The default folder is \Program Files\HP\HP Access Control\spoolroot. The installer will prompt you to create the directory. Click **Next**.



8. An SQL server is required for Job Accounting.
 - The Database Server Login screen will allow you to browse to an existing SQL server. SQL credentials with sysadmin rights are required, and the current user launching the installer should be added to the SQL instance permissions as sysadmin during the installation.

9. Click **Browse** to select the Database Server on the network.

 **NOTE:** If connecting to an SQL database in Microsoft Azure, enter the Azure SQL Server in the **Database Server** field, and then enter the correct SQL authentication credentials. Azure SQL with Windows authentication is currently not supported.

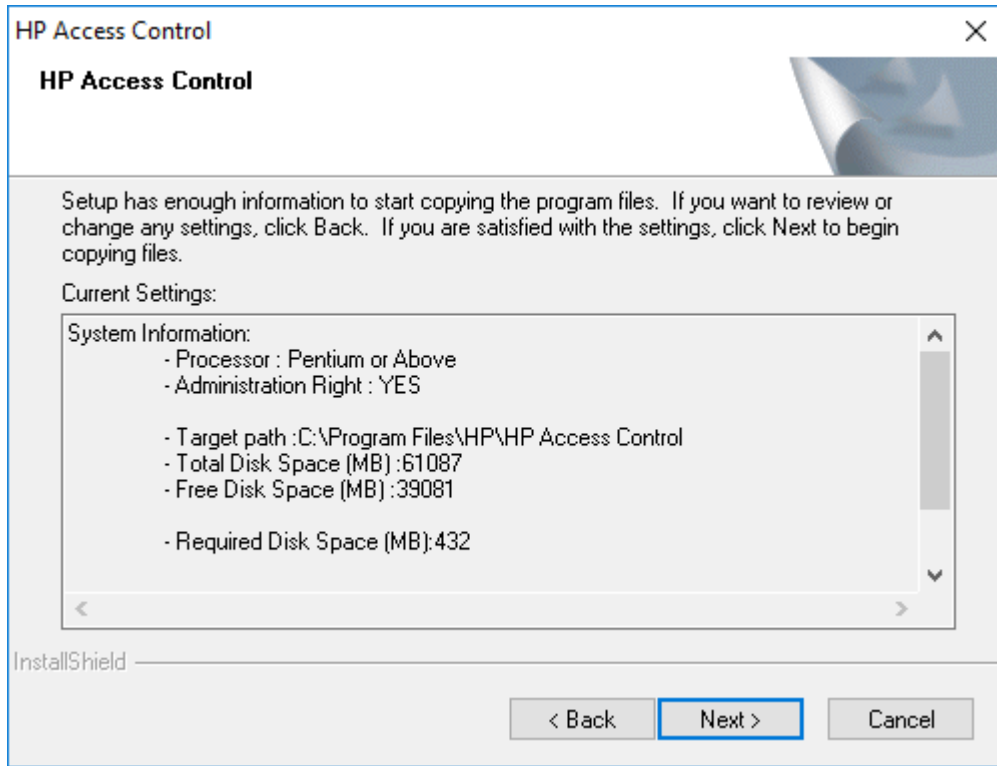


The screenshot shows the 'HP Access Control' dialog box with the 'Database Server Login' tab selected. The dialog box contains the following elements:

- Title Bar:** HP Access Control
- Section Header:** Database Server Login
- Instruction:** Select database server and authentication method
- Database Server:** A text box with a dropdown arrow and a 'Browse...' button to its right.
- Connect using:** Two radio button options:
 - Windows authentication
 - SQL Server authentication using Login ID and password
- Login ID:** A text box containing the text 'sa'.
- Password:** An empty text box.
- Navigation Buttons:** '< Back', 'Next >', and 'Cancel' buttons at the bottom.

10. Select a database server from the list and click **OK**. Choose the connection method — Windows authentication or SQL Server.
11. Select a Program Folder and click **Next**.

- Click **Next** to begin the installation of HP Access Control.




- When all the components are installed, the **Installation is complete** message will display. Click **Finish**.
- To start HP Access Control after setup is complete, go to Start > All Programs > HP Access Control, and right-click **Configuration Utility** and select **Run as Administrator**.

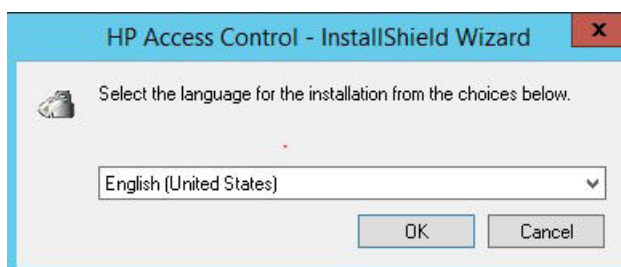
 **NOTE:** It is recommended to set the HP AC Configuration utility shortcut to always run as administrator.

3.2 Installing HP AC Enterprise

Complete the following steps to install HP Access Control (HP AC) Secure Pull Print. During the installation you may be prompted to restart. The installation will automatically resume after reboot.

- Launch the installer as an administrator by right-clicking the **HPAC.exe** file. Select the language for InstallShield Wizard, and then click **OK**.

 **NOTE:** The regional settings of the server will determine the language displayed in the HP AC configuration utility.



- Click **Install** to begin the installation of the required components. This may take several minutes.

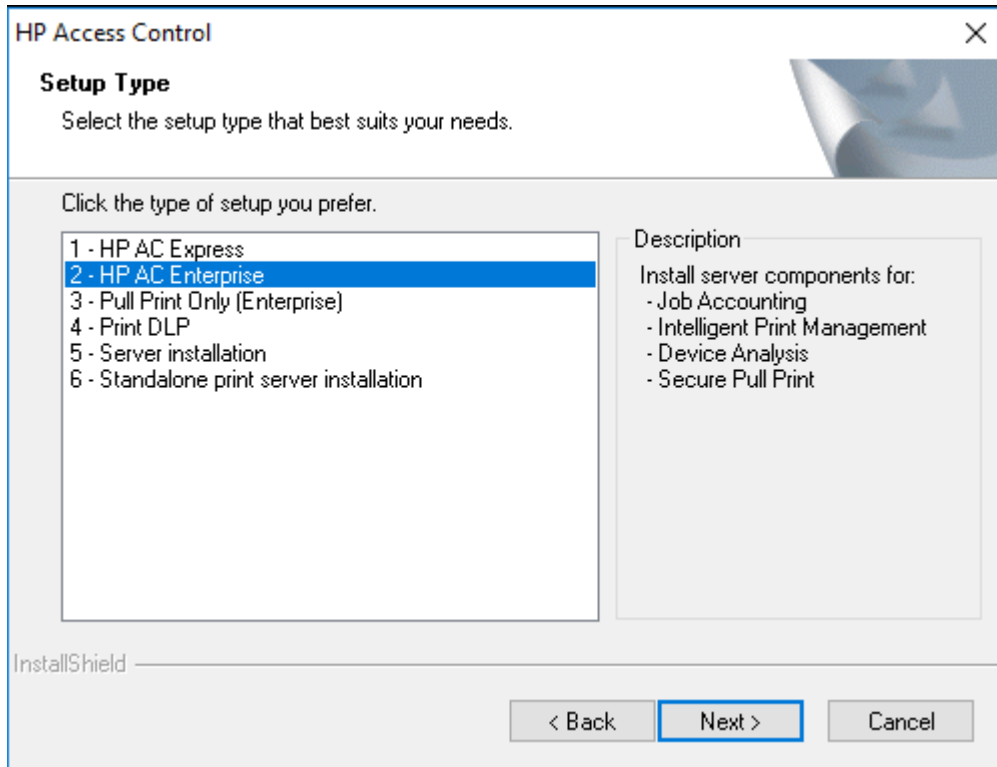
3. Read the End User License Agreement and click **Yes** to accept the terms.



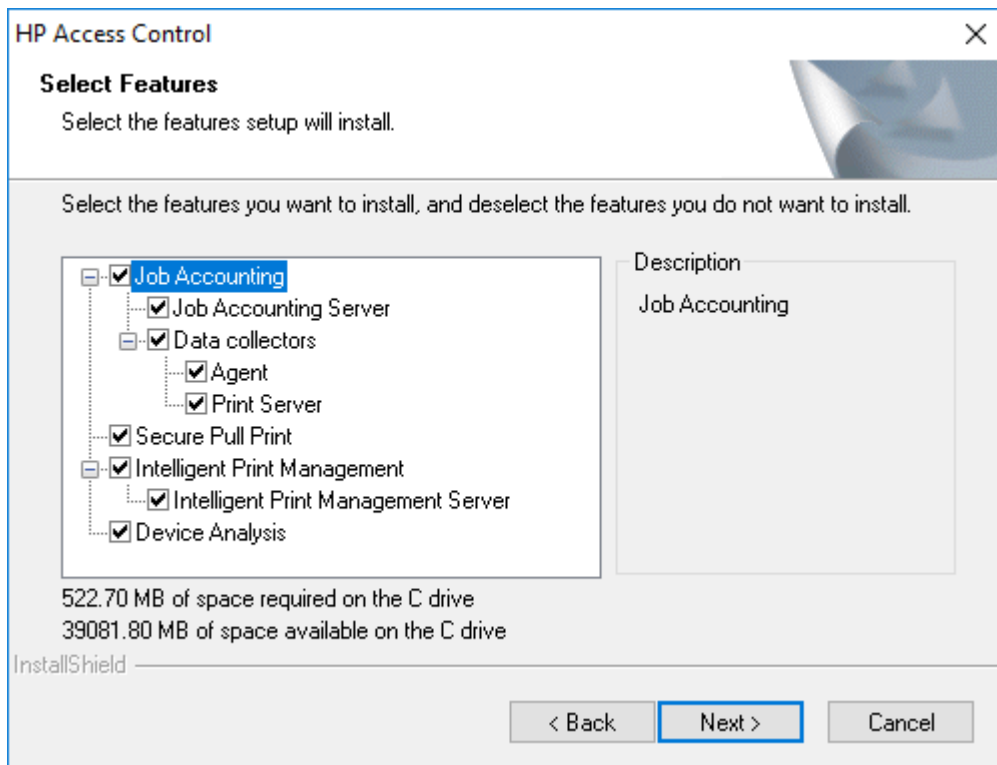
4. Click **Browse** to select a folder for the installation, and then click **Next**.



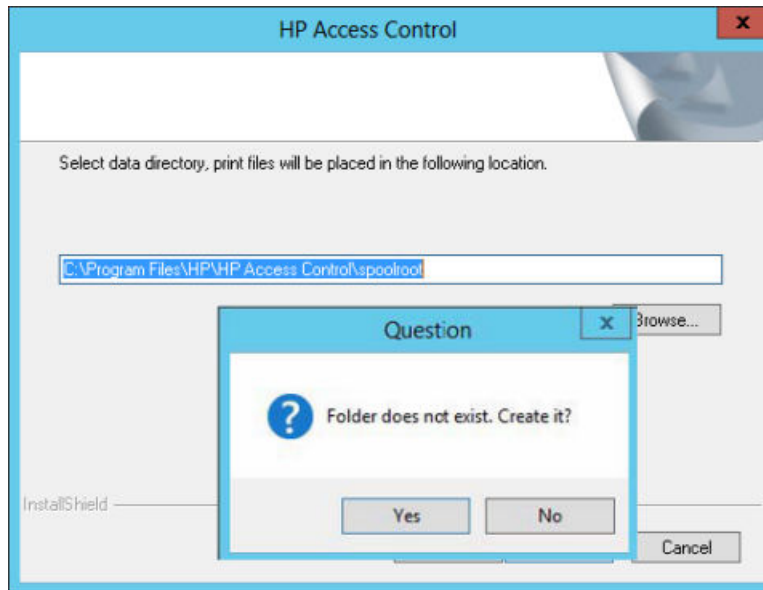
5. On the Setup Type, select **HP AC Enterprise**. A description of the components installed displays on the right side.



6. Leave the default options checked. The installation features are pre-selected with check marks.



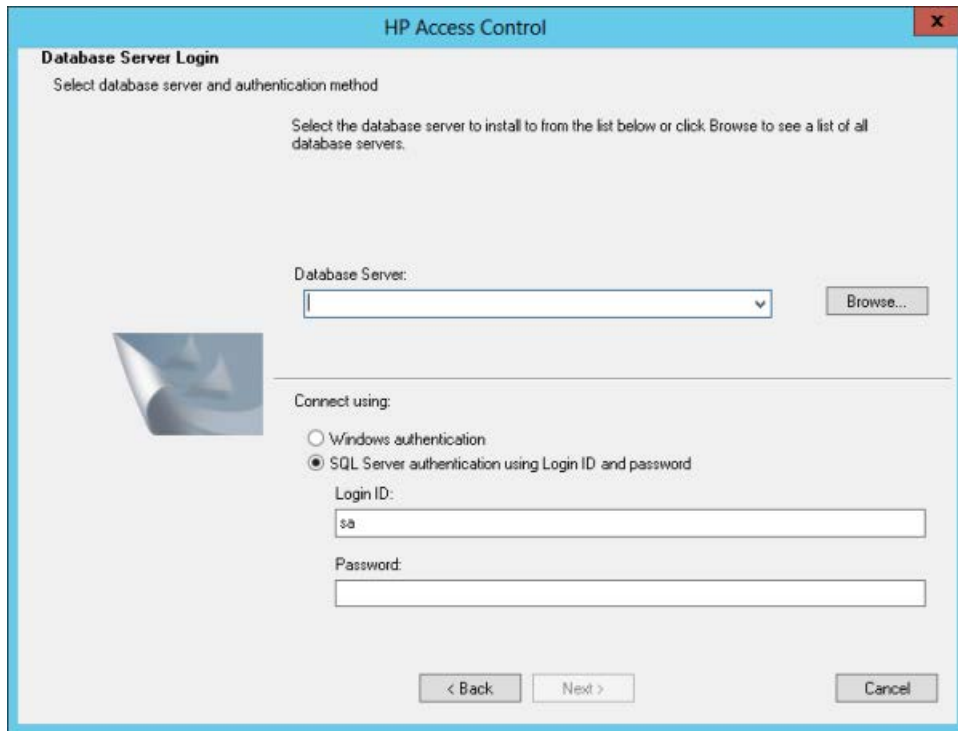
7. On the data directory screen, select the folder location to store pull print jobs. The default folder is \Program Files\HP\HP Access Control\spoolroot. The installer will prompt you to create the directory. Click **Next**.



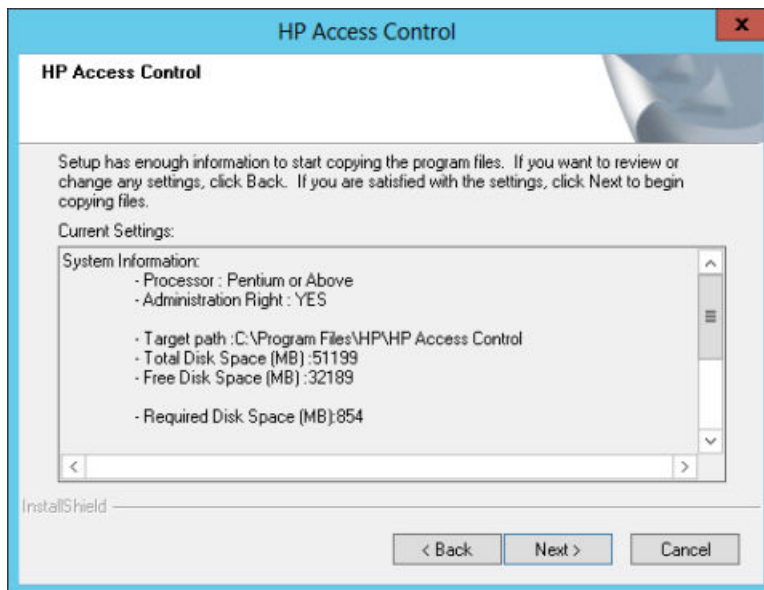
8. An SQL server is required for Job Accounting.
 - The Database Server Login screen will allow you to browse to an existing SQL server. SQL credentials with sysadmin rights are required, and the current user launching the installer should be added to the SQL instance permissions as sysadmin during the installation.

- Click **Browse** to select the Database Server on the network.

 **NOTE:** If connecting to an SQL database in Microsoft Azure, enter the Azure SQL Server in the **Database Server** field, and then enter the correct SQL authentication credentials. Azure SQL with Windows authentication is currently not supported.



- Select a database server from the list and click **OK**. Choose the connection method — Windows authentication or SQL Server.
- Select a Program Folder and click **Next**.
- Click **Next** to begin the installation of HP Access Control.



13. When all the components are installed, the **Installation is complete** message will display. Click **Finish**.
14. To start HP Access Control after setup is complete, go to Start > All Programs > HP Access Control, and right-click **Configuration Utility** and select **Run as Administrator**.

 **NOTE:** It is recommended to set the HP AC Configuration utility shortcut to always run as administrator.

3.3 Multi-server installation

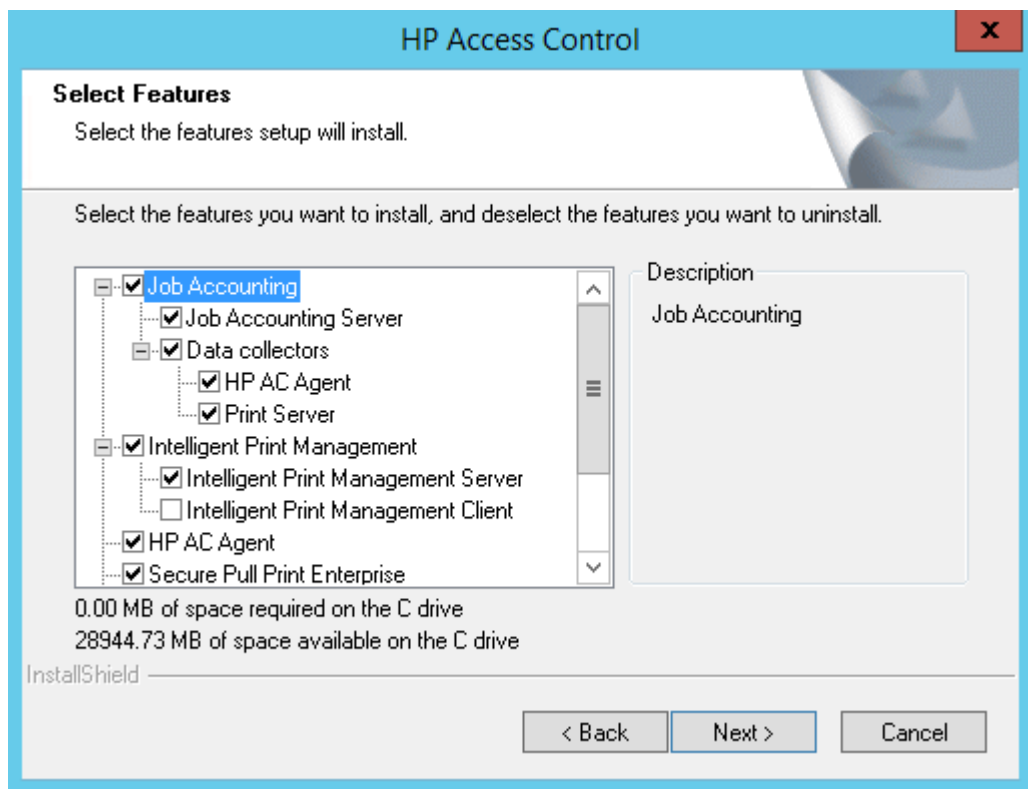
For environments that require the use of multiple servers, individual HP AC components can be installed on different servers. For example, one server can be dedicated for authentication and pull printing, while another server can be dedicated for IPM rules-based printing. On the server, select **Server Installation** during the HP AC installation process, and then select the individual components you want to install on that particular server.

3.4 Modify or Remove HP Access Control

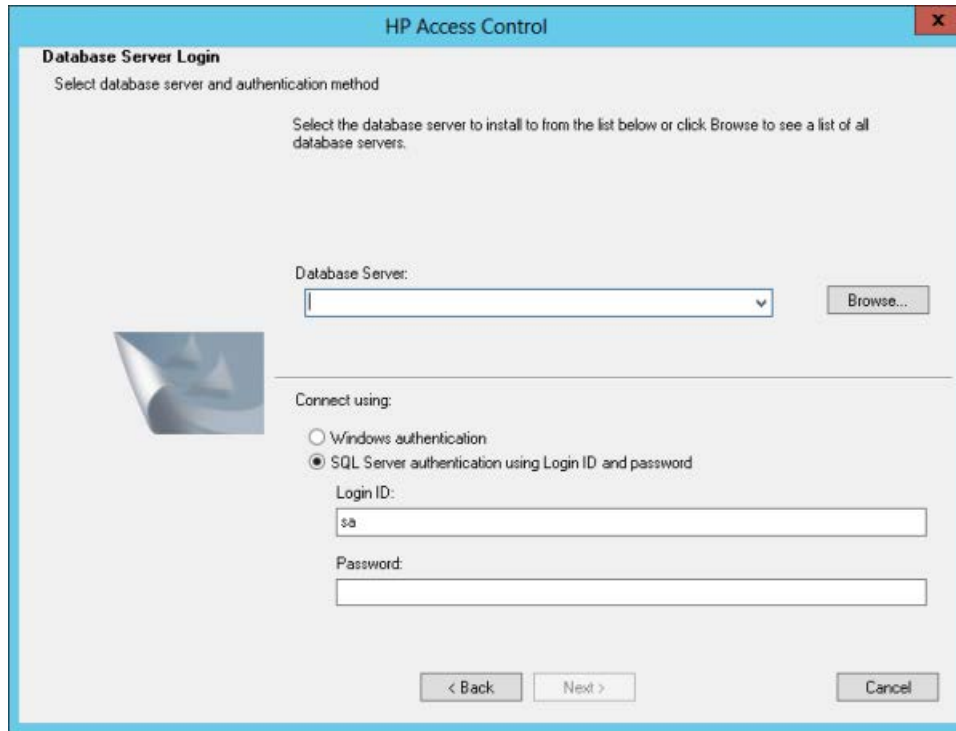
3.4.1 Modify an HP AC installation

Complete the following steps to modify features of an existing HP AC installation:

1. Launch the installer by right-clicking **HPAC.exe** and run as administrator. From the Modify/Remove page, click **Modify** and then click **Next**. The **Select Features** page displays.
2. Check marks are displayed next to features that are already installed. Unselect the features you wish to uninstall, and select any additional to add. Click **Next**.



If you select to install Job Accounting, the following page displays to allow you to connect to an existing SQL Server. For more information, follow the instructions in [Section 3.2, Installing HP AC Enterprise](#).



3.4.2 Removing HP Access Control (HP AC)

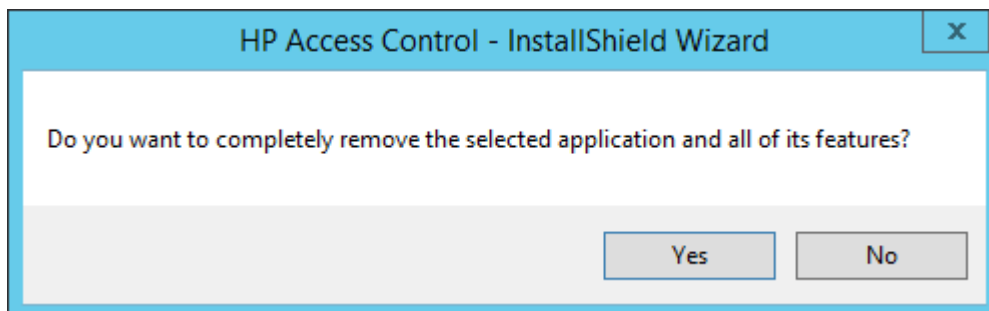
Selecting **Remove** from the Modify/Remove page allows you to uninstall HP AC and all installed features. To do this, complete the following steps.

Prerequisites

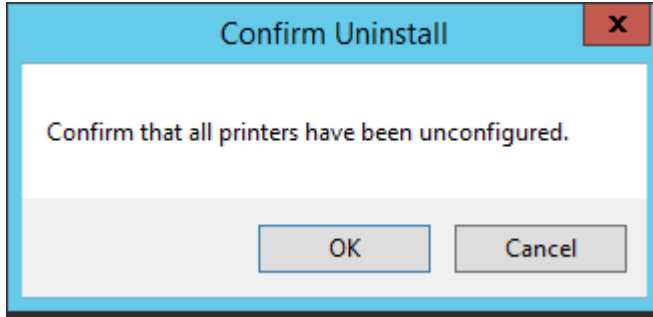
- Ensure the correct uninstallation PRN file is displayed on the Settings tile > Agent tab.

Complete the following steps:

1. Launch the installer by right-clicking **HPAC.exe** and run as administrator. From the Modify/Remove page, click **Remove** and then click **Next**.
2. The following confirmation displays. Click **Yes** to confirm uninstalling of HP AC.



3. If all printers have been unconfigured, click **OK** to confirm.



4. If all printers have NOT been unconfigured, click **Cancel**, go to the HP AC Configuration Utility > Devices tile, right-click the device, then select Pull Printing > Remove Workflows.



NOTE: For FutureSmart and Non-FutureSmart devices, the **Remove Workflows** option removes the in-printer agent if an agent exists on the device. This means the device will be automatically rebooted.

5. When the database question page displays, click **Yes** to keep the database or **No** to delete the database.
6. When the uninstall completes, you may be asked to restart the server. Select **Yes** if you want to restart the server. Click **Finish**.

3.5 Upgrading HP Access Control



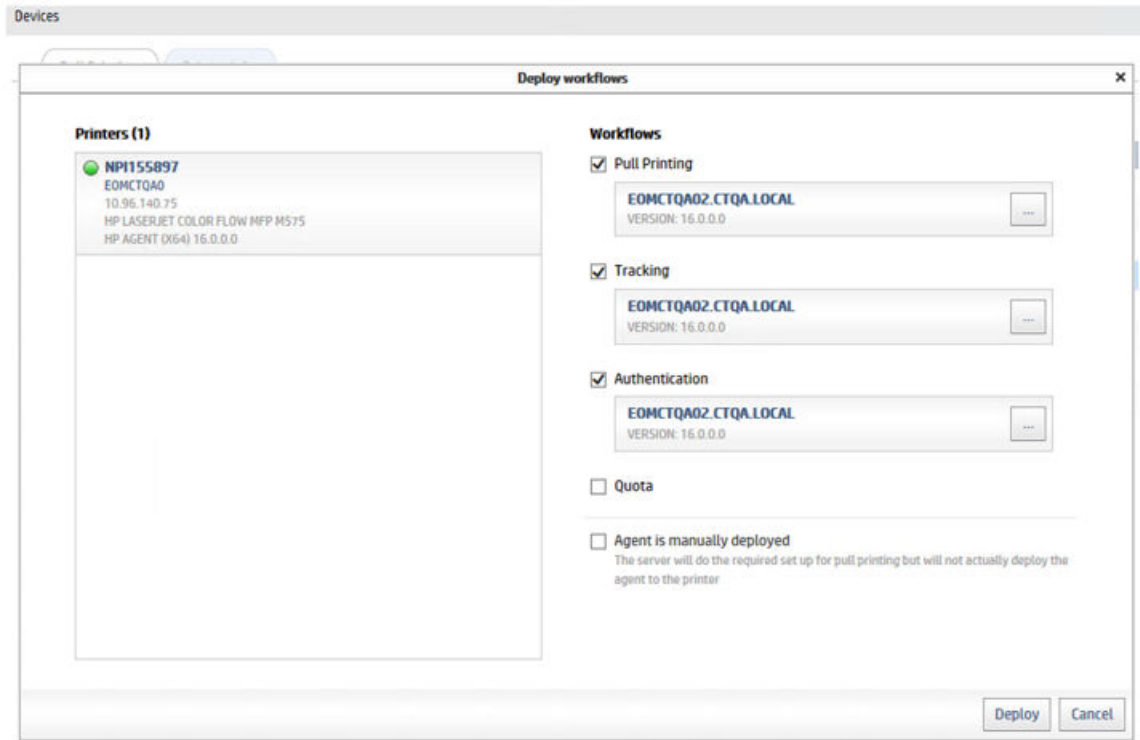
NOTE:

- **IMPORTANT:** A product license file named **lrsoskey.lic** is required to upgrade HP AC. The license file will be read during start-up.
- Before upgrading your HP Access Control server please contact HP to ensure your version can be upgraded. It is highly recommended to receive technical consultation prior to upgrade.
- For servers with Card ID Masking enabled, it is highly recommended to back up the DataDecodeDefaults.xml files prior to upgrading. The AD-Authenticator DataDecodeDefaults.xml file is located in the \HP Access Control\Shared\<version>\Configuration\ProximityCards\ folder. The XT device DataDecodeDefaults.xml file is located in the \HP Access Control\DPR\ folder.
- If upgrading HP AC 15.x Express to 16.x Express, users' stored jobs will be lost. After the upgrade, a pull print queue must be created in order for users to store print jobs on the server. This also means that the printer must use the correct port for the pull print queue.

An upgrade of HP AC upgrades all HP Access Control (HP AC) components currently installed on the server. During an upgrade, all HP AC processes are stopped. Move the latest HP AC installation file to the server where the older version of HP AC is installed. Complete the following steps:

1. Right-click the HP AC installation file and select **Run as administrator**.
2. Click **Next** to begin the upgrade.
3. If the HP AC server is connected to an SQL database on a different server using SQL credentials, you may be prompted to enter your SQL credentials to restore the connection. Enter the correct SQL login and password, then click **Next**.
4. Click **Finish**. After upgrading the HP AC configuration tool, make sure to upgrade the agent files on devices. Upgrading of a new agent version can be installed over an older agent version.
5. In the HP AC configuration utility click **Devices**.


6. Select the devices you want to update.
7. Right-click the device, then select **Pull Printing > Deploy Workflows**.



 **NOTE:**

- FutureSmart devices will display **Receiving Upgrade**. Non-FutureSmart devices will display **Disk Operation Failed**. This is expected behavior.
- Installation will fail if device EWS password is not set.
- After upgrading a FutureSmart device, make sure to reapply the Sign-In Method in the device EWS > Access Control page.
- After upgrading a non-FutureSmart device, right-click the device and click **Update selected** to reapply authentication.
- The deployment utility will automatically detect if the agent on the device is current. If the agent is not current, the agent will be updated at the time of deployment.

8. It is highly recommended that the following settings be re-applied in the HP AC admin console:
 - ▲ In the HP AC configuration utility, go to the **Settings** tile > **Pull Print**, select your server, and then click **Configure**. Go to the **General** tab > **Device Authentication** section, and then enter the Administrator password and click **Update**.
 - If Job Accounting and IPM were previously installed, go to Settings tile > Database tab. In the Database configuration section, click **Test** to test the connection to the Job Accounting database and click **Apply**.

 **NOTE:** When using Windows authentication to connect to the Job Accounting database, ensure that for the Agent Configuration section the **LocalSystem account** is unchecked, and the correct Windows **Domain\User** and **Password** credentials are entered. This is required for access to the database. Select to **Restart services after update** and click **Test** and **Apply**.

- If Job Accounting was installed, go to the Settings tile. Go to the Pull Print tab, select the pull print server, then click **Configure**. Go to the Advanced tab, then the HP Agent Push Mode section. Click **Test Connection**, then click **Update** at the top of the page.
- If SNMPv3 settings were used prior to the HP AC upgrade, the SNMPv3 settings must be reapplied after the upgrade. Go to the Settings tile > Spooler tab > Configure > SNMP tab to re-enter the SNMPv3 settings and then click **Update**.

3.6 Installing OXPd Professional Services (OPS) for OfficeJet Pro devices

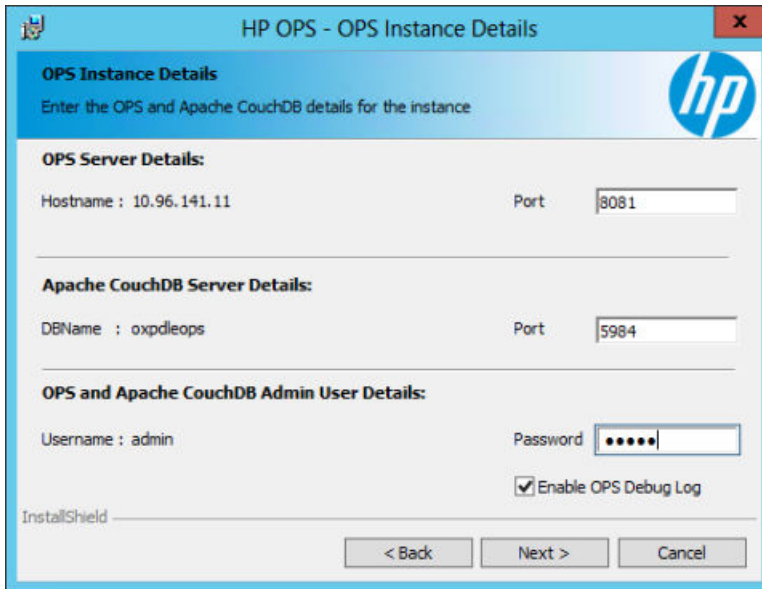
 **NOTE:** If the server does not have internet access you will need to manually download Visual C++ Redistributable and install prior to running the OPS setup.

1. OXPd Professional Services (OPS) is required for OfficeJet Pro devices to communicate with the HP AC server. Click **Install**.



 **NOTE:** OPS (OXPd Professional Services) is a web-based service required for OfficeJet Pro devices. OPS hosts all printer configurations for OfficeJet Pro devices.

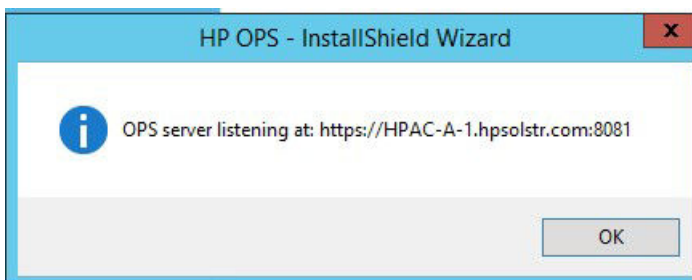
2. If required, you will be prompted for OPS pre-requisites. Click **Install**.
3. Read and accept the **End User License Agreement**. Click **Next**.
4. Choose the default installation location, and click **Next**.
5. On the OPS Instance Details screen,
 - a. For **OPS Details**. The Port field will automatically be populated with the default port. This can, however, be changed by entering a new port.
 - b. For **OPS and Apache CouchDB Admin User Details**, the default DBName and Port information will automatically be populated. Enter a **Password** to protect the OPS database.
 - c. Click **Next**.



6. Once the OPS server is installed, ensure **Launch OPS** is checked. This will start the OPS service.



7. Click **Finish**. A pop-up will confirm the OPS Server is listening at `https://<HPACServer>:8081`.



 **NOTE:**

- On a 32-bit server, OPS does not start automatically when **Launch HP OPS** is selected. You will have to configure the OPS service manually to start with a domain account through Administrative Tools > Services.
 - If OPS installation fails, you can launch it later from \Program Files\HP\HP Access Control\Misc\OPSsetup.
 - Make sure the port displayed in the Port field is open on the firewall. The default port that the OPS server uses to communicate with HP OfficeJet devices is port 8081. This port can be changed.
 - If the password is changed after installation, OPS will need to be reinstalled.
 - If the OPS Server is listening pop-up does not launch, the OPS service can be started manually. On the server, go to Administrative Tools > Services, and Start the HP OPS service.
-

4 HP Access Control Configuration utility

4.1 Overview

The following chapters explain how to use the HP Access Control (HP AC) configuration tool and introduce you to the process of configuring HP Access Control (HP AC) solutions on print devices.

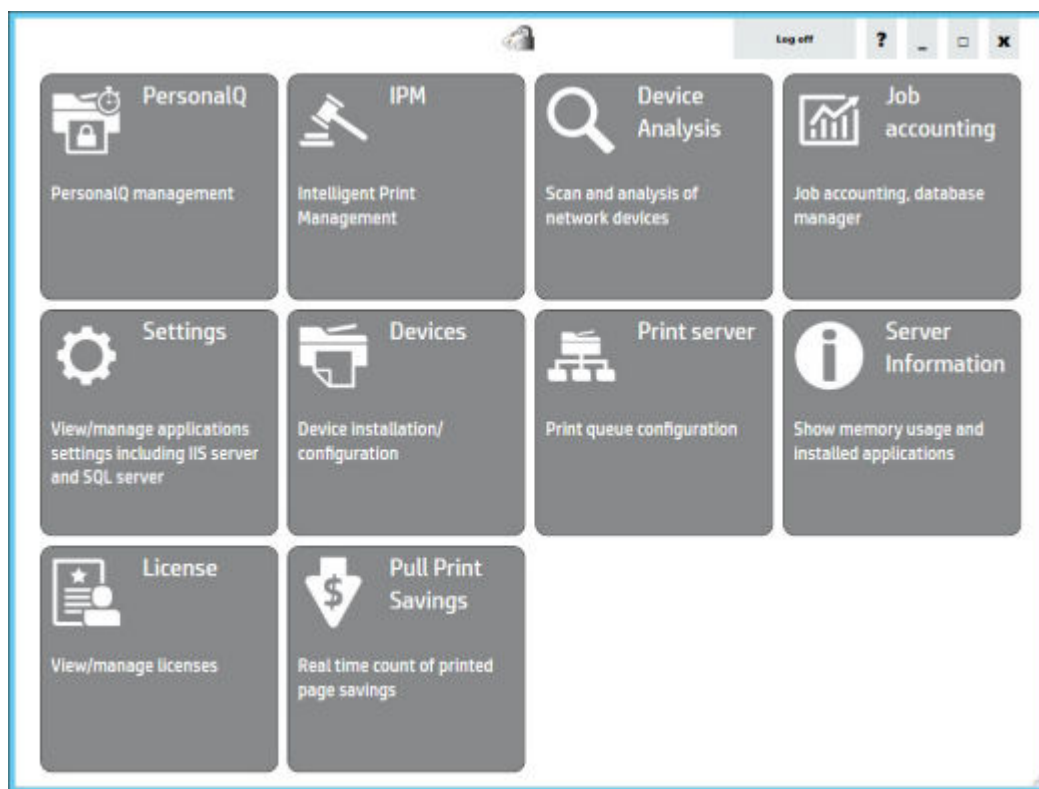
To open the HP AC Configuration tool, go to **Start > All Programs > HP Access Control**, then right-click **HP AC Configuration utility** and choose to Run as Administrator.

The HP AC Configuration tool consists of components organized as tiles on the home screen.

NOTE: If an administrator is managing access to the HP AC Configuration utility then not all tiles may be shown, and access to some features and functionality may be view only. Please refer to Managing access to the Configuration Utility (see [Section 9.1, Managing access to the Admin console](#)). Tiles showing may vary depending on what components/bundle has been installed on the server.

NOTE: After a new HP AC installation, Application Login (in the Settings tile > Login tab) is enabled by default, and you must log in to the admin console. The default username is "Admin" and the default password is "Admin".

Figure 4-1 Home screen



IMPORTANT: Tiles and tabs highlighted orange indicate items that are recommended to be completed. It is highly recommended to complete all the orange items before using HP AC. See [Section 4.2, Configuring general settings](#).

4.1.1 Navigation and Help

Click a tile from the HP Access Control (HP AC) home screen to use the component. Return to the home screen at any time by clicking the back button in the top left corner, or by clicking on the HP Access Control icon.

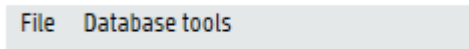


4.1.1.1 Menus and Tabs

Within **Tiles**, the application has Menu items and Tabs for easier navigation.

Menus

Menus will appear at the top of the screen, in the gray bar.



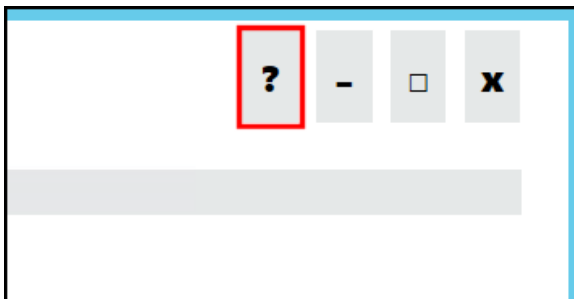
Tabs

Tabs appear at the top, beneath the menu bar. You can click on the word to navigate to that tab.



4.1.1.2 Help menu

Click the ? icon to go to the HP AC documentation web site, www.hp.com/go/hpacdocumentation.



4.1.1.3 Settings tile

4.1.1.3.1 Pull Print tab

Pull Print tab

The Pull Print tab lists the local server as well as remote HP AC servers.

<input type="text"/>	Refresh	Explore ▼	Add ▼	Delete	Configure	Logs
Host Name						
EOMCTQA02.CTQA.LOCAL						

 **NOTE:** In the case of an NLB, the NLB configuration page will be opened with access to menus for the contained servers.

The following displays:

- **Find:** Search for a HP AC Print Server in the list.
- **Refresh:** Refresh the screen.
- **Explore:** Displays the Explore menu.

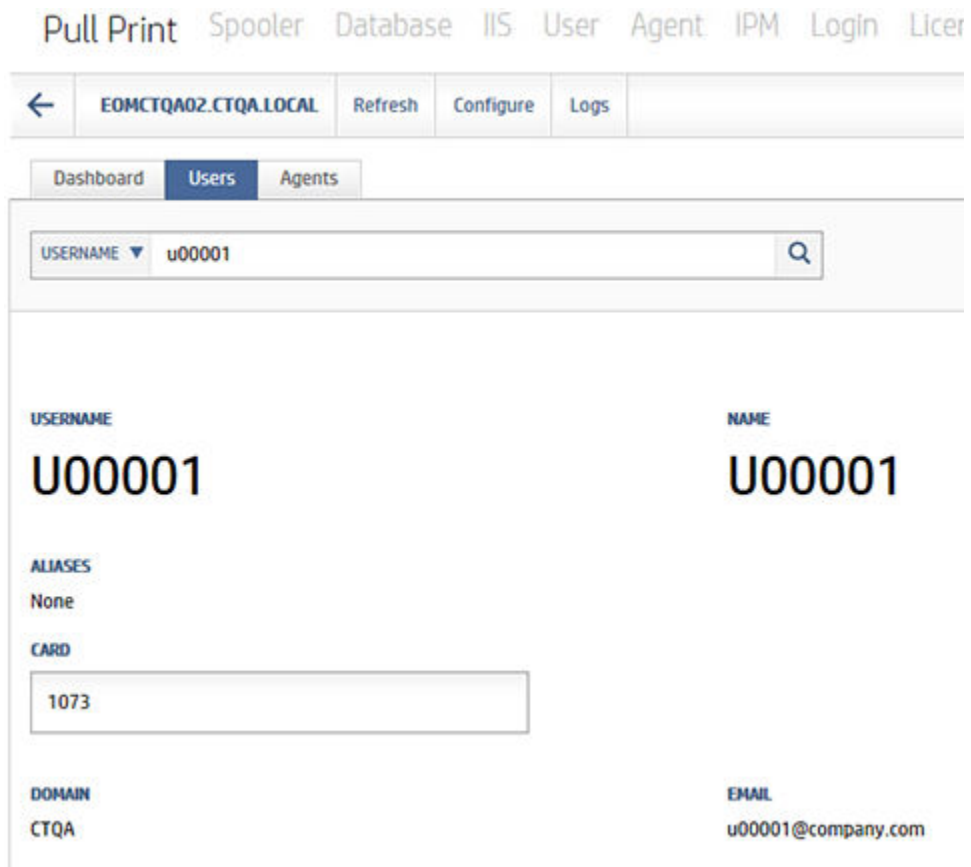
 **NOTE:** Double clicking on an HP AC server will display the server's information pages.

- **Dashboard:** Displays the status of components for the selected pull print server, such as IIS, LDAP, SQL Server, and Certificates, as well as the connection status to remote servers. Click the **Refresh** button to refresh the status of the components. Click **Modify** to go to the HP AC Print Server Configuration screen to change the component settings.

Pull Print Spooler Database IIS User Agent IPM Login License DBUserEditor ADGroupManager UserListEditor

←	EOMCTQA02.CTQA.LOCAL	Refresh	Configure	Logs
Dashboard Users Agents				
IIS	AVAILABLE	13:36:18	Refresh	Modify
LDAP	AVAILABLE	13:36:18	Refresh	Modify
SQL SERVER	AVAILABLE	13:36:19	Refresh	Modify
CERTIFICATE	AVAILABLE	13:36:20	Refresh	Modify
REMOTE SERVERS				
EOMCTQA01.CTQA.LOCAL:531	AVAILABLE	13:36:17	Refresh	Modify

- **Users:** Displays the users page for the selected pull print server to display user information, such as the user's card/code data, aliases, rights, domain, and email. This page can also be accessed by going to the Settings tile > User tab.



- **Agents:** Displays the installed and licensed agents for the selected pull print server, as well as the version number of each.

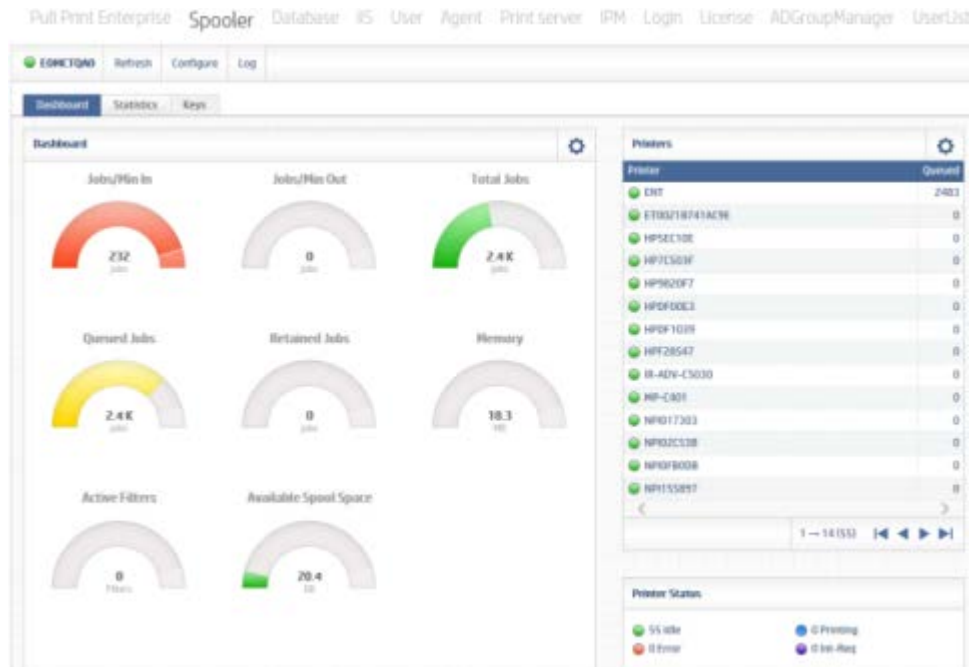
Agent	Version
VPSX Windows API (x64)	1.011.100
HP AC	16.0.0.0
HP AC HP Agent (x64)	16.0.0.0
HP AC XT Agent (x64)	16.0.0.0

- **Add:** Displays the Add menu.
 - **Pull Printing Server:** Adds a remote pull print server to the server list. Enter the FQDN of the remote server, then click **Add**. After the remote server is added to the server list, select the remote server, then click **Configure** to configure the settings of remote servers from the local server. This allows for the ability to configure the settings of all HP AC servers in the environment from one server, without having to log into each remote server.
 - **Load Balancer Configuration:** Adds an NLB (Network Load Balancer) to the list. New NLBs require a Primary server to be defined during creation. For more information, see the High Availability Options chapter of this guide.

- **Delete:** Deletes the selected server or NLB server definition. Deleting an NLB will allow for the retention of HP AC servers defined within.
- **Configure:** Displays the HP AC Print Server Configuration screen for the selected server. When selecting a remote server and then clicking **Configure**, the HP AC Print Server Configuration screen displays for the remote server to allow for configuring the remote server without having to log into it.
- **Logs:** Opens the HP AC Service Logs window. This allows viewing numerous logs pertaining to the HP AC service and its components.

4.1.1.3.2 Spooler tab

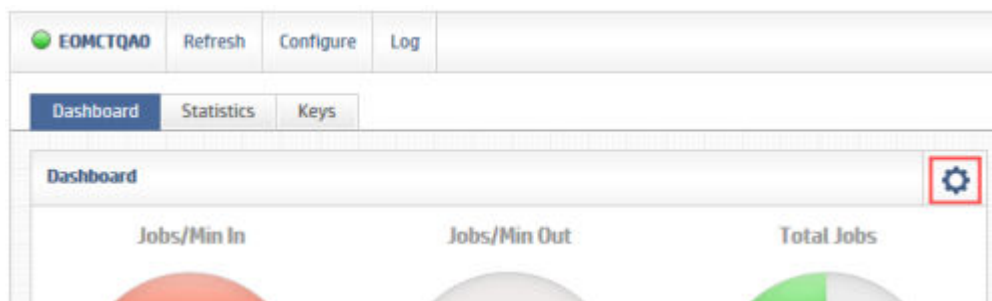
Dashboard tab



Each gauge measures from 0 to 110% of the defined threshold value. Gauge color changes as follows:

- **Green:** 0% - 75% of threshold
- **Yellow:** 76% - 99% of threshold
- **Red:** 100% + of threshold

Threshold values are set at the individual HP AC server level. Thresholds can be set based on the processing, storage, and memory resources available on each HP AC server in the enterprise. Select the icon in the upper right of the **Dashboard** section to display the **Dashboard Thresholds**.



The **Printers** dialog in the dashboard screen shows devices that have a backlog of jobs waiting for delivery. The threshold for this control specifies the minimum number of jobs that must be present before a printer is displayed.

Select the icon in the upper right of the **Printers** section to display the **Printer List Thresholds**. The **Printer Status** control at the bottom of the screen displays the number of devices in the various printer states.

Printers	
Printer	Queued
ENT	2483
ET0021B741AC9E	0
HP5FC10F	0

Statistics tab

Pull Print Enterprise Spooler IIS User Agent Login License DBUserEditor ADGroupManager UserListEditor

EOMCTQAO Refresh Configure Log

Dashboard **Statistics** Keys

System Statistics				Printer Statistics			
Release	V1R2.0.013	Customer ID	IL0000	Current Defined	6	Jobs Printed	0
Init Date	2017/07/21	Init Time	13:04:46	Highest Defined	6	Pages Printed	0
Character Set	UTF-8			Current Printing	0	Lines Printed	0
				Highest Printing	0	Bytes Printed	0 B
Memory and File Statistics				Status			
Current Allocated Memory	1021.7 KB	Current Open Files	9	Idle	6	Int-Req	0
Max Allocated Memory	1 MB	Max Open Files	11	Selected	0	Stopped	0
				Connecting	0	Error	0
				Converting	0	Diverted	0
				Printing	0		
System Limits				Spool Statistics			
Current Storage Limit	Unlimited	Address Space Size	Unlimited	Number of Queues	6	Jobs in Output Queue	0
Max Storage Limit	Unlimited	Max Address Space Size	Unlimited	Total Jobs	0	Jobs in Retained Queue	0
Current File Limit	0						
Max File Limit	0						
External Event Processing Statistics							

System Statistics

- **Release:** NetX release and fix level.
- **Customer ID:** Customer identification code.
- **Init Date:** Date of initialization.
- **Init Time:** Time of initialization.

Memory and File Statistics

- **Current Allocated Memory:** Current amount of memory in bytes, KB or MB, that is currently allocated for the HP AC Print Server.
- **Current Open Files:** Current number of files that the HP AC Print Server has open.

- **Max Allocated Memory:** Maximum amount of memory in bytes, KB or MB, that has been allocated for the HP AC Print Server.
- **Max Open Files:** Maximum number of files that the HP AC Print Server has had open, at one time.

System Limits

- **Current Storage Limit:** The current soft limit for the maximum size of a process' data segment.
- **Address Space Size:** The current soft limit for the maximum size of a process' total available memory.
- **Max Storage Limit:** The maximum hard limit for the maximum size of a process' data segment.
- **Max Address Space Size:** The maximum hard limit for the maximum size of a process' total available memory.
- **Current File Limit:** The current soft limit for how many file descriptors a process may allocate.
- **Max File Limit:** The maximum hard limit for how many file descriptors a process may allocate.

External Event Processing Statistics

- **Currently Queued:** Number of events currently queued to be processed by the External Event handler.
- **Maximum Queued:** High water mark for pending events waiting to be processed.

Printer Statistics

- **Current Defined:** Current number of printers available to HP AC Print Server.
- **Jobs Printed:** Total number of jobs printed since initialization of HP AC.
- **Highest Defined:** Highest number of printers that were available to the HP AC Print Server, since initialization.
- **Pages Printed:** Total number of pages printed since initialization of HP AC.
- **Current Printing:** Current number of printers processing jobs.
- **Lines Printed:** Total number of lines printed since initialization of HP AC.
- **Highest Printing:** Highest number of printers processing jobs since HP AC initialization.
- **Bytes Printed:** Total number of bytes printed since initialization of HP AC.

Status

- **Idle:** Current number of printers in idle state.
- **Int-Req:** Current number of printers in intervention required state.
- **Selected:** Current number of printers that have selected a file to print and are waiting to be dispatched.
- **Stopped:** Current number of printers in stopped state.
- **Connecting:** Current number of printers in waiting connect state.
- **Error:** Current number of printers in error state.
- **Converting:** Current number of printers in converting state.
- **Diverted:** Current number of printers in a Diverted state.
- **Printing:** Current number of printers in printing state.

Spool Statistics

- **Number of Queues:** Number of printer queues created for HP AC Print Server. Typically, there is one printer queue for every active printer.
- **Jobs in Output Queue:** Total number of spool jobs contained in all printer output queues.
- **Total Jobs:** Total number of spool jobs contained in all printer queues.
- **Jobs in Retained Queue:** Total number of spool jobs contained in all printer retain queues.
- **Available Spool Space:** Amount of space available for the spool directory.

Keys

Product Name	License Type	Licenses	Licenses Remaining	Expiration Date	Message
HP AC Enterprise Print Server	Trap	1000	948	2018/07/31	LICENSE TERM WILL EXPIRE IN 29 DAYS ON Jul 31 2018
HP AC Enterprise Spooler	Trap	Unlimited	Unlimited	2019/04/26	
HP AC Pull Printing	Trap	10	0	2019/04/26	
HP AC for HP	Trap	10	9	2019/04/26	
HP AC for XT	Trap	10	10	2019/04/26	

- **Product Name:** Specifies the product keyword name for the key that was supplied.
- **License Type:** Specifies the type of key (license or trial).
- **Licenses:** Specifies the number of users/printers licensed for the product.
- **Licenses Remaining:** Specifies the number of licenses remaining.
- **Expiration Date:** Specifies the date that the trapped keys will expire.
- **Message:** Displays any messages associated with the installed key. These messages could be warnings that a trial key is about to expire.

4.1.1.4 Device tile

The Devices tile allows you to manage devices and pull print queues in your printing environment.

The following details are contained in the Pull Printing tab:

- **Printer:** Name of the printer.
- **Server ID:** The VPSX Print Server ID where the printer is defined.
- **Status:** The current status of the printer.
- **Pull Print:** A lock icon will appear if the device has been selected as a pull printing device in the device definition.
- **Device:** The device name retrieved from the device via SNMP.
- **Deployment:** The current deployment status. All printers defined as pull printing devices will display a status.
 - NOT DEPLOYED: The workflows have not been deployed.
 - REMOVING: The workflows are being removed.
 - ERROR: There was an error encountered deploying or configuring the work flow. View the Pull Printing details for more information.

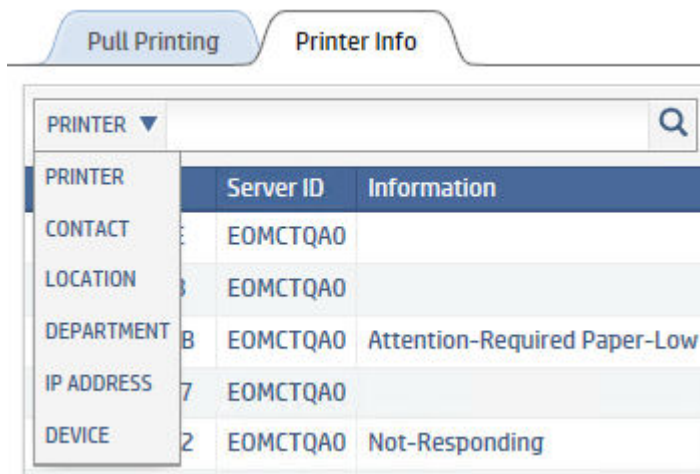
- **LOADING:** HP AC is preparing deploy or remove functions.
- **UPDATING:** The agent is requesting the status of workflows and configuration from the device.
- **DEPLOYING:** The workflows are currently being deployed. View the Pull Printing details for more information.
- **DEPLOYED:** The workflows have been successfully deployed.
- **Agent:** This column will display the last known agent which deployed the workflows.
- **Last Deployment:** The date and time of the last successful deployment of workflows.
- **Pull Printing:** A check will appear if the Pull Printing workflow has been deployed.
- **Tracking:** A check will appear if the Tracking workflow has been deployed.
- **Authentication:** A check will appear if the Authentication workflow has been deployed.
- **Quota:** A check will appear if the Quota workflow has been deployed.

The screenshot shows the 'Devices' page in the HP Access Control Configuration utility. It features a search bar at the top left and several tabs: 'Pull Printing' (selected) and 'Printer Info'. Below the search bar is a table with columns: Printer, Server ID, Status, Device, Deployment, Agent, Last Deployment, Pull Printing, Tracking, Authentication, and Quota. The table lists several printers, including HP Officejet Pro X576dw MFP, HP PageWide Pro 552 Printer, HP LaserJet MFP M630, HP LaserJet color flow MFP M575, HP Color LaserJet M653, HP LaserJet M3035 MFP, HP Color LaserJet MFP M680, and PERSONALQ. The 'Deployment' column shows 'DEPLOYED' in green for most printers and 'NOT DEPLOYED' in grey for others. The 'Pull Printing', 'Tracking', and 'Authentication' columns have checkmarks indicating deployment status.

Printer	Server ID	Status	Device	Deployment	Agent	Last Deployment	Pull Printing	Tracking	Authentication	Quota
HPSEC10E	EOMCTQAD	Idle	HP Officejet Pro X576dw MFP	DEPLOYED	HP Agent (x64) 16.0.0.0	2017/07/14 14:19:50	✓	✓	✓	
HPDF00E3	EOMCTQAD	Idle	HP PageWide Pro 552 Printer	DEPLOYED	HP Agent (x64) 16.0.0.0	2017/07/14 13:56:42	✓	✓	✓	
NPI0FB00B	EOMCTQAD	Idle	HP LaserJet MFP M630	NOT DEPLOYED						
NPI155897	EOMCTQAD	Idle	HP LaserJet color flow MFP M575	DEPLOYED	HP Agent (x64) 16.0.0.0	2017/07/17 01:51:57	✓	✓	✓	
NPIAA3032	EOMCTQAD	Idle	HP Color LaserJet M653	DEPLOYED	HP Agent (x64) 16.0.0.0	2017/07/14 15:33:09	✓	✓	✓	
NPID1146E	EOMCTQAD	Idle	HP LaserJet M3035 MFP	NOT DEPLOYED						
NPIEGG9C	EOMCTQAD	Idle	HP Color LaserJet MFP M680	DEPLOYED	HP Agent (x64) 16.0.0.0	2017/07/14 16:28:10	✓	✓	✓	
PERSONALQ	EOMCTQAD	Idle								

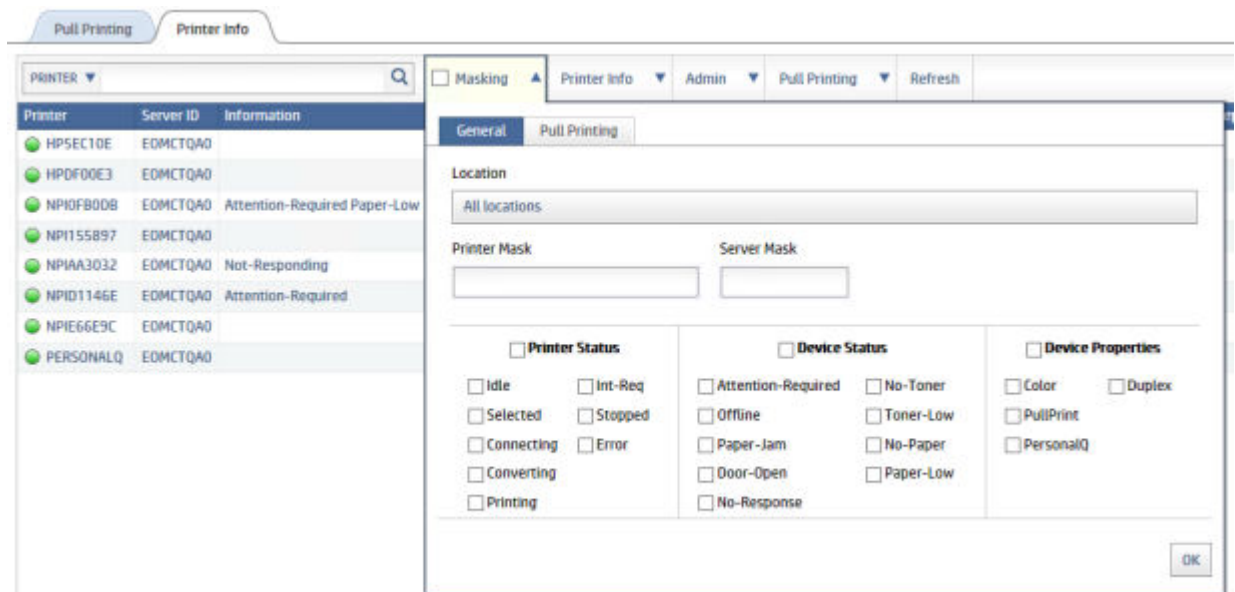
Search the printer list to display only printers matching the search criteria. The find string can be any of the following:

- One or more full or partial Printer names/printer long names.
- One or more full or partial Contact strings.
- One or more full or partial Location strings.
- One or more full or partial Department strings.
- One or more full IP Address (i.e., 10.96.160.102 192.168.2.1).
- One or more full Device strings.



4.1.1.4.1 Masking tab

Masking allows the user to specify which printers are to be included in the device list. The selection possibilities include printer name, group name, and printer status. With these selections, the Printer List is filtered to only those printers that match the masking criteria. If nothing is entered in any of these selection fields, every printer that the user is authorized to control will appear in the Printer List. The user can mask the printer list by printer name, group name, printer status, or SNMP device status.



- **Printer Mask:** Identifies the printer(s) to be included in the Printer List. A generic printer mask may be specified using the * and ? wild card characters.
- **Server Mask:** Limits the list of printers to a specific HP AC Print Server. A generic server mask may be specified using the * and ? wild card characters.
- **Printer Status**
 - **Idle:** Current number of printers in idle state.
 - **Selected:** Current number of printers that have selected a file to print and are waiting to be dispatched.
 - **Connecting:** Current number of printers in waiting connect state.

- **Converting:** Current number of printers in converting state.
- **Printing:** Current number of printers in printing state.
- **Int-Req:** Current number of printers in intervention required state.
- **Stopped:** Current number of printers in stopped state.
- **Error:** Current number of printers in error state.
- **Device Status**
 - **Attention-Required:** Displays printers with a status of Attention Required.
 - **Offline:** Displays printers with a status of Offline.
 - **Paper-Jam:** Displays printers with a status of Paper Jam.
 - **Door-Open:** Displays printers with a status of Door Open.
 - **No-Response:** Displays printers with a status of No Response.
 - **No-Toner:** Displays printers with a status of No-toner.
 - **Toner-Low:** Displays printers with a status of Toner-low.
 - **No-Paper:** Displays printers with a status of No-paper.
 - **Paper-Low:** Displays printers with a status of Paper-low.
- **Device Properties**
 - **Color:** Displays only color capable printers.
 - **PullPrint:** Displays printers enabled for Pull Printing.
 - **PersonalQ:** Displays printers that are Personal Queues.
 - **Duplex:** Displays only duplex capable printers.



NOTE: If no boxes are selected, all printers will be displayed.

To change printer masking, select new printer masking criteria by selecting the appropriate boxes. The Printer List will be updated automatically when the Masking tab is closed by selecting another tab.

4.1.1.4.2 Printer info tab

- **Log:** Display current log entries for the printer.
- **SNMP Info:** Loads the printer SNMP information.
- **Printer EWS:** Open the printer Embedded Web Server in a web browser.

4.1.1.4.3 Admin tab

- **Activate:** Activate existing printer definition.
- **Add:** Add a new printer definition.
- **Copy:** Copy an existing printer definition.
- **Delete:** Delete existing printer definition.
- **Update:** Update existing printer definition.

4.1.1.4.4 Pull Printing tab

The following details are contained in the Pull Printing tab:

- **Printer:** Name of the printer.
- **Server ID:** The Print Server ID where the printer is defined.
- **Status:** The current status of the printer.
- **Pull Print:** A lock icon will appear if the device has been selected as a pull printing device in the device definition.
- **Device:** The device name retrieved from the device via SNMP.
- **Deployment:** The current deployment status. All printers defined as pull printing devices will display a status.
 - NOT DEPLOYED: The workflows have not been deployed.
 - REMOVING: The workflows are being removed.
 - ERROR: There was an error encountered deploying or configuring the work flow. View the Pull Printing details for more information.
 - LOADING: HP AC is preparing deploy or remove functions.
 - UPDATING: The agent is requesting the status of workflows and configuration from the device.
 - DEPLOYING: The workflows are currently being deployed. View the Pull Printing details for more information.
 - DEPLOYED: The workflows have been successfully deployed.
- **Agent:** This column will display the last known agent which deployed the workflows.
- **Last Deployment:** The date and time of the last successful deployment of workflows.
- **Pull Printing:** A check will appear if the Pull Printing workflow has been deployed.
- **Tracking:** A check will appear if the Tracking workflow has been deployed.
- **Authentication:** A check will appear if the Authentication workflow has been deployed.
- **Quota:** A check will appear if the Quota workflow has been deployed.



NOTE: When importing HP FutureSmart devices from a CSV file or manually adding HP FutureSmart devices, device information is retrieved using OXPd. This allows for SNMP V1 or V2 to be disabled on devices, if needed.

4.1.1.5 Print server tile

The **Print server** tile displays all print queues installed on the server, allowing you to configure print queues for tracking, quota or IPM. The columns may vary, depending on if Job Accounting, IPM or both are installed.

The check boxes under the columns indicate what features are enabled for the print queue.

Name	Port	Tracking	Quota	Add tracking PJJ attributes	IPM	IPM Cost	Pause job
P3015	10.96.140.116	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
PWP 77750	10.96.140.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Microsoft XPS Document Writer	PORTPROMPT:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Microsoft Print to PDF	PORTPROMPT:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
M575	10.96.140.75	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
EDMCTO2 PULLPRINT	10.10.8.65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ENT	10.10.8.107	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

4.1.1.6 Server Information tile

The **Server Information** tile displays valuable information to help you manage HP AC on your server. This tile displays information about the server and the ability to enable and view the HP AC logs. This makes it easy to check if your HP AC components are up to date, and view valuable information about your server, such as hard drive space available. Click **Help > About** to view copyright information about HP Access Control (HP AC). See [Section 15.3, Server information](#).

The screenshot shows two side-by-side panels from the HP AC admin console. The left panel, titled 'Applications', is a table listing various HP AC components and their versions. The right panel, titled 'Log mode', is a list of services that can be enabled or disabled, each with a checkbox and a trash icon.

Product	Version
64 BIT HP CID Components Installer	21.2.1
Database Manager	3.8.762.0
Device Analysis	1.4
HP Access Control AD-Authenticator	4.2.3.0
HP Access Control	16.2
HP Fleet Deployment Tool	1.6.0
HP OPS	1.0.20
HP Statistics	16.0.0.1
Intelligent Print Management	1.7.1
IPM Notification Desktop Client	1.6
Job Accounting	3.9.4.767
LRS AlertX	1.0.003
MFPsecure Accounting Service (x64)	1.3.018.001
MFPsecure Lexmark Agent (x64)	1.3.016.002
Secure Pull Print Enterprise	1.2.0.16
User List Editor	4.0.13.625
VPSX Windows API (x64)	1.011.100

Log mode

- Admin console
- Admin console web service
- License server
- Job accounting**
 - Job accounting tracking and reporting
 - Job accounting processing
 - Job accounting agent
 - HP Statistics web service
 - Quota web service
- Pull printing**
 - Enterprise spooler (service will be restarted)
 - Enterprise port
 - Print engine
 - Delegate web service
 - Pull Printing web service
 - S900 Series Authentication web service
 - S900 Series Pull Printing web service
 - Email service
 - Purge service

4.1.1.7 Multi-vendor Management

The Multi-vendor Management tile displays in the admin console only when the HP AC license file contains keys for non-HP devices. This tile launches the LRS MFPsecure application. MFPsecure is used to add and configure non-HP (multi-vendor) devices for authentication, tracking, and pull printing. For more information on how to add and configure devices with MFPsecure through the Multi-vendor Management tile, contact HP and refer to the LRS MFPsecure manual.

4.2 Configuring general settings

Prerequisites

- HP AC Agent and HP AC Secure Pull Print must be installed on the server.
- HP AC Job Accounting server installed on a local or remote server on your network.

 **NOTE:**

- For security reasons, Windows authentication passwords in the Settings tile > Database tab do not display after the HP AC configuration utility is closed and reopened. The password is saved but does not display.
- This must be performed prior to configuring devices.


Complete the following steps:

1. After installation the HP Access Control configuration utility will highlight in orange the general configuration options that must be configured prior to configuring a device for use with HP Access Control. Some settings will be highlighted in orange in the Devices and Settings tile to show the minimum configuration required for HP AC. After the configuration changes have been made the highlighted areas will return to normal color indicating the change has been made once you navigate to a new tab or tile. Mandatory fields will appear in red, and must be configured before the settings can be saved.
2. To send tracking data from devices to the Job Accounting server (if Job Accounting has been installed), the transfer protocol must be configured. This is used by non-FutureSmart devices to upload job Accounting tracking files. It is also used in a multi-server environment to point the Job Accounting data collectors to the main Job Accounting server.

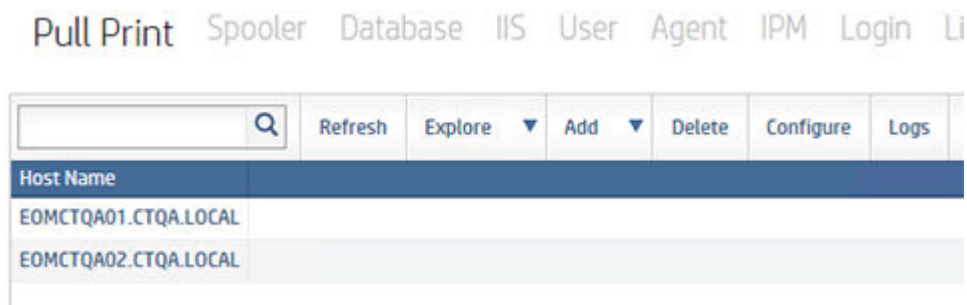
To configure the server for tracking data, complete the following steps:

- a. Go to the Settings tile > Pull Print tab, choose the server, and then click **Configure**. Go to the Advanced tab > HP Agent push mode.
- b. Enter Windows credentials for HTTP connection in the Login and Password fields.

HTTP credentials: HTTP connections are usually terminated after a particular request has been completed.

 **NOTE:** If IIS 7 or newer is installed on the server, Basic Authentication needs to be enabled. Devices require Basic Authentication to pass data via HTTP when IPA sends tracking data to the Job Accounting Print Server. The default port is 80.

- c. Set the Interval (minutes) to specify how often tracking data is pushed from the devices to the Job Accounting server.
 - d. Click **Test Connection** and **Update**.
3. To add additional servers, go to the Settings tile > Pull Print tab > Add > Pull Printing Server. Enter the FQDN of the remote server and click **Add**.



 **NOTE:**

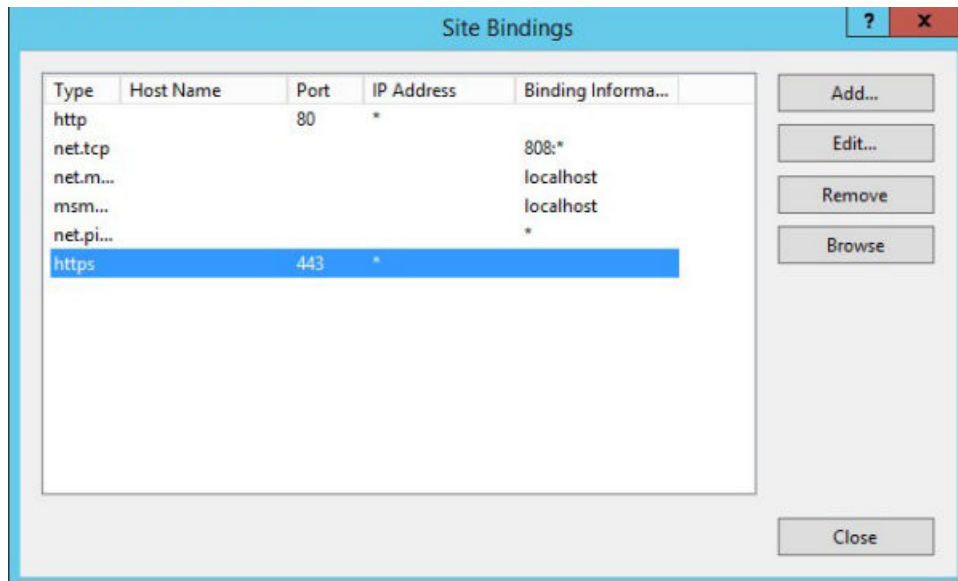
- When configuring HP AC there may be a requirement to set the device to look at multiple IIS servers. When multiple IIS servers are in the Settings > Pull Print area, then the option to configure for a different IIS server will appear for the Pull Printing, Tracking, and Authentication/Authorization options in the Devices > Deploy Workflows.
- When using multiple IIS servers, ensure that the server certificates are configured properly. Refer to [Section 4.2.4.2, Creating certificates in a multi-server installation](#).
- If using a certificate that was issued to a server name then you will have to check **Use server name instead of IP (devices)**.
- If using server name, ensure the device's DNS entry is properly configured.

4. Certificates are required for security to confirm the identity of a web server before sensitive data is transferred. See [Section 4.2.4, Configuring server certificates](#). To generate self-signed v3 certificates, complete the following steps:

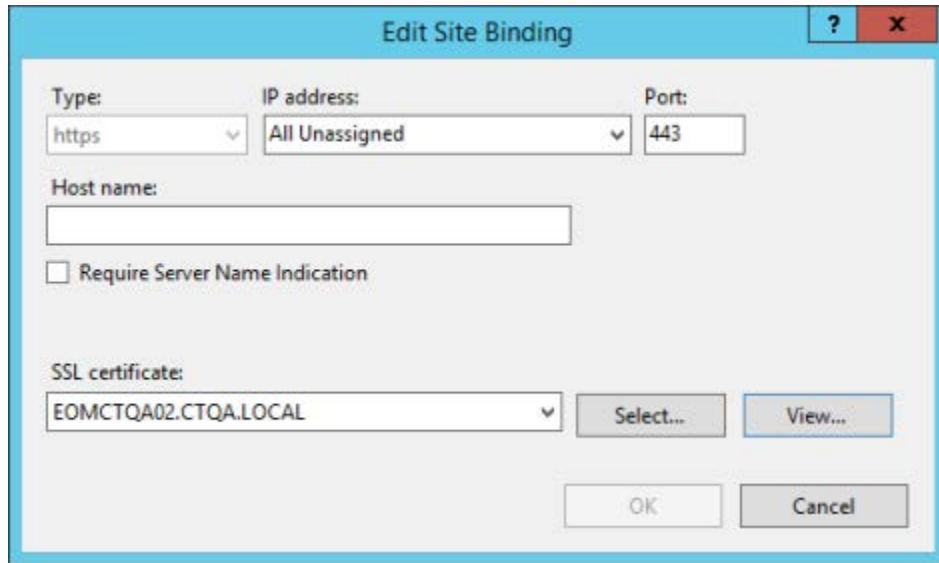
- a. Go to the Settings tile > Pull Print tab, choose the server, and then click **Configure**.
- b. Click **Create Certificate**. Two certificates are created for the server: one named with the server hostname, and one named with the server IP address. Both certificates, however, contain the server hostname and IP address in the Subject Alternate Name line in the certificate details. The certificates are created in the \Program Files\HP\HP Access Control folder. The certificates are also created in \Program Files\HP\HP Access Control\Open SSL and are used for communication between multiple HP AC servers.
- c. Click **Update**. This will automatically bind the certificate to the default web site.


To view assigned certificates in IIS:

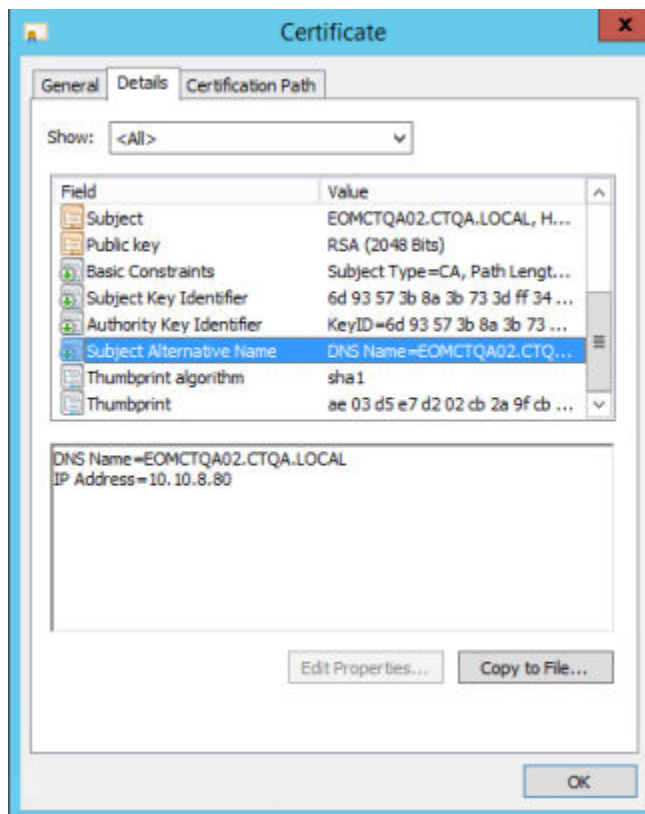
- a. Go to IIS Manager.
- b. Select **https** and click **Edit**.



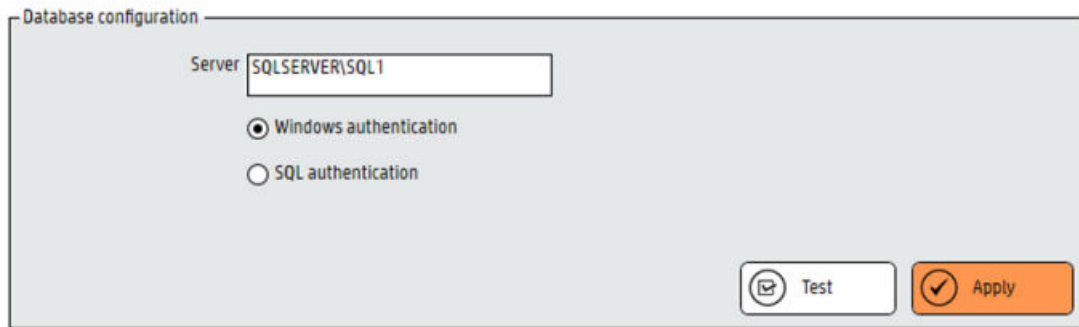
- c. In the SSL certificate field, you will see the certificate.



 **NOTE:** Click **View** to open the certificate information, then click the Details tab, and scroll down to view the Subject Alternate Name line containing the server hostname and IP address.



5. Under **Database configuration** click **Test** and **Apply** to verify and test the connection to the Job Accounting database.



Database configuration

Server:

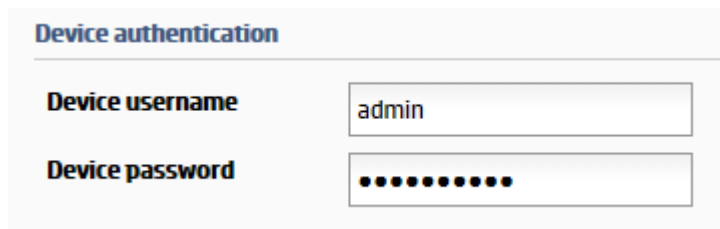
Windows authentication

SQL authentication

A message will appear in the messages pane showing successful creation.

```
9/10/2015 2:58:16 PM - Database connection updated successfully
9/10/2015 2:58:16 PM - Agent configuration updated successfully
9/10/2015 2:58:16 PM - Quota web service configuration updated successfully
9/10/2015 2:58:16 PM - Report server configuration updated successfully
9/10/2015 2:58:16 PM - Report manager configuration updated successfully
9/10/2015 2:58:16 PM - Database settings saved
```


6. In the Settings tile, choose the server and click **Configure**. Under the General tab > Device authentication section, enter the admin password for the device.



Device authentication

Device username

Device password

 **NOTE:** This is the default device password and must match the device password set in the device EWS. If your environment includes devices with different EWS passwords, then the device password can be set on a per-device basis in HP AC. To set the password for an individual device, go to the Devices tile > select the device > Admin > Update > Advanced tab > and set the device's username and password to match what is set on the device EWS. Please refer to product documentation on how to set the Embedded Web Server password on the device.

7. Go to the License tab to set up the email notification so it will notify before the license expires. Refer to [Section 4.2.7, Configuring the server for licensing](#) for more information. Enter valid email addresses and click **Apply**.

The screenshot shows a window titled "License" with the following fields:

- Recipient email addresses:** admin@hp.com
- Email subject:** HP AC License Notification - Alert License Expiration Pending
- Email body for license server error:** Attention - The HP Access Control licensing on [Server] has experienced an error condition. HP Access Control device functionality may be impacted until this issue has been resolved.
- Email body for license expiration:** [Product] license on server [Server] is going to expire. The current key is valid for [Devices] devices and will expire on [Date]. Please contact your HP account team.

Acceptable tags are [Product], [Devices], [Date], [Server]

8. Go to the PersonalQ tile > Admin > Add, and then enter the name for a PersonalQ for users to store jobs. Refer to [Secure Pull Printing](#) for further configuration options for pull printing.

The screenshot shows a window titled "Printer Configuration" with the following fields:

- PersonalQ:** (Empty text box)
- Server ID:** EDMCTQAO

Buttons: Add, Cancel

NOTE: Default configuration for authentication is set to code with LDAP as the storage option. Please refer to [Section 5.3.1, Authentication method and data storage options](#).

4.2.1 Adding devices

Adding devices to the HP AC configuration utility can be done either individually, by scanning for devices over the network, or by importing.

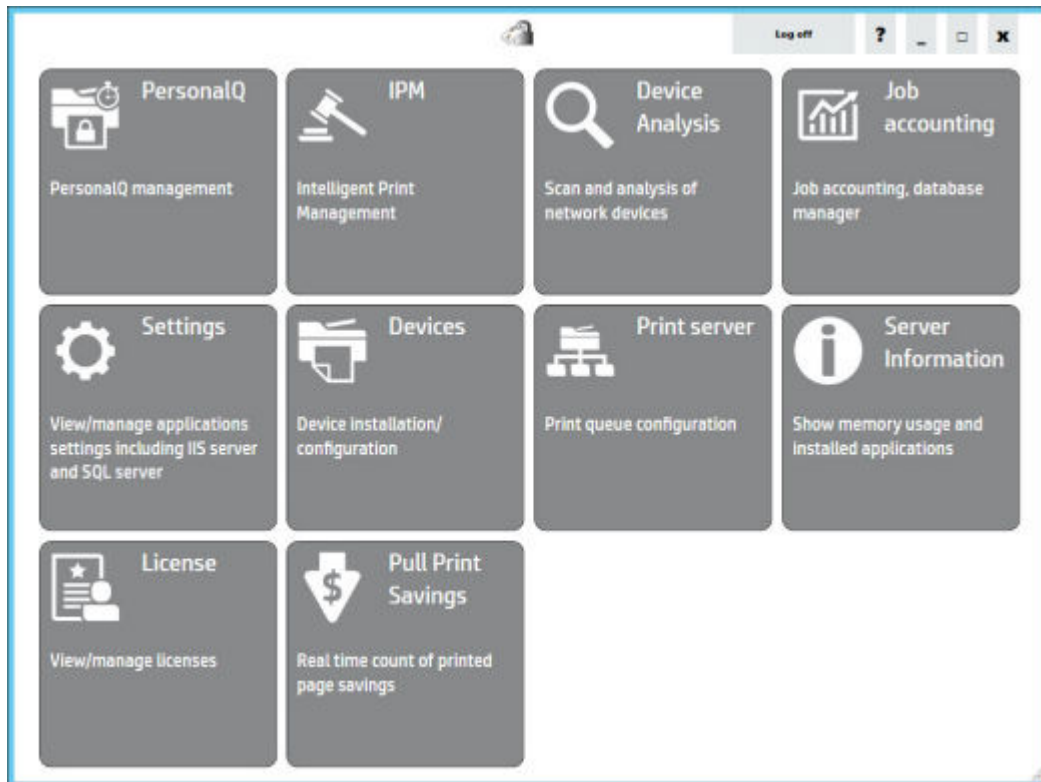
Prerequisites

- Printers and devices must be turned on and connected to the network.
- Device's EWS password has been set.
- Device's EWS username and password is entered in the Settings tile > Pull Print tab, select your server, and then click **Configure**. Go to the General tab > Device Authentication section.

4.2.1.1 Adding devices individually

Complete the following steps to add devices individually:


1. In the HP AC Configuration utility, click **Devices**.



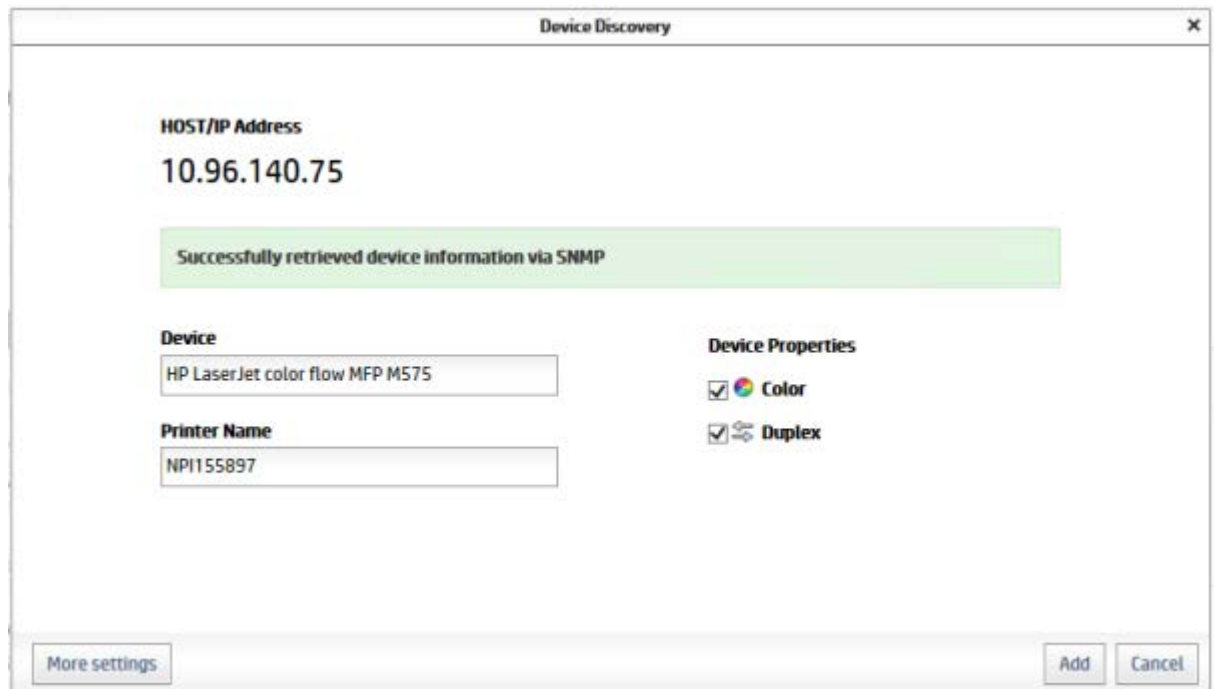
2. Click **Admin > Add**. In the HOST/IP Address field, enter the host name or IP address of the device. In the Server ID field, select the server to which you want to add the device. Then click **Discover**.



The image shows a 'Printer Configuration' dialog box. On the left, there is a printer icon with the word 'PRINTER' below it. On the right, there are two input fields: 'HOST/IP Address' containing '10.96.140.75' and 'Server ID' containing 'EDMCTQAD'. At the bottom right, there are 'Discover' and 'Cancel' buttons.

 **IMPORTANT:** SNMP is a requirement to detect the printer model. If SNMP cannot find the model, cancel the wizard and fix the SNMP issue on the device before continuing.

3. On the Device Discovery screen, in the Device field, verify the device type is correct. In the Printer Name field, enter a name for the device. This Printer Name is for easier identification of the device and will display under the Printer column of the device list. And in the Device Properties fields, select the features capable on the device.



The image shows a 'Device Discovery' dialog box. At the top, it displays 'HOST/IP Address' as '10.96.140.75'. Below this is a green success message: 'Successfully retrieved device information via SNMP'. Under the 'Device' section, the 'Device' field contains 'HP LaserJet color flow MFP M575' and the 'Printer Name' field contains 'NPI155897'. Under the 'Device Properties' section, there are two checked checkboxes: 'Color' and 'Duplex'. At the bottom, there are 'More settings', 'Add', and 'Cancel' buttons.

4. Click **More Settings** if you want to change specific settings for the device, instead of using the default settings. For example, you can add location information, change the SNMP settings, change the device password, or change the print protocol for the device. When finished, click **Add**.

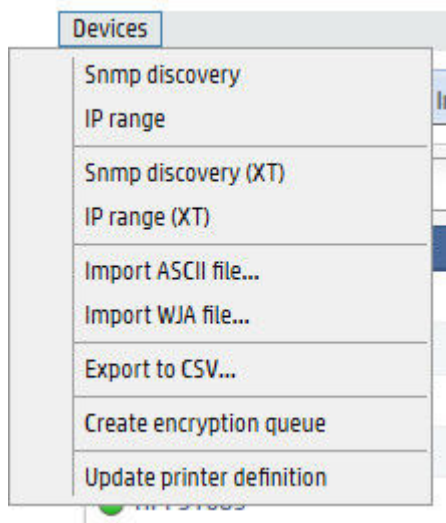
The screenshot shows a configuration window with a title bar containing 'Add' and 'Cancel' buttons. Below the title bar, there are two text input fields: 'Printer Name' with the value 'NPI155897' and 'Server ID' with the value 'EOMCTQAO'. Below these fields are three tabs: 'Basics' (selected), 'SNMP', and 'Advanced'. Under the 'Basics' tab, there is a section titled 'Basic Parameters' containing two input fields: 'HOST/IP Address' with the value '10.96.140.75' and a 'Discover' button next to it, and 'Device' with the value 'HP LaserJet color flow MFP M575'. Below this is a section titled 'Print Job Delivery Parameters' containing two input fields: 'CommType' with a dropdown menu showing 'TCP/IP/SOCK' and 'Remote Port' with the value '9100'.

4.2.1.2 Adding multiple devices

You can add multiple devices either through an SNMP discovery or by entering an IP range.

To scan devices over SNMP:

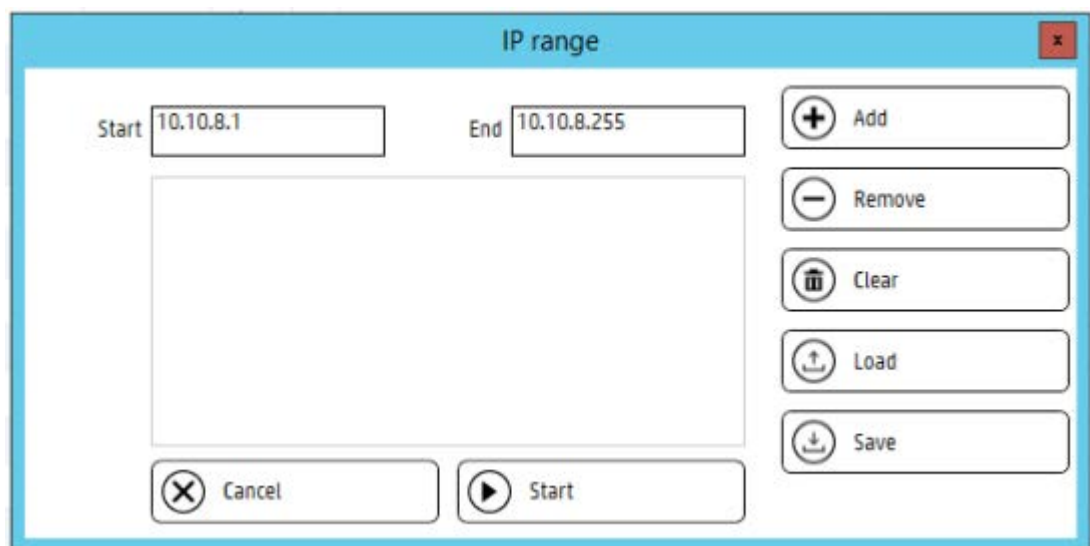
1. Choose **Snmp discovery** from the **Devices** drop-down menu. This will send a broadcast over the network to discover available devices.



2. The progress of the scan displays in the status section at the bottom and the device data appears in the device list.

To enter an IP range:

1. In the Devices menu, enter the IP addresses in the **Start** and **End** fields. To add multiple IP ranges, enter the IP range in the **Start** and **End** fields and click **Add** to add additional ranges. To load a previously saved IP range, click **Load**.



2. Click **Start** to scan the network.
3. The progress of the scan displays in the status section at the bottom, and device data appears in the device list.
4. Click **Save** to save the IP range list.

4.2.1.3 Discovering devices using SNMP v3

Prerequisites:

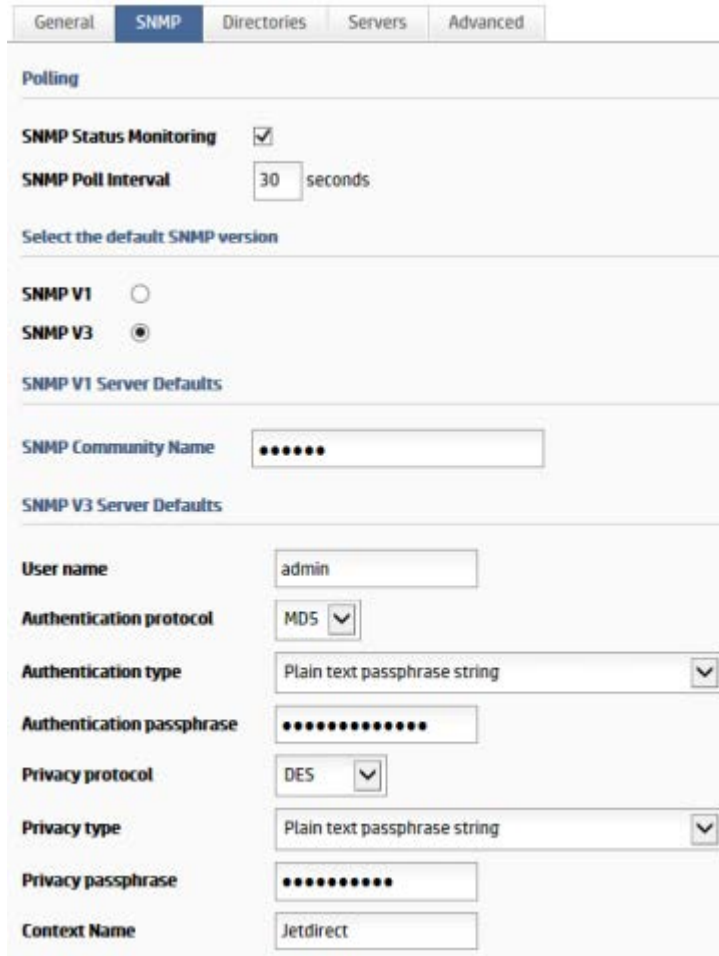
- To use SNMP v3 to discover devices, make sure SNMP v3 is enabled in the device EWS > Networking > Network Settings page.

 **NOTE:** If SNMP v3 settings are set in the HPAC > Settings tile, choose the server and click **Configure**. Go to the Spooler tab > Configure button > SNMP tab, then SNMP v3 will be used to discover devices.

The SNMP v3 information entered on the device must match what is entered in HPAC. Complete the following steps:

1. In the **User name** field, enter the user name on the device for authentication. This keyword sets the User Name used for authentication in SNMP v3 communications with the device.

Figure 4-2 SNMP information



The screenshot shows the HPAC configuration interface for SNMP. The 'SNMP' tab is active. The 'Polling' section has 'SNMP Status Monitoring' checked and 'SNMP Poll Interval' set to 30 seconds. Under 'Select the default SNMP version', 'SNMP V3' is selected. The 'SNMP V3 Server Defaults' section includes: 'User name' (admin), 'Authentication protocol' (MD5), 'Authentication type' (Plain text passphrase string), 'Authentication passphrase' (masked), 'Privacy protocol' (DES), 'Privacy type' (Plain text passphrase string), 'Privacy passphrase' (masked), and 'Context Name' (Jetdirect).

2. Set the **Authentication protocol** (SHA1, MD5 or NONE) for SNMPv3 communication with the device. This value must match the device configuration settings.
3. Indicate whether the authentication passphrase value should be treated as a plain text passphrase string, a hexadecimal representation of the passphrase, or a hexadecimal representation of the pre-localized key.
4. Specify the **Authentication passphrase** for the Authentication protocol (SHA1 or MD5) for SNMPv3 communication with devices. Must match the SNMPv3 settings in the device.
5. Set the **Privacy protocol** (DES, AES128 or None) for SNMP v3 communication with devices. Must match the SNMPv3 settings in the device.
6. Specify if the **Privacy passphrase** field value should be treated as a plain text passphrase string, a hexadecimal representation of the passphrase, or a hexadecimal representation of the pre-localized key.

7. Specify the passphrase for the privacy protocol (DES or AES-128) for SNMPv3 communication with devices. Must match the SNMPv3 settings in the device.
8. For HP devices, keep the **Context name** as “Jetdirect.”
9. Click **Update**.

4.2.1.4 Adding XT devices

The XT device is an external device with an attached card reader that allows for pull printing at any printer or multi-function device. A user simply presents his or her card at the XT card reader and all of his or her stored jobs are printed at the connected printer.

Prerequisites

- XT devices must be connected to a power source, connected to the network, and connected to a printer.
- If your server has a firewall and you want to scan the network using SNMP discovery, make sure UDP 11000 is open.
- Card reader connected to the XT device.

To Scan over SNMP:

1. In the Devices tile, go to the Devices menu and select **SNMP discovery (XT)**. A broadcast will be sent over the network.
2. The progress of the scan displays in the status section at the bottom and the device data appears in the device list.

To Scan over IP:

1. In the Devices tile, go to the Devices menu and select **IP range (XT)**.
2. In the Devices menu enter the IP addresses in the **Start** and **End** fields. To add multiple IP ranges, enter the IP range in the **Start** and **End** fields and click **Add** to add additional ranges.

 **NOTE:** To Load a previously saved IP range, click **Load**.

3. Click **Start** to scan the network.
4. The progress of the scan displays in the status section at the bottom, and device data appears in the device list.
5. Click **Save** to save the IP range list.

4.2.1.5 Copy or Delete a device

Copy will display a copy of the selected printer in the device list.

Delete will display a confirmation dialog before deleting the printer.

From the device list:

1. Select the printer name.
2. Select **Admin**.
3. Select **Copy** or **Delete**.

4.2.1.6 Update a device

From the **Printer List**:

1. Select the printer name.
2. Select **Admin**.
3. Select **Update**. The Printer Configuration screen will display.

The following fields display:

- **Printer Name:** The name of the printer. The printer name is defined at the time the device is added to the Printer List. By default, the hostname of the printer is set as the printer name.
- **Server ID:** The name of the HP AC server where the printer is defined.

The Basics tab displays the following settings:


- **HOST/IP Address:** This keyword defines the TCP/IP host name or IP address associated with the device. Host names that are not explicitly qualified with a domain name will be qualified with the default domain name. Valid values include a dotted decimal IP address or symbolic host name. The Discover button scans the device via SNMP and displays the information retrieved.
- **Device:** The device model as retrieved via SNMP.
- **CommType:** The communication type is the most important parameter when defining a printer. It defines the way HP AC will communicate with the device. The choice of communication type will depend on the destination device, its capabilities, and the level of control and feedback required from the device.

- TCP/IP/LPD is the most common communication type used in TCP/IP environments to send print data between hosts and to deliver output to devices. The LPD (Line Printer Daemon) protocol has been implemented by all printer network card manufactures as a simple protocol to deliver output to a device. This protocol is the lowest common denominator and can be used for most devices or hosts but it provides very limited feedback from devices about the success of a print request and provides no facilities for checkpoint restart of a failed request.

When TCP/IP/LPD is selected, the Remote Queue field displays. The Remote Queue represents the destination printer name as it is known at the receiving host. For HP devices, this field is required only when the default remote queue is changed in the device EWS.

- TCP/IP/SOCK is a direct socket protocol that provides a simple direct communication channel between SPP Enterprise and the printer engine. A connection is established to TCP/IP port 9100 and all data sent by SPP Enterprise is passed directly to the printer.
- TCP/IP/PJL implements a bi-directional communication channel with the printer engine using the PJL (Printer Job Language) job management language. This protocol provides the most sophisticated control of print delivery, including guaranteed delivery of each page to the output hopper, checkpoint restart in the event of a failure, and full device status information (i.e., page jam, load paper, etc.). The default implementation delivers one document at a time and waits for all pages to be delivered to the output tray before commencing delivery of the next document. While this provides the highest level of assured delivery, it can introduce a delay between documents caused by the printer engine winding down while the paper path is completely cleared. When printing a large number of small document this delay between jobs is most noticeable.

When TCP/IP/PJL is selected, the Overlapping Jobs field displays. This specifies the number of jobs that should be delivered to the printer concurrently to improve performance. By overlapping the delivery of multiple documents to the device, while monitoring the job and device status, it is possible to prevent delays that can occur between documents caused by the printer clearing the paper path before confirming job completion. These delays are most noticeable when printing large numbers of small documents. Valid values are 1 to 20. Default is 1 (single job delivery with no overlap).

 **NOTE:** The value chosen for the Overlapping Jobs parameter should be the lowest value required to prevent delays between documents and will vary depending on the speed and capabilities of the target printer. A value of 3 should be sufficient for most printers.

- TCPIP/IPP instructs HP AC to use the Internet Printing Protocol (IPP) to deliver documents to IPP enabled devices or servers. The IPP standard was developed by an Internet working group, consisting of all major printer manufacturers, and defines a sophisticated protocol for communication with network attached printers or IPP enabled servers (such as HP AC). The IPP protocol provides more sophistication than the LPD or SOCKETS communication types and enables HP AC to retrieve information about the device status before delivery. This means that HP AC will detect printer problems and set the printer status to 'intervention required' if the device is offline due to a paper jam, no paper, or other conditions requiring attention. IPP does not provide the guaranteed delivery to the output hopper that PDL communication offers, but it will give improved performance when printing large numbers of small documents and still provide feedback of device errors.

When TCPIP/IPP is selected, the Remote Queue field displays. This specifies the path component of the device URL. For example, when defining a printer with URL `http://hostname:631/ipp/port1`, the Remote Queue field should specify `ipp/port1`. For HP devices, this field is required only when the default remote queue is changed in the device EWS.

- The TCPIP/LRSQ protocol provides a sophisticated mechanism for transferring print files between HP AC servers. The LRSQ protocol provides data compression and encryption between HP AC print servers and provides more direct control over the print attributes at the destination host.

When TCPIP/LRSQ is selected, the Remote Queue field and Alternate HOST/IP field displays. The Remote Queue field defines the default remote queue to receive documents. The Alternate HOST/IP field specifies an alternate (failover) host that will be contacted if the primary server is unavailable. Valid Values include a dotted decimal IP address or symbolic hostname. The alternate host name can optionally be qualified with an alternate remote port number. For example, `hostname:5500`.

- PERSONALQ indicates that this printer is a Personal-Print-Queue. A Personal-Print-Queue is a virtual printer definition that is used to hold jobs that are destined for a specific recipient instead of a specific device. A printer defined with `COMMTYPE=PERSONALQ` will never select any documents placed in the queue, as it is simply a holding queue for personal documents which will later be retrieved by the user from a real printer that has been enabled for Pull Printing.
- **None:** Specifying a communication type of **None** provides the ability to define a null printer definition that will only be used to feed files to a filter process. After executing the filter process, no further processing will occur. The output from the filter process will not be delivered and the filter process does not need to create an output file. This can be used to automatically feed print files to a filter routine that will pass the data to an archival or other external solution.

- **Remote Port** defines the TCP/IP port number that the device is using for inbound connections. The remote port number specified will depend on the communication type selected and the configuration of the remote devices or host.
- **Location** specifies the printer location as a simple text string. The location value enables users to easily locate a printer based on physical location and should be entered in a hierarchical format with each level separated by a '/' character.

For example: `usa/springfield/building 1/first floor/room 123`. Customers should adopt a standard schema when entering printer locations as this will enable HP AC to present a tree display to users when searching by location. To help ensure that locations are entered consistently, the HP AC printer configuration screen includes a 'Location browser' dialog that allows administrators to choose from previously entered locations. After selecting a location, the value can then be modified to add additional levels as required. The location browser is accessed by selecting the '..' button at the end of the location field. The number of levels required in the location string depends on the size of your organization but it is a good idea to

choose a location naming schema that will meet your current and future requirements. Valid Values include 1 to 255 characters

- **Contact** enables the administrator to identify a primary contact for the device that will be displayed. Valid Values include 1 to 63 characters.
- **Department** enables the administrator to identify the department the printer belongs to. Valid Values include 1 to 63 characters.
- **Color** indicates whether the target device supports color printing.
- **Duplex** indicates whether the target device supports duplex (double sided) printing.

The SNMP tab displays the following settings:

- **SNMP:** This keyword defines whether the device supports SNMP and specifically the Printer MIB (Management Information Base). The Printer MIB (RFC1759) defines a standard set of management information that should be maintained by the SNMP agent in a printer. SNMP support enables HP AC to continually monitor the device, even when it is not actively printing, and display the status in the log and the HP AC admin console. Detailed information about the current device status, console message, input trays, output hopper, language interpreters, and total pages printed can also be retrieved in response to a user request.



NOTE: If HP AC detects that a device does not support one of the required printer MIB fields it will disable SNMP support for this device and issue a message to the LOG.

- **SNMP version:** This keyword specifies the version of the SNMP protocol to be used to communicate with this printer. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab.
- **SNMP Community Name (SNMPV only):** As a simple form of security, all SNMP devices can be configured with a Community name that must be specified to retrieve information from the MIB. The default Community Name is "public." If the devices have been configured to use a different Community Name, that Community Name must be specified to be used for this device. Valid Values include 1 to 31 characters.
- **User name (SNMPV3 only):** This keyword sets the User Name used for authentication in SNMP v3 communications with the device. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab. Valid Values include 1- to 32-character values.
- **Authentication protocol:** Sets the Authentication protocol (SHA1, MD5 or NONE) for SNMPv3 communication with the device. This value must match the device configuration settings. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab.
- **Authentication type:** Indicates whether the authentication passphrase value should be treated as a plain text passphrase string, a hexadecimal representation of the passphrase or a hexadecimal representation of the pre-localized key. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab.
- **Authentication passphrase:** Specifies the Authentication passphrase for the Authentication protocol (SHA1 or MD5) for SNMPv3 communication with devices. Must match the SNMPv3 settings in the device. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab. Valid Values include 1-64 Characters.
- **Privacy protocol:** Set the Privacy protocol (DES, AES128 or None) for SNMP v3 communication with devices. Must match the SNMPv3 settings in the device. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab.

- **Privacy type:** Specifies if the privacy passphrase field value should be treated as a plain text passphrase string, a hexadecimal representation of the passphrase or a hexadecimal representation of the pre-localized key. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the system configuration.
- **Privacy passphrase:** Specifies the passphrase for the privacy protocol (DES or AES-128) for SNMPv3 communication with devices. Must match the SNMPv3 settings in the device. If no value is explicitly set in the printer definition the value will be inherited from the SNMP settings in the Settings tile > Spooler > Configure > SNMP tab. Valid Values include 1-64 Characters.
- **Context Name:** For HP Devices use a context name of (Jetdirect). For other devices, if a context name is required determine the Context Name from the device manufacturer. The value Must match the SNMPv3 settings in the device. Valid Values include 1-32 Characters.

The Advanced tab displays the following settings:

- **XT Box IP Address:** This keyword is required when using an External Authentication device attached to a printer and specifies the IP address of this device.
- **Device Username:** This keyword specifies the user name required to authenticate with the printer.
- **Device Password:** This keyword specifies the password required to authenticate with the printer.

4.2.1.7 Importing device data

Device data can be imported in an ASCII or CSV format.

To import a list of IP addresses/host names in ASCII or CSV format, complete the following steps:

Prerequisites

- The CSV file must be exported from Web Jetadmin first.
- In the TXT or CSV file, each device must be listed on a separate line.

Refer to the HP Web Jetadmin documentation for instructions on how to export a CSV file.

To import device data from a CSV file:

1. Go to the **Devices** menu and select **Import WJA file**.
2. Browse to the location of the file, and click **Open**.

The progress will display in the status section at the bottom, and device data appears in the device list.

To Import device data from an ASCII file:

1. Go to the **Devices** menu and select **Import ASCII file**.
2. Browse to the location of the file, and click **Open**.
3. The progress will display in the status section at the bottom, and device data appears in the device list.

 **NOTE:** The following are supported column headers in the WJA file:

- "IP Address", "IP", "IPv4Address", or "IPHostname": to set the device host/IP address.
 - "DeviceLocation": to set the device location.
 - "ContactPerson": to set the device contact.
 - "DeviceGroupMembership": to set the device department.
-

4.2.1.8 Block device with no licenses

If the limit of the number of IRM licenses has been reached, then the administrator will not be allowed to add more devices in the Devices tile. When attempting to input a new device in the Devices tile, a check will be made against the number of IRM licenses. If the licenses are completely used, then a new device will not be added.

4.2.2 Email

For information about configuring the server to allow users to email jobs for pull printing, please see [Section 6.3, Set up the HP Access Control \(HP AC\) Secure Pull Print server for email printing](#)

4.2.2.1 Set SMTP Server parameters

This section describes how to set the AD-Authenticator SMTP Server parameters. The AD-Authenticator uses the SMTP server to email users their assigned codes and access rights.

1. Go to HP AC > Settings > Pull Print tab. Choose the server to be configured and click **Configure**. Go to the Advanced tab > SMTP section.
2. Set the SMTP Server address. The AD-Authenticator can usually detect your SMTP server automatically. Select Automatically detect SMTP server to enable this feature. To disable the feature, uncheck the box and enter the network name or IP address of your SMTP server.
3. Specify the username and password to be used to access the SMTP server if the server requires authentication.
4. Codes sent by email to users are automatically sent from the address “no-reply@domain.com”, where the domain is automatically populated using the user’s email address. When using multiple domains, it is required to enter the email address to be used in the “Sender email address” field. This is the “FROM” email address that users will see when they receive a code through email.

4.2.2.2 Configuring for email notification

Perform the following steps to configure the HP Access Control server to send email notifications to end users, all of which contain information that can be sent via email:

- Job Accounting reports
- Device analysis scheduled scans.
- IPM notifications (when using email notification). HP AC Enterprise bundle only.
- Notification from the Secure Pull Print Server if a user’s job cannot be processed.
- AD User Editor information, AD Group Manager information, and User List Editor PINs.
- HP Access Control license notification.


Prerequisites

- Email attribute configured in the Settings tile > Pull Print tab and choose the server and click **Configure**. Go to the Advanced tab > LDAP User Attributes section.

Complete the following steps:

1. Go to Settings tile > Pull Print tab and choose the server and click **Configure**. Go to the Advanced tab > SMTP section.
2. Under the SMTP section, enter the **Server name** (name or address of your company’s email server).

3. If required, change the email Server port (default is 25). Click the TLS checkbox to enable Transport Layer Security protocol to encrypt and deliver mail securely.
4. Enter the domain user / password having access to the email server in the **Login** and **Password** fields.
5. In the **Sender email address** field, enter the email address you want to appear in the “From” field of emails. If you are submitting jobs for email printing to the HP AC server it is recommended to use the same email address that the users submit their jobs to, so that users receive notification emails from that address. See [Section 6.3, Set up the HP Access Control \(HP AC\) Secure Pull Print server for email printing](#)
6. In the **Recipient email address** field, enter an email address to test the connection between the email server and the recipient. Click **Test**.
7. In the **Email subject** field, enter the subject of the notification email. The default is **HP AC Secure Pull Printing**.
8. In the **Email body** field, enter the message you want to appear in the body of the notification email. The default is **The file {0} can't be processed**, where {0} represents the name of the job.

 **NOTE:** For device-based user lists you will be prompted before sending user the PINs to enter the SMTP server information again.

4.2.3 Configuring the server for device communication

Before deploying workflows to devices, you will have to enter the device administrator password in the HP AC configuration utility.


Prerequisites

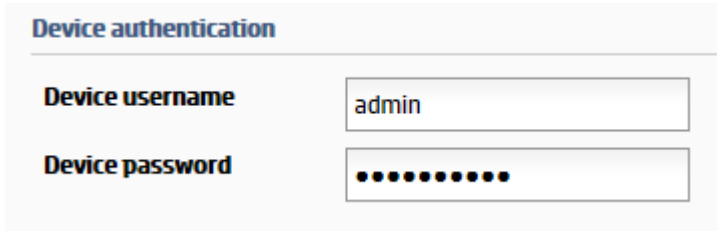
- HP Access Control (HP AC) Agent and HP Access Control (HP AC) Secure Pull Print must be installed on the server.
- Before installing any solution on HP devices, make sure the correct PRN installation file displays in the installation file field in the **Settings** tile > **Agent** tab.

Complete the following steps:

1. In the HP AC configuration utility, go to the **Settings** tile.

2. Go to the Pull Print tab, select your server, and then click **Configure**. Go to the General tab > Device authentication section. Enter the **Device name** and **password**. Must match the settings in the device.


 **NOTE:** This is the default location for all device passwords. To set the password for each individual device, go to the Devices tile > select a device > Admin > Update > Advanced tab > Pull Printing Server Options, and enter the device name and password for the specific device.



Device authentication

Device username


Device password

 **NOTE:** If pinging between server and devices is NOT allowed, ping can be disabled when adding devices. Disabling ping will force it to perform telnet communications only if ping is disabled on the network. By default, ping is not disabled, meaning that ping is used to detect the presence of a device IP, and then telnet is used to verify that the device is a printer. Go to Settings > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Device Name section for the Disable device ping check box.

3. Click **Update**.

4.2.4 Configuring server certificates

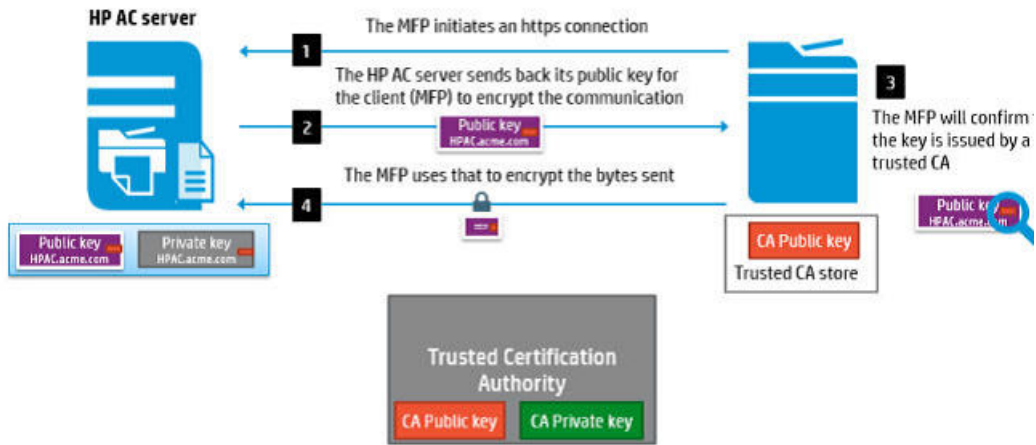
The servers need to be configured to use certificates. Server certificates are used for security purposes, to confirm the identity of a Web server before sensitive data is transmitted, and to establish a secure HTTPs communication to exchange data. With HP AC, certificates are required to exchange authentication and pull print app data through HTTPs, and to establish (for OfficeJet Pro devices) to use OPS for the initial configuration of the print devices. These are also useful in order to optionally encrypt other communications between servers and between servers and devices.

 **IMPORTANT:** It is not recommended to use a self-signed certificate in production environments. It is recommended that you use a certificate that is issued and signed by a trusted certification authority or create a v3 certificate from within the HP AC configuration utility. It is not recommended to use the certificate created by the OPS installer in production environments.

The following diagram illustrates how certificates are used when a communication from a device to a server is established for an HTTPs communication, related for example to an authentication event.

Using SSL for HP AC communications

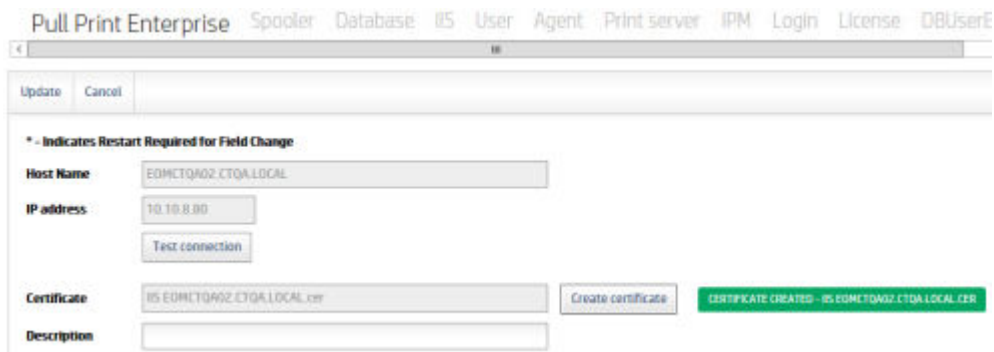
SSL between printers/MFPs and the HP AC server



4.2.4.1 Generating self-signed v3 Certificates

To generate self-signed v3 certificates, complete the following steps:

1. Click the Settings tile > Pull Print tab, select your server and click **Configure**.
2. Click **Create Certificate**. Two certificates are created for the server: one named with the server hostname, and one named with the server IP address. Both certificates, however, contain the server hostname and IP address in the Subject Alternate Name line in the certificate details. The certificates are created in the \Program Files\HP\HP Access Control folder. The certificates are also created in \Program Files\HP\HP Access Control\Open SSL and are used for communication between multiple HP AC servers.

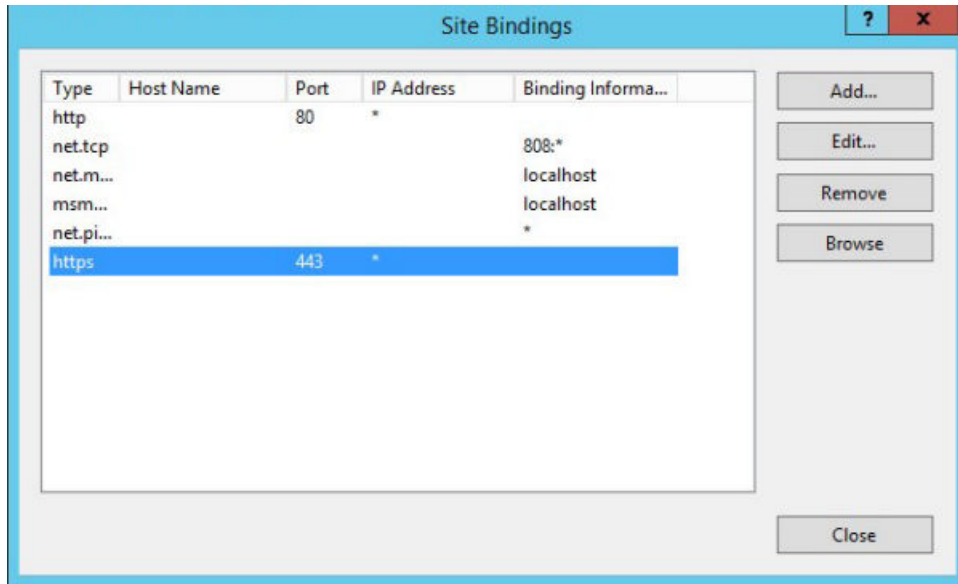


3. Click **Update**. This will automatically bind the certificate to the default web site.

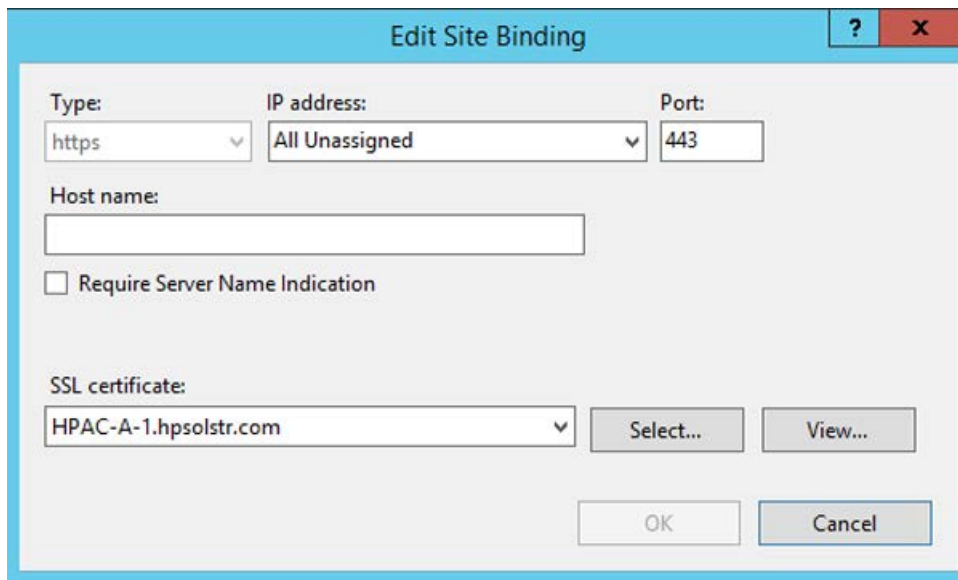
To view the assigned certificates in IIS:

1. Go to IIS Manager.
2. Go to the Sites > default Web Site and select **Bindings** in the Actions pane.

3. Select **https** and click **Edit**.



4. In the SSL certificate field, you will see the certificate.




4.2.4.2 Creating certificates in a multi-server installation

In a multi-server installation, all servers must contain certificates for all servers. Certificates must be created from one server and copied to the other remote servers. Do not create certificates on each remote server.

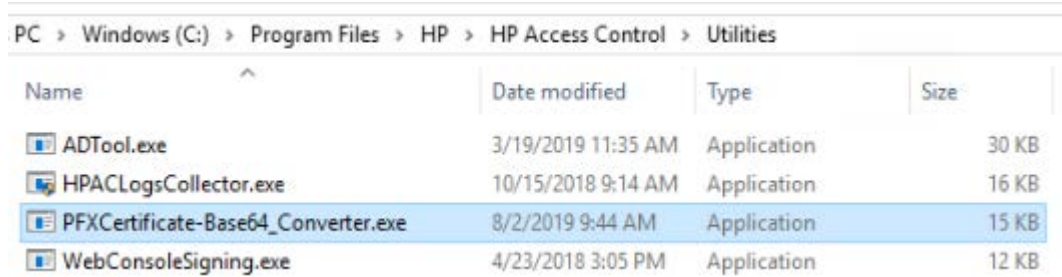
1. On the central server go to Settings > Pull Print > Add > enter the hostname of remote servers.
2. Select the remote server, click **Configure**, then click **Create Certificate**. This will create the self-signed certificate for the remote server in the remote server's HP Access Control directory.
3. On each remote server copy the corresponding certificates for each server and paste them into the `\Program Files\HP\HP Access Control\Open SSL` directory.

4.2.5 Using the customer's signed certificate

If the customer has their own certificate that was issued and signed by a trusted certification authority, then use these certificates instead of the v3 certificate created by the HP AC configuration utility. HP Access control requires the *.PFX certificate.

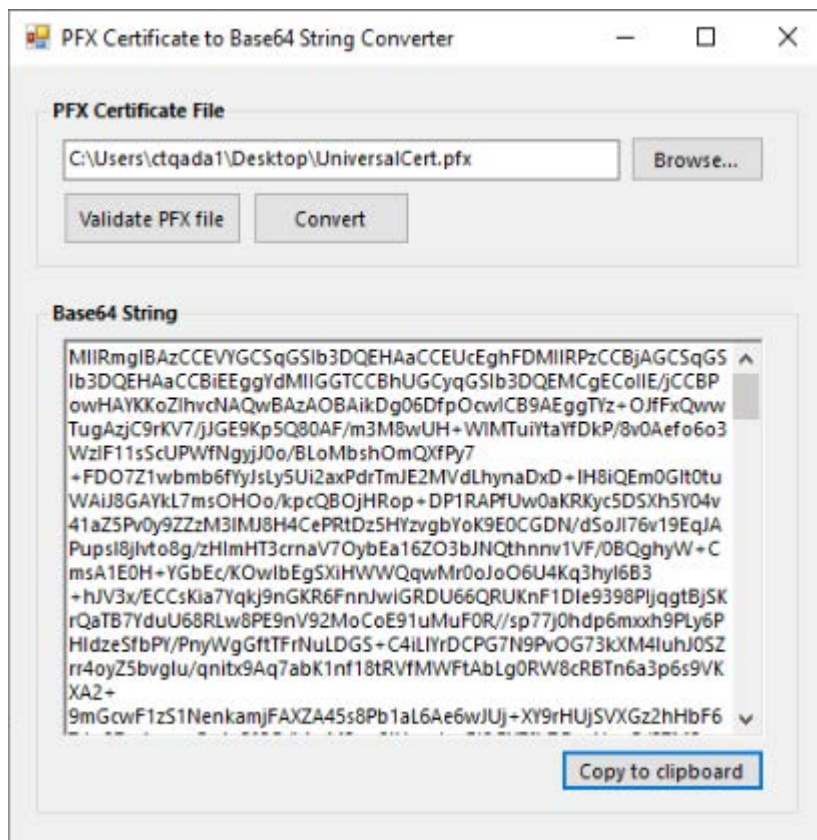
 **NOTE:** After the customer certificate is added to the Microsoft Management Console and HTTPS bindings, the certificate will be pushed to a device at the time the device is configured for authentication and/or pull printing. Certificates can also be pushed using HP Web Jetadmin.

1. Copy the *.PFX file to the HP AC server. On the HP AC server, go to the **HP Access Control\Utilities** folder and open the tool **PFXCertificate-Base64_Converter.exe**.



Name	Date modified	Type	Size
ADTool.exe	3/19/2019 11:35 AM	Application	30 KB
HPACLogsCollector.exe	10/15/2018 9:14 AM	Application	16 KB
PFXCertificate-Base64_Converter.exe	8/2/2019 9:44 AM	Application	15 KB
WebConsoleSigning.exe	4/23/2018 3:05 PM	Application	12 KB

2. Click **Browse** to select the *.PFX file. Click the **Validate PFX file** button and enter the password to check if the *.PFX file is valid. Then click **Convert**.



- Click the **Copy to clipboard** button, then go to the HP AC **Settings** tile, select the **Pull Print** tab, and click the **Upload Certificate** button.

The screenshot shows the 'Pull Print' configuration window. At the top, there are navigation tabs: Pull Print, Spooler, IIS, User, Agent, Login, License, DB User Editor, AD Group Manager, and User. Below these are 'Update' and 'Cancel' buttons. A note states: '* - Indicates Restart Required for Field Change'. The 'Host Name' field contains 'EOMCTQA01.CTQA.LOCAL'. The 'IP address' field contains '10.10.12.158' with a 'Test connection' button below it. The 'Certificate' field is highlighted in red and contains 'No certificate', with 'Create certificate' and 'Upload certificate' buttons to its right. The 'Description' field is empty.

- Paste the Base64 string and enter the private key password. Then click **Upload**.

The screenshot shows the 'Upload certificate' dialog box. It has a title bar with 'Upload certificate' and a close button. The main area is titled 'Certificate (Base64)' and contains a text area with a Base64 string: 'sjmG+2ycZmrX9+Y0+hEHSTZv6EejxsYx3FKo6JuFC/uiXR xgcG/EAm0qpoq0HKgwQs4/GkleOocTGKwmp0H3qZ5hHq zujrNWv5BTvqoRkb/HnfVx8s8MBh9uOwaZG3wd1kLriBS buBWuArIGkbcP+kshjIfwcuEhuj+uujSZEgnldlO2axGMuK OOnVVMdswHzAHBgUrDgMCGgQUOF8dLiDxh/49/Qu3Se CD1xXuIPoEFIZ6Ghw5t9/eRJXu1Hev86XOV031AgIH0A=' followed by an equals sign. Below the text area is a 'Password' field with four dots. At the bottom right are 'Upload' and 'Cancel' buttons.

- Click **Update**.
- Verify that the certificate appears in the Microsoft Management Console Certificates and in the HP Access Control folder.

IMPORTANT: If using a certificate that was issued to a server name, you will have to check **Use server name instead of IP (devices)** on the **Settings > Pull Print** tab, select your server, and then click **Configure**. Go to the **General** tab in the configuration utility. Ensure that the device's DNS entry is properly configured.

4.2.6 Configuring the Agent license service

The Agent license service allows you to assign licensing to a different server. By default, the field is populated with the IP address of the current server.

NOTE: This must be performed prior to configuring devices.

Prerequisites

- HP Access Control (HP AC) Agent and HP Access Control (HP AC) Secure Pull Print must be installed on the server.

Complete the following steps:

1. Go to the **Settings** tile, select the server to be configured, and then click **Configure**. Go to the Advanced tab > HP AC Agent License service and enter the Hostname or IP address of the server that is hosting the license service.
2. Click **Apply**.

4.2.7 Configuring the server for licensing

4.2.7.1 HP AC Product License Processing

Licensing of HP AC software is controlled via the license file - lrsoskey.lic. This license file contains all the information needed to run licensed HP AC software on any licensed host in your environment. The license file can be installed on each of your designated host servers. If your HP AC license agreements specify a limited number of devices, the license file will contain all device counts for each product instance. The license file should be placed in the HP Access Control directory on each licensed host in order to be active. The license file can be viewed and copied but must not be modified as this will invalidate the license.


Example temporary Product License File:

```

Version 5
*****
*                               LRS Product license file                               *
*****
* Customer ID: IL0000 - HPAC DEMO *
* Customer Name: Levi, Ray & Shoup, Inc. - HPAC DEMO *
* Date created: 20-Jun-2017 01:25 AM *
* LRS Order Number: HPAC DEMO *
* LRSOSKEY=L5IL000000097T79K616K08VAUKF+YV2001+HS22BPX6I108UC50QC64+JWD*
*
* WARNING: If this file is modified it will invalidate the license *
*           and the product will be disabled. *
*****
*Type   Expiration   Count   CustID   Key   Product Name   HostVer   Host Name
-----
Trapped 20Jun2018   001000  IL0000   145   LRS/EOM Output Server   Yes      LOCALHOST
Trapped 20Jun2018   000000  IL0000   306   VPSX/Spool             No
Trapped 20Jun2018   000010  IL0000   199   VPSX/Secure Delivery   No
Trapped 20Jun2018   000010  IL0000   319   HPAC for HP             No
Trapped 20Jun2018   000010  IL0000   320   HPAC for Canon          No
Trapped 20Jun2018   000010  IL0000   321   HPAC for XT             No
Trapped 20Jun2018   000500  IL0000   322   HPAC Job Accounting     Yes      LOCALHOST
Trapped 20Jun2018   000010  IL0000   323   HPAC IPM                Yes      LOCALHOST


```

 **NOTE:** The host name specified in the license file must match the value returned by the 'hostname' command.

 **NOTE:** If transferring the license file between systems, use a BINARY file transfer to avoid corrupting the file.

To upload a license file after HP AC is installed, go to the License tile, and click the **Upload** license button.

1. In the Settings tile > License tab > recipient email addresses field, enter the email addresses of the HPAC administrators that will be notified when there is an error communicating with the databases or when licenses are about to expire.
 - a. In the Email body for license server error you can customize the notification that will be sent out.
 - b. In the Email body for license expiration you can customize the notification that is sent regarding the expiration of licenses.
2. Click **Apply**. After clicking Apply the HP AC License Service will install in the background. After installation is complete you can view the service in the services console.

 **NOTE:** Notifications will be emailed on the following schedule: 90, 60, 30, 15, 7, 6, 5, 4, 3, 2, 1 day(s) before the expiration date. On the expiration date and every day after emails will be sent.

4.2.8 Set user parameters

This section describes the procedure for configuring AD-Authenticator to access read-only user information from your Active Directory.

Complete the following steps to configure your user information:

1. Go to Settings > Pull Print > select your server and click the **Configure** button. Go to the Advanced tab > LDAP user attributes section.
2. Enter the correct LDAP attribute names for each of the listed user properties. The default values are appropriate for most Active Directory installations.
3. Once all attributes are correct, press the **Update** button to store any changes you have made.

4.2.9 Configuring Job Accounting general settings

4.2.9.1 Configuring database access when using a remote SQL server

Prerequisites

When the HP AC Job Accounting database is installed on a remote server, the database connection must be configured for the following:

- Allow Job Accounting to process job accounting files
- Allow end users to connect to the Job Accounting website to schedule and view reports
- Authentication method set correctly

4.2.9.1.1 Authentication methods

There are two methods available to connect to the remote database:

- Windows authentication
- SQL authentication

4.2.9.1.1.1 Windows authentication

When Windows Authentication is used, anonymous authentication must be enabled in IIS using a Windows account with database access to the Job Accounting Database. The Job Accounting Agent service must be started with the same account.

1. Create or use a Windows account with dbo access to the Job Accounting database.
2. Log onto the Job Accounting application server using the Windows account login created in step 1.
3. Launch the HP Access Control Configuration utility.
4. Go to the Settings tile and in the Database tab, under Database configuration select **Windows authentication**. Select **Test** and **Apply** to verify and test the connection to the job accounting database.
5. Uncheck **LocalSystem account**. Enter the account user name and password. This login account will be used to start the HP Access Control Job Accounting Agent service and for Anonymous Authentication in IIS. Select **Enable IIS anonymous authentication** which assigns the IIS anonymous user identity to the username entered in the Domain\User field. This allows only domain users to access the Job Accounting website. Click **Restart services after update**.

The screenshot shows the 'Agent configuration' window. It has a title bar 'Agent configuration'. Inside, there are several controls:


- An unchecked checkbox labeled 'LocalSystem account'.
- A 'Domain\User' label followed by a text box containing 'hpsolstr\s1'.
- A 'Password' label followed by a text box containing two asterisks '**'.
- A checked checkbox labeled 'Enable IIS anonymous authentication'.
- A checked checkbox labeled 'Restart services after update (w3svc + agent)'.

 **NOTE:**

- This allows for automatic import of domain users/groups into the JA server.
- If using windows authentication for SQL this is required for access to the Job Accounting database.

4.2.9.1.1.2 SQL authentication

The HP Access Control Job Accounting application will store the SQL password encrypted in the registry.

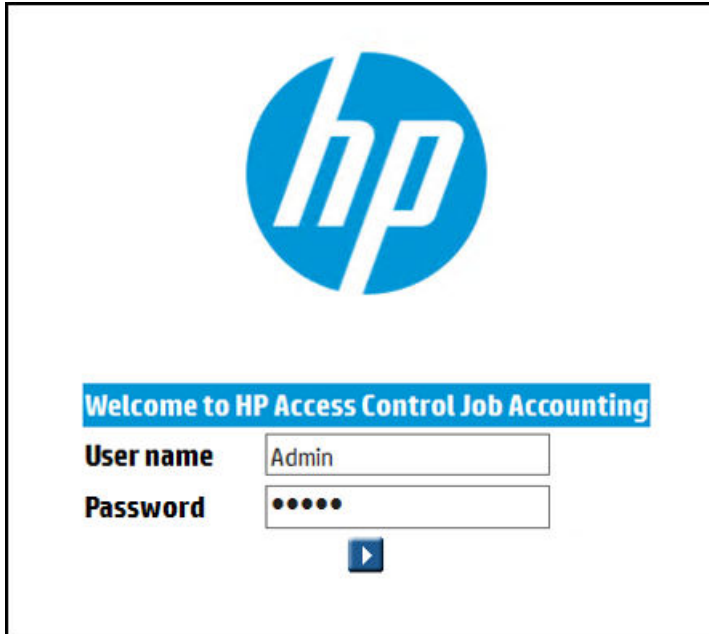
 **NOTE:** If connecting to an SQL database in Microsoft Azure, enter the Azure SQL Server in the **Server** field, and then enter the correct SQL authentication credentials.

1. Create or use an SQL user and password on the remote SQL server and give this account dbo access to the HP Access Control Job Accounting database.
2. Launch the HP Access Control Configuration utility.
3. Go to the Settings tile and in the Database tab, under Database configuration, select **SQL Authentication**.
4. Enter the user name and password for the SQL account.
5. Select **Test** and **Apply** to verify and test the connection to the Job Accounting database.

4.2.9.2 Configuration for User tracking

The following steps must be completed when using Job Accounting.

1. The first time a user prints they will be automatically added to the database, or you can perform a network scan. Go to the Job Accounting tile and log in with the default Job Accounting Administrator account: admin/Admin (case sensitive).




The image shows the login interface for HP Access Control Job Accounting. At the top center is the HP logo. Below it is a blue banner with the text "Welcome to HP Access Control Job Accounting". Underneath the banner are two input fields: "User name" with the text "Admin" entered, and "Password" with six dots representing a masked password. A blue play button icon is centered below the password field.

2. On the left menu, click **Administration** and then the **Active Directory** menu. Select **Retrieve User Data**.



3. Enter the DNS name for the domain and the User name and Password having read rights to that domain.

Affected domain (Netbios name)	hpsolstr
DNS Name	hpsolstr.com
User name	hpsolstr\sl
Password	••
Scan type	<input checked="" type="radio"/> Complete <input type="radio"/> Group <input type="radio"/> Computer
Group Organization	Primary Group

 **NOTE:** The domain name is required before the username. This user will be used to search the network and must have administrator rights in each domain the scan is performed in.

4. Click the Play button.
5. To see the data, navigate to another page and then back to the Active Directory tab to see the new data.
6. Click to select user options. Enter email address that will receive Job Accounting reports and click on the arrow button to save.
7. Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Tracking Options section. Under Tracking, select the device information to be displayed in Job Accounting reports (this applies to HP FutureSmart devices only).
 - **Network name:** Displays host names of devices in the Job Accounting reports.
 - **Device name:** Displays model names in Job Accounting reports.

 **NOTE:** If you have many of the same models in the environment then it is recommended to select **Network name** to avoid duplication.

8. Under Settings > Spooler > Configure button > SNMP tab, do the following:
 - ▲ Ensure the **SNMP Community name** entered has read access to read the network/host name of the device. The default GET community name for HP devices is public. The SET community name is not used by HP AC in this version.

4.2.9.3 Configuring the server for tracking data

To send tracking data from devices to the Job Accounting server, the transfer protocol must be configured. This is used by non-FutureSmart devices to upload job accounting tracking files. It is also used in a multi-server environment to point the Job Accounting data collectors to the main Job Accounting server.

 **NOTE:**

- This must be performed prior to configuring devices.
- When accessing the Push Mode settings from a Job Accounting server, the Push Mode settings apply to HP non-FutureSmart devices and are used to push tracking files from the device to the server.

Prerequisites

- HP AC Agent and HP AC Secure Pull Print must be installed on the server.
- HP AC Job Accounting server installed on a local or remote server on your network.

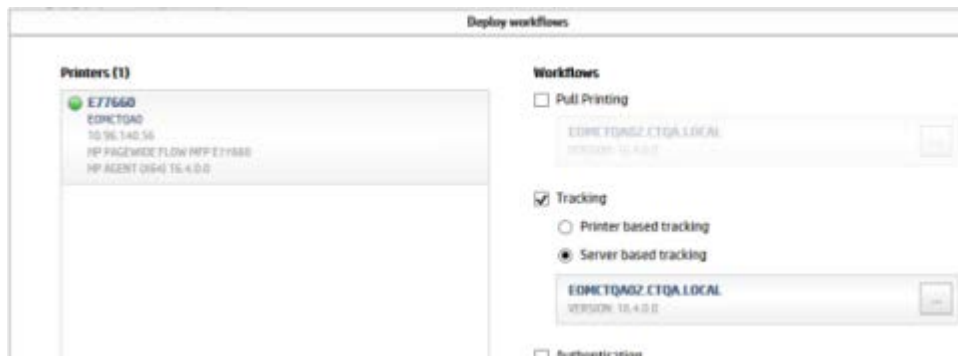
To configure the server for tracking data, complete the following steps:

1. Go to the **Settings** tile, select your server, and then click the **Configure** button. Go to the Advanced tab > HP Agent push mode section.
2. Enter the login and password information.
3. Set the Interval (minutes) to specify how often tracking data is pushed from the devices to the Job Accounting server.
4. Click **Test Connection** and **Update**.

4.2.9.3.1 Server Based Tracking

For print devices that do not support in-printer tracking, to track the number of pages that are pull printed. This applies to devices such as HP OfficeJet Pro, XT devices, and multi-vendor devices that do not have an embedded agent.

- ▲ Go to the Devices tile > select a device > Pull Printing > Deploy Workflows. In the Deployment window, select **Tracking**, then select **Server based tracking**.



4.2.9.3.2 Enable Tracking of Purged jobs

If there is an HP Access Control Job Accounting server in your environment, you can enable tracking of expired Pull Print jobs in Job Accounting reports. Tracking of expired pull print jobs can be enabled. This will create an XML file for each job that is purged. The XML file includes information such as the purged job name, the date the job was submitted, and the date the job was purged:

Prerequisites

- HP AC Job Accounting server configured in the environment

Complete the following steps:

1. Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Pull Printing Options section.
2. Select **Enable tracking of purged jobs**.
3. If Job Accounting is installed on the same server as Secure Pull Print, the XML files are created in the following folder:
Program Files\HP\HP Access Control\temporary\DTM
4. If Job Accounting is installed on a different server, the XML files are created in the following folder:
Program Files\HP\HP Access Control\temporary
5. When purging is complete, the XML files are pushed to the Job Accounting server in the `Temporary\DTM`


4.2.9.4 Quota management

Quota is an optional Job Accounting feature that allows the administrator to set limits on how much each user is permitted to print, copy, or digital send. Quota is not intended to suddenly stop business, especially during a print job. If a user needs to print a job, and it goes over the quota limit, the purpose is to allow the job to continue. The intent with quota is to limit the amount of use of the printing infrastructure overall, not to restrict at a page level for a given print job.


Quota is controlled at the device level (on supported devices) and at the queue level for printing.

Prerequisites

- For quota to work within a pull print environment, in-printer tracking is recommended for better accuracy of Job Accounting tracking data.
- Click the **Apply** button in Settings > IIS > Quota section before configuring devices for quota.

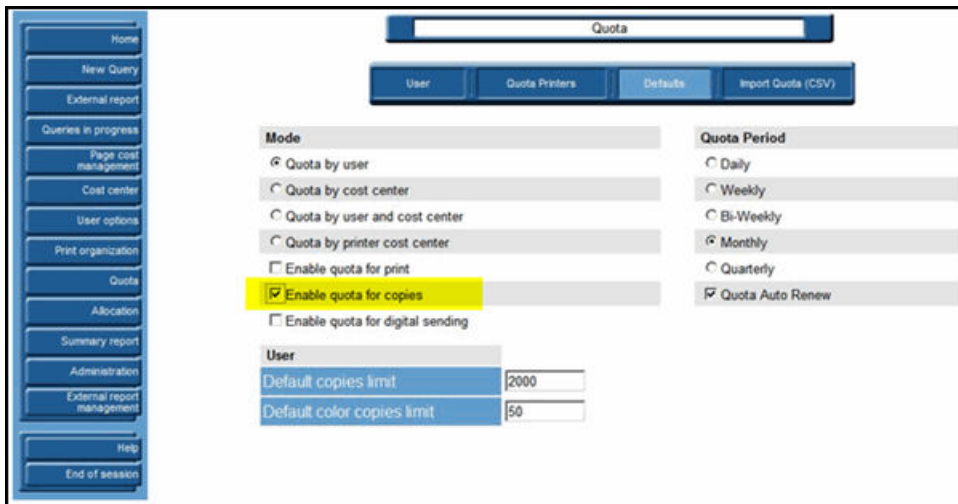
 **NOTE:** With HP AC 16.8 and newer, quota for copy and digital send jobs is managed by OXPd rather than the Agent.

For more information about controlling quotas for users in Job Accounting, please see [Job Accounting](#).

 **IMPORTANT:** In order for Quotas to be tracked, tracking must be configured at the print queue or at the device. Either go to the Print server tile and configure the print queue for Tracking, or go to the Devices tile and configure the device for Tracking.

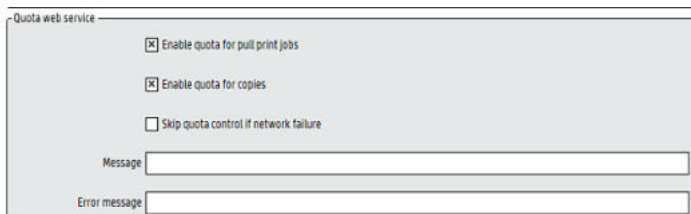
To configure Quota for glass activity on a device, complete the following steps:

1. In the Job Accounting Quota module, go to the **Defaults** page. Select **Enable quota for copies** and/or **Enable quota for digital sending**. To set up a quota for Pull Printing, select **Enable quota for print**.



The screenshot shows the 'Quota' configuration interface. The 'Defaults' tab is selected. Under 'Mode', the 'Enable quota for copies' checkbox is checked and highlighted in yellow. Under 'Quota Period', 'Monthly' is selected. Under 'User', 'Default copies limit' is set to 2000 and 'Default color copies limit' is set to 50.

2. Go to the **Settings** tile > **Agent** tab. Select **Enable quota for copies**. To set up a quota for Pull Printing, select **Enable quota for pull print jobs**. Click **Apply**.



The screenshot shows the 'Quota web service' configuration page. The 'Enable quota for pull print jobs' and 'Enable quota for copies' checkboxes are checked. There are input fields for 'Message' and 'Error message'.

3. Go to the **Devices** tile. Under the **Pull Printing** menu, choose **Deploy workflows** and configure the device for Quota, Tracking, and Authentication.
4. Set the sign-in method on the device to control Quota when users use functions at the device.

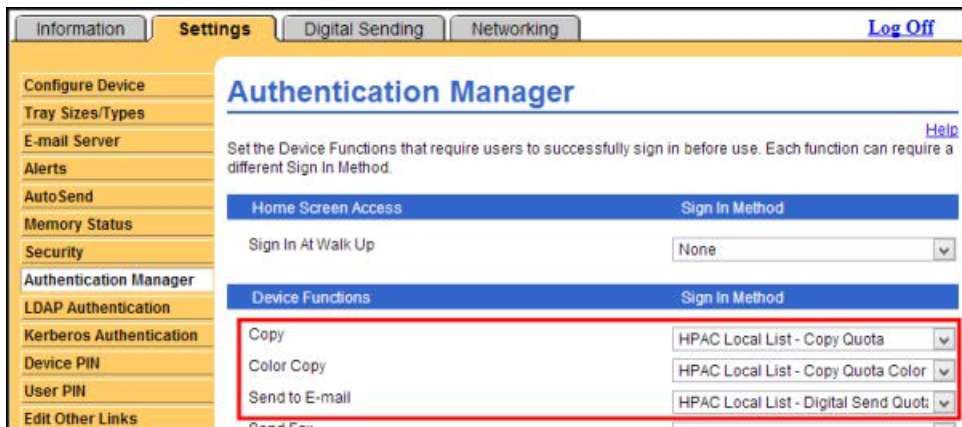
- a. Go to the device's embedded Web server (EWS). Open a Web browser and enter the following in the address bar:

`http://deviceaddress`

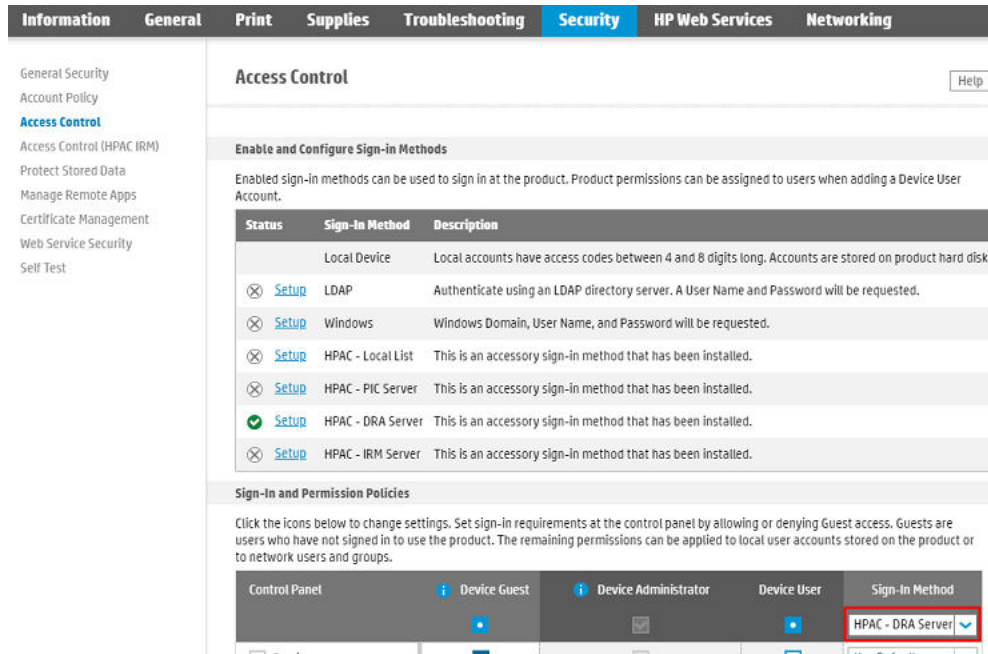
Where `deviceaddress` is the IP address of the device you configured for Quota.

- b. For non-FutureSmart devices, go to the Settings > Authentication Manager page.
 - For the Copy function, select **HP AC Local List - Copy Quota**.
 - For the Color Copy function, select **HP AC Local List - Copy Quota Color**.
 - For the Send to Email, Send Fax, and/or Send to Folder functions, select **HP AC Local List - Digital Send Quota**.

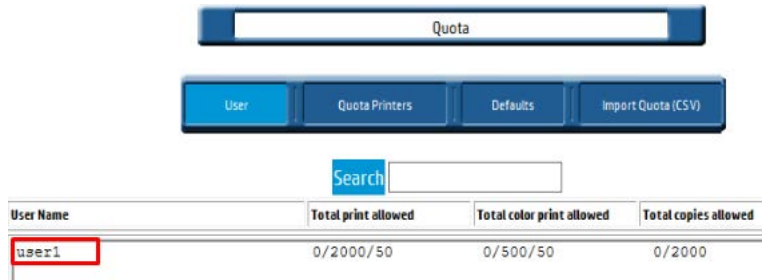
Then click **Apply**.



- c. For FutureSmart devices, go to the Security > Access Control page. For any of the control panel applications, select **HPAC - DRA Server**. Then click **Apply**.



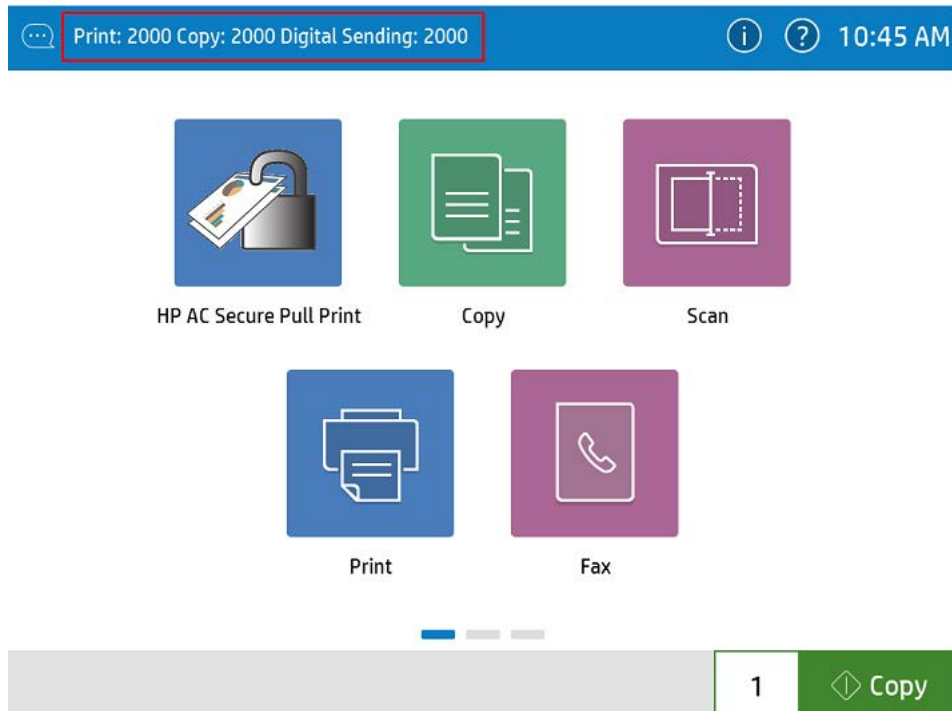
- 5. After releasing a pull print job at a device or doing a copy/digital sending job, go to HP AC > Job Accounting tile > **Quota** > **User**, and verify the user name shows in the list.



- Go to the **Quota Printers** tab and move the printer from the **HP ACJA Printers** column to the **Quota Printers** column.



7. Authenticate at a device and verify that the user's quota numbers show up in the header on the front panel.




4.2.9.5 Tracking management

Tracking is supported by HP Access Control (HP AC) In-Printer Agent (IPA), and HP Access Control (HP AC) Individual Rights Management (IRM).

Tracking captures usage data directly from network printers and MFP devices. This section describes the configuration of the tracking feature.

To install or configure a device, go to the Devices tile. Select a device, right-click the device, go to Pull Printing > Deploy Workflows, then select **Tracking**.

 **NOTE:** When configuring HP AC there might be a requirement to set the device to look at multiple IIS servers. When multiple IIS servers are in the Settings > Pull Print tab, then the option to configure for a different IIS server will appear for the Tracking option in the Deploy Workflows window.

4.2.9.6 Print Server tracking

In the Settings tile > Print Server, you can configure methods of gathering print server tracking data.

- **Port monitor** creates a new port monitor for printers. This is the preferred method to gather tracking data.
- **Print processor** replaces the existing print processor with the Job Accounting print processor. This method may not work with all printer drivers.

In the **Print server quota web service** section, click to enable features of the quota web service:

- Click the **Skip quota control if network failure** checkbox to allow users to print after the server loses connection to the web service. If this feature is not enabled and there is a network failure, then quotas cannot be determined and all printing stops.
- Click the **End user notification** checkbox to enable notifications on client workstations of remaining user quotas.

In the **Snmpp tracking** section, click to enable features:

- Click the **Track copies** checkbox to enable tracking of copies at multi-function printers.
- Click the **Track digital sending** checkbox to enable tracking of digital send jobs at multi-function printers.

In the **Encoding** section, click the Double byte encoding checkbox to track print jobs with job names containing double byte characters.

In the **Encryption** section, click the **Encryption** checkbox to encrypt tracking data on the print server and when data is sent to the Job Accounting server.

4.2.10 Configuring connection to an SQL Server with AlwaysOn

If the Job Accounting, IRM or License databases are connected to an SQL Group Listener with SQL AlwaysOn enabled, make sure to select the AlwaysOn checkboxes in the HPAC Settings. HPAC utilizes the SQL Group Listener to connect to the HPAC databases. When installing and configuring HPAC, enter the SQL Group Listener address in place of the physical SQL Server instance. The AlwaysOn checkbox changes the connection string to the SQL Server. The AlwaysOn checkboxes can be found in the following locations:

- For Job Accounting database, go to Settings > Database > Database Configuration.
- For IRM database, go to Settings > Pull Print, select your server and click **Configure** under the General tab > Data Storage section.

 **NOTE:** Following are the connection strings used by HP AC:

- SQL authentication:
`Server=xxxx;uid=sqllogin;pwd='sqlpassword';Database=HPACJA`
- SQL authentication with AlwaysOn:
`Server=xxxx;uid=sqllogin;pwd='sqlpassword';Database=HPACJA;MultiSubnetFailover=True`
- Windows authentication: `Server xxxx;Trusted_Connection=true;Database=HPACJA`
- Windows authentication with AlwaysOn: `Server xxxx;Trusted_Connection=true;Database=HPACJA;MultiSubnetFailover=True`

4.2.11 HP AC Configuration Utility Web Console

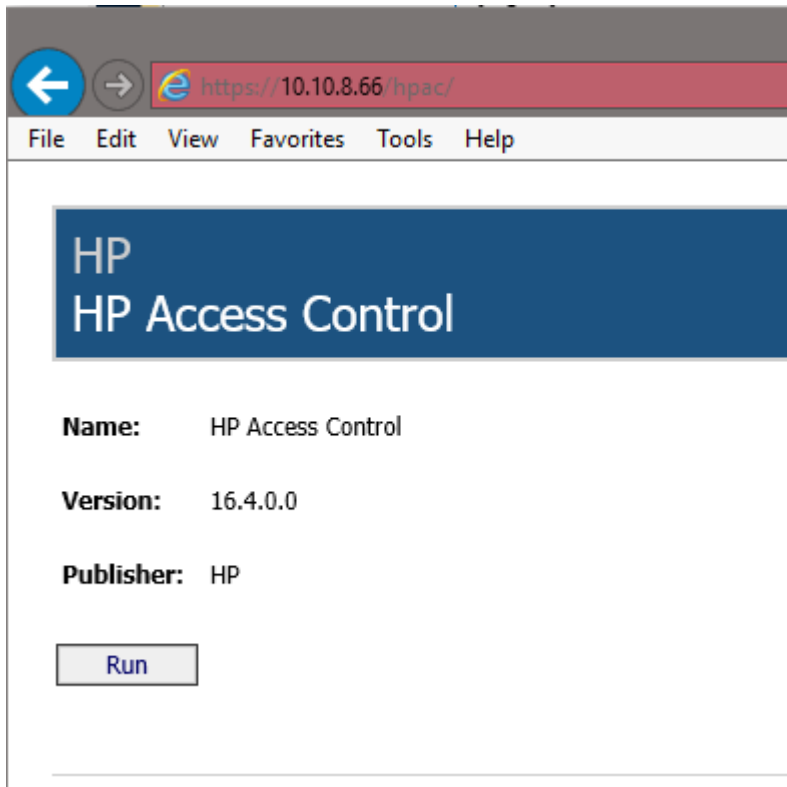
Prerequisites

- Internet Explorer minimum version IE 11 with Microsoft Silverlight installed
Add `http://servername/` and `https://servername/` to the list of Trusted Sites in Internet Explorer
- Microsoft .NET Framework 4.8
- TCP port 445 must be opened on the client and on the routers/switches between the server and the client
- The certificate from the HP AC server (used in IIS > HTTPS binding) must be installed on the workstation that will use the web console, and the certificate must be added to the Trusted Root Certification Authorities folder of the Microsoft Management Console.

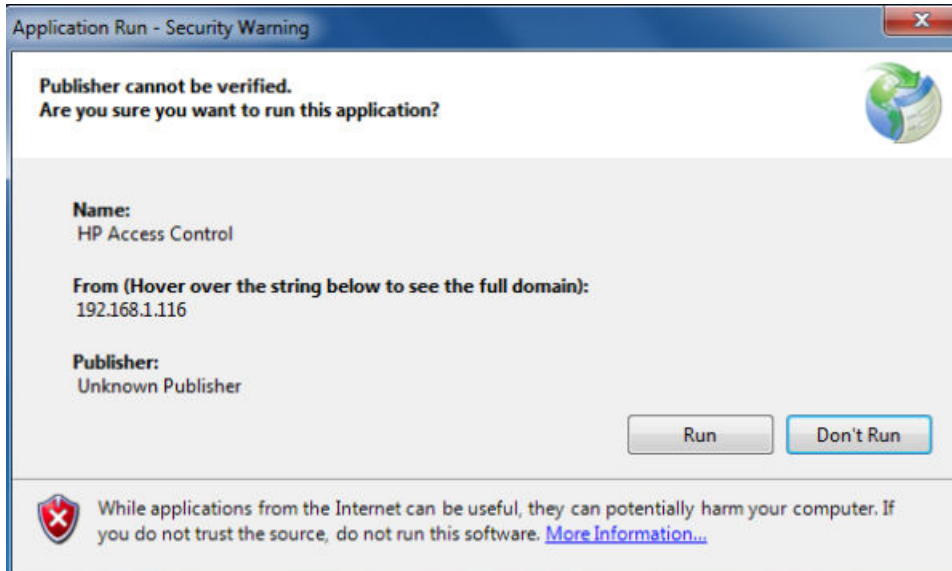
The HP AC admin console can also be accessed via Internet Explorer from any workstation on the network.

Complete the following steps:

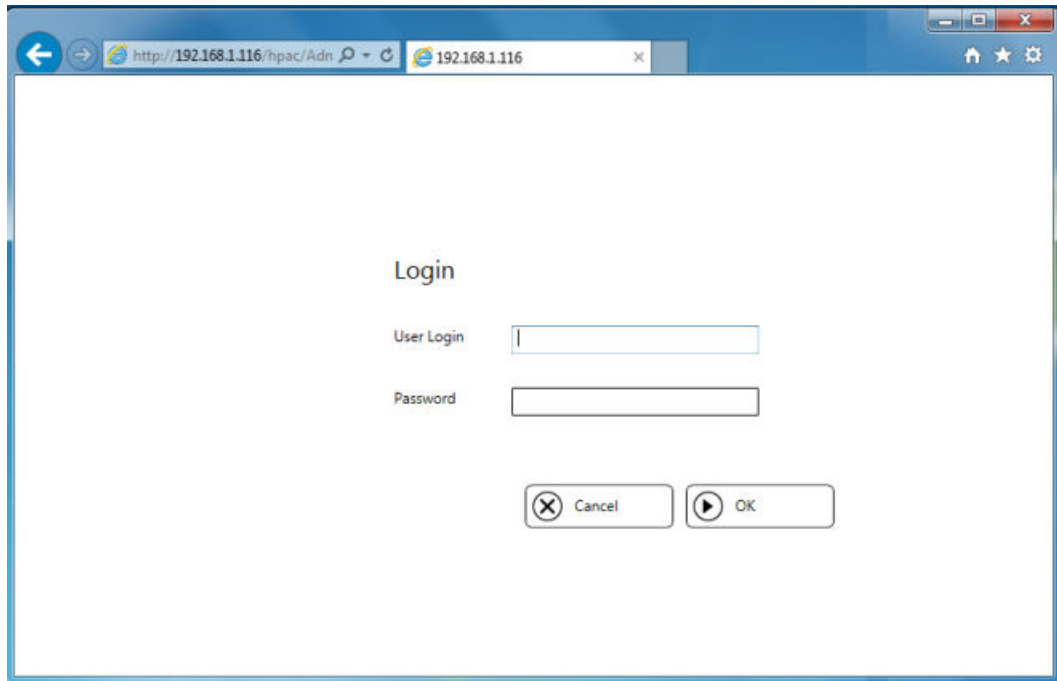
1. To access HP AC, open Internet Explorer and enter `http://<servername>/hpac`, where `<servername>` is the FQDN or IP address of the HP AC server. On the page, click **Run**.



2. This will install the Windows Presentation Foundation Host required to run the admin console within the web browser. If prompted with a security warning select **Run**.



3. If login is required you will be prompted to enter your credentials. See [Section 9.1, Managing access to the Admin console](#)



4. The console will display.



NOTE:

- The localization for the web console is using the regional settings of the client workstation accessing the web app, not the regional settings of the server.
- The HP AC web console can connect to one HP AC server at a time. To switch the connection to a different HP AC server, open a command prompt and run: `Rundll32 %windir%\system32\dfshim.dll CleanOnlineAppCache`

This is to clear the cache of the old server on the PC and run the new one.

5 Authentication

HP Access Control requires authentication to know who the user is. Knowing who the user is allows the solution to track the details on the activity of the user, associate print jobs to the user, and allow for user rights management (assignment and control) by individual user or by AD groups.

The base requirements are that the user login name (i.e. sAMAccountName or UserPrincipalName) and login ID (proximity badge ID or code ID) are matched together initially.


If you chose to use the TCPIP/IPPS protocol in the Settings tile > Pull Print and select your server and click **Configure** > Advanced tab > Pull Printing Options section > CommType, make sure IPPS-SSL is enabled on the device. Go to the device EWS > Networking tab > Mgmt. Protocols > Other tab. Under the **Enable Print Services** section, make sure **IPPS** is **enabled**.

Depending on the device model, devices can be configured using an embedded in-printer agent (IPA), or through the off-printer agent (OPA) where the configuration details for the device are hosted on the HP AC server. HP FutureSmart devices can be configured using IPA or OPA. This authentication option can be selected at the time of device deployment.

5.1 Authentication methods

There are five different methods of authentication.

- Code authentication (PIN/PIC)
- Card authentication or Windows authentication
- Card and code (two-factor) authentication
- Card or Code
- Touch to Sign-in (with an Android smartphone with NFC support and the HP ePrint Enterprise app)

 **NOTE:** Please see [Section 5.7, Configuring devices](#) to see what methods are supported on each device type.

5.1.1 PIC authentication

Personal Identification Code (PIC) authentication is used to provide access to copy, fax, and scan capabilities. To utilize these functions, users enter a pre-determined personal authorization code using the device keypad. Codes can be stored in either SQL or AD.

5.1.2 Card authentication

Users can present a proximity card reader to authenticate at the device. When storing the data in an SQL database, you can enable multiple cards so users can enroll more than one card.

5.1.3 Card and code (two-factor) Authentication

Two-factor authentication means that users will use their proximity badge and a PIN for an additional layer of security.

Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the General tab > Device Authentication Method section and choose Card + Code (two-factor). Click **Update**.

**NOTE:**

- When using Card and Code, if the user enters their Windows credentials it will not prompt the user for a code.
- Enabling two-factor does not require re-configuration of the device.

5.1.4 Card or code authentication

At a device, if a user swipes their badge, it will assume card is the chosen option and the user will be logged in as per the normal proximity card option. If the badge is not recognized, then user enrollment will be activated as per normal. If a user presses the function requiring authentication, they will be prompted for a code.

**NOTE:**

- On HP S900 Series, when set to Card or Code, they will work like Card Only.
- When this option is chosen and when the **Use network credentials instead of card** option is enabled, users have the option to authenticate with network credentials.

5.1.5 Touch to Authenticate

Prerequisites

- HP Mobile Print Accessory installed on supported devices
- HP AC authentication installed and configured
- Android smart phone with the HP ePrint Enterprise App and is NFC enabled

Complete the following steps:

1. In the HP ePrint Enterprise application on the mobile device open the application settings screen.
2. Touch HP Access Control.
3. Follow the wizard to provide the server address and your user credentials.
4. Present your mobile device with the ePrint Enterprise application open to the HP Mobile Print accessory on the print device.
5. The first time you present your smartphone it will prompt you to register (just like you would for a proximity card). The app will provide a unique ID through the NFC connection which will be used for authentication.

5.2 Enrollment options

HP AC offers two different options for storing user data:

- Active Directory
- SQL and Active Directory

Both options will always use Active Directory. The difference is where the data is stored. Stored metadata is used for identifying a user to an enrollment method (i.e. PIC or Proximity ID) and user rights assignment (i.e. ability to copy in color).

There are advantages to using either method.

Active Directory	SQL Storage
Avoids an additional connection and dependency to a database during authentication	Additional to the AD query
Requires write access to the selected attribute(s) in AD	Only requires read access to AD
Multiple domains requires writing to an attribute in a global catalog is not supported (read-only)	Supports multiple domains in the same forest
n/a	Supports Delegate/Group Printing or Alias
One ID per use	One or more IDs per user
AD is normally replicated across servers automatically	Requires connection to a central SQL database for authentication roaming <ul style="list-style-type: none"> • SQL replication is an option
n/a	Registers last time of authentication

5.3 Active Directory Authenticator

Use the HP Access Control (HP AC) Active Directory Authenticator to store HP Access Control (HP AC) code or badge ID and device feature access rights directly in AD.

The Active Directory Authenticator provides the following capabilities:

- A configuration utility used to tailor the Authenticator to your specific environment.
- A Web service to authenticate users at the device.
- The Group Manager that performs operations on an entire group of users. This can be used to set PIC and device feature rights for the entire group (of users). The members of each group are selected by an LDAP query. See [Section 9.4, AD Group Manager](#)
- A website that may be configured to allow users to view, email, change, or choose their authentication codes.
- An enrollment application to allow users to enroll their card at a PC. See [Section 8.3, HP Access Control Card Enrollment application](#).

5.3.1 Authentication method and data storage options

Follow the steps below to set the AD-Authenticator General parameters.

1. Go to the Settings tile > Pull Print tab, select your server, and then click **Configure**. Go to the General tab.
2. Select whether to encrypt the AD-Authenticator configuration file. The AD-Authenticator configuration is stored in its web site Web.config file. IIS prevents this file from being viewed through an HTTP connection. You can further protect the passwords and other sensitive information by checking the **Encrypt configuration** option.



NOTE: After a new HP AC installation, the **Encrypt Configuration** option is enabled by default.

3. Select one of the following Device authentication methods:
 - Select **Card only** if you want users to use a proximity card reader to authenticate at the printer.
 - Select **Code only** if you want users to use a Personal Identification Code (PIC) to authenticate at the printer or MFP.

- Select **Card or Code** to have users authenticate with their card or a code.
 - Select **Card + code (two-factor)** if you want users to use a proximity card reader and a PIC to authenticate at the printer or MFP.
4. Select a **Data storage** option:
- Select **LDAP Server** to store user card and code data on the LDAP server. Then select the Codes or Cards button (depending on the device authentication method) and go to the Advanced tab to enter in the LDAP attribute to store the user data.
 - Select **SQL Server** to store user card and code data on the database. Enable the **AlwaysOn** option only if your SQL Server supports AlwaysOn. Click the **Multiple cards per user** checkbox to allow users to enroll multiple cards for authentication.

The screenshot shows the 'Pull Print Enterprise' configuration window. The 'General' tab is active. Under 'Device authentication method', 'Card only' is selected. Under 'Data storage', 'SQL Server' is selected. The 'Server name' is '0ocal\HPACEXPRESS' and the 'Database name' is 'IBM'. Under 'Device authentication', 'Device username' is 'admin' and 'Device password' is masked. Under 'Data storage', 'SQL authentication' is selected, 'Login' is 'sa', and 'Password' is masked. The 'Multiple cards per user' checkbox is checked. The 'Validate user via LDAP server during' checkbox is also checked. At the bottom, there is a table for 'LDAP server' with columns for 'Add', 'Modify', 'Delete', and 'Test connection'. A single entry 'LDAP server' is listed with a 'Test connection' button next to it.

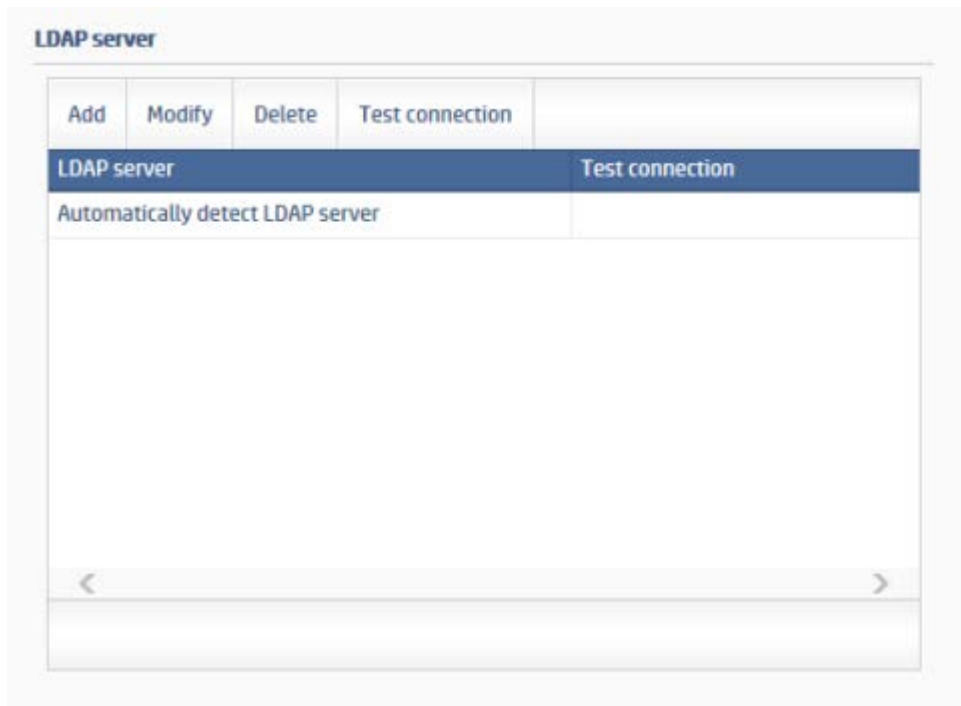
5. Click **Update** to save any changes you have made.

5.3.2 Set LDAP Server parameters

This section describes how to set the AD-Authenticator LDAP server parameters. The AD-Authenticator makes an LDAP connection to your Active Directory to authenticate your users and determine their assigned rights.

NOTE:

- In a single domain environment, it is recommended to leave "Automatically detect LDAP server" in the LDAP server list for automatic failover.
- If the HP AC server is not in the same domain as the users, do NOT select the option to **Automatically detect LDAP server** option.
- If you do not want user information to be exchanged between the HP AC server and the AD server to be communicated unsecurely you can force the connection to use LDAP which will use port 636. Select "Automatically detect LDAP server" from the list, and click **Modify**, then append :636 to the LDAP server name. Requires valid certificates for communication between the AD server and the HP AC server.
- To configure the LDAP settings for a global catalog server, enter GC://<domain name> and ensure that the LDAP username and password has read writes to the global catalog. Typically writing to a global catalog is not supported.



1. In the General tab, go to the LDAP Server section.
2. Select "Automatically detect LDAP server" from the list and click **Modify**. The AD-Authenticator can usually detect your Active Directory server automatically when run on servers that are members of an Active Directory domain. Check Automatically detect LDAP server to enable this feature. To disable the feature, uncheck the box and enter the network name or IP address of your Active Directory server.

Enable "Use LDAP simple bind" to use the LDAP simple bind authentication method instead of the SASL authentication method. Simple bind is less secure and should be used under the guidance of a network administrator.
3. Specify the username and password to be used to access the Active Directory server. If you are using both a pre-existing LDAP attribute to store the user's PIC and Active Directory groups to manage user rights, this user needs read-only access to those Active Directory attributes. If the AD-Authenticator tools will be used to manage your user's PIC or to set individual rights, the user will have to have read-write access to the necessary Active Directory attributes. Enter the username in domain/username format.

If no username and password is specified, the HP AC server's machine account will be used. Normally, this is sufficient to read user information from a directory server. If the LDAP data storage method is specified, then a user with sufficient permissions to write to the required AD field specified in Advanced > Rights control is required.
4. Click **Save** and then **Update** to save any changes you have made.

5.3.2.1 Configuring multiple domains

To enable multiple domain support, complete the following step:

- ▲ Go to the Settings tile, select your server, and then click **Configure**. Go to the General tab > LDAP Server section and click **Add** to add additional domains.



NOTE:

- Go to the Settings tile, choose your server, and then click **Configure**. Under the Pull Print tab > Advanced tab > LDAP User Attributes section and verify the Username Attribute. When looking for users in the AD User Editor, make sure the correct format is entered for the username. For example, if UserPrincipalName is used for the Username Attribute, make sure to look for the user in the User tab using UserPrincipalName format.
- To store jobs under the username using the correct Username Attribute, the "Change job identifier" settings must be set and the Enterprise Print Client must be installed on workstations. See the "Configure Print Job Identifier" section of this guide.
- Deleting a server from this page does not delete any stored data associated with that domain. Any card, code or rights data stored in LDAP will remain, as will any users stored in the database.
- All domains share the same settings in the "LDAP User Attributes" section. For example, if you are configured for AD-Only, the cards/codes/rights must be stored in the same attributes in all active directories. A "real" LDAP Server and an Active Directory cannot be combined.

5.3.2.2 Card Masking

Card Masking is an administrative tool that allows you to change the way proximity card ID values are stored in Active Directory or the database when users enroll their cards. The card mask is saved in an XML file and stored on the HP AC server. This is so that when card masking is enabled, the mask is applied at the time the users enroll their cards.



NOTE:

- Do not enable card masking in a production environment, as it will cause the value being read to be changed, and therefore existing user's cards will be unrecognized and they will be forced to re-enroll.
- You cannot view the Proximity Reader page of the AD-Configurator from the Configuration Utility, if you are using a 64-bit server, or from a 64-bit Web browser. The Proximity Reader page can only be viewed from the Configuration Utility on a 32-bit server or from a 32-bit Web browser.

Prerequisites

- Card reader
- Domain user account
- PC connected to the same domain as the HP Access Control server

To use the Card Masking feature, complete the following steps:

1. Copy the Card Masking installation file to your local PC hard drive located in the HP AC installation zip file in the \clients folder.
2. When the installer launches, click **Next**.
3. Select the installation **Folder** and choose whether to install for **Everyone** to use or **Just me**.
4. Click **Next** to finish the installation.
5. Connect a card reader to the PC.
6. Open the **Card MaskingTool** via the shortcut created on the desktop.
7. Enter the name of the HP Access Control server in the AD-Authenticator server name field. Click **Connect** to connect to the server.

- Click **Scan**. The card reader will beep once. Hold your card over the card reader. The reader will beep twice when the scan is completed.

The following data displays:

- **Reader:** The card value read by HP Access Control. The first 6 digits include the card type and the decimal value of the card data bits. The remaining digits contain the card number.
- **RAW:** The card RAW number read by HP Access Control.
- **Type:** The card type value and card type name.
- **Bits:** The number of card data bits.
- **ID:** The masked card value.



- Modify any of the following parameters to change the masked card value:
 - **Leading Parity:** Strip this many bits from the most significant bits of the raw data. This happens before any FAC/ID processing.
 - **Trailing Parity:** Strip this many bits from the least significant bits of the raw data. This happens before any FAC/ID processing.
 - **FAC Digits:** If **Fixed FAC/ID** is enabled, this is the number of digits to use for the FAC. If **Send FAC** is not enabled, the FAC will not be sent ID Digits.
 - **ID Digits:** If **Fixed FAC/ID** is enabled, this is the number of digits to use for the ID. If **Send ID** is not enabled, the ID will not be sent ID Digits.
 - **ID Bits:** Decode this many bits as the ID. Use the remainder as the FAC. If **Send ID** is not set, this setting is ignored.
 - **FAC/ID Delim:** Output this character between the FAC and ID when **Send FAC** is enabled.
- Select any of the following parameters to change the masked card value:

- **Send FAC:** Output the facility code. If **Send ID** is not set, this setting is ignored.
 - **FAC Hex:** Output the facility code as a hexadecimal number.
 - **Fixed FAC/ID:** Output a fixed number of digits for the FAC and ID. If more characters are needed, the output is leading zero padded. If fewer characters are specified that are in the FAC or ID, then the FAC or ID is truncated.
 - **Send ID:** If set (Yes), the ID will be separated from the Facility Code using ID bits for the ID. If not set (No), the Facility Code will not be separated and all of the data will be considered ID independent of the number of ID bits.
 - **ID Hex:** Output the ID in hex.
 - **Read Only Card Size:** When enabled, only cards of Card Size bits are recognized by the reader.
 - **64 Bit Math:** When enabled, the reader performs 64-bit math on the FAC, ID or entire card. On some card readers this setting causes the reader to process 80 bits rather than 64. For Card Sizes where the ID or FAC can be greater than 32 bits. Enabling this option is recommended. Use of 32-bit math for data longer than 32 bits was handled by converting the most significant 32 bits and least significant 32 bits separately, and then padding the most significant digits with 10 zeros and then concatenating with least significant digits. For example, a card ID with 0x10379052B4 would be output as 160932205236 with 64 Bit Math disabled, and 69651681972 with 64 Bit Math enabled.
 - **Invert Wiegand Data:** In some older Wiegand installations the Wiegand lines were reversed, resulting in inverted data. Due to backwards compatibility with older legacy readers, this is normally enabled.
 - **Reverse Wiegand Bytes:** When enabled, data bytes are reversed before FAC/ID processing (after leading and trailing parity have been removed). This is mutually exclusive with Reverse Wiegand Bits.
 - **Reverse Wiegand Bits:** When enabled, data bits are reversed before FAC/ID processing (after leading and trailing parity have been removed). This is mutually exclusive with Reverse Wiegand Bytes.
11. Click **Save** to save the DataDecodeDefaults.xml file to \Program Files\HP\HP Access Control\Shared \<version>\Configuration\ProximityCards\ folder on the HP Access Control server.
 12. On the HP Access Control server, in the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Cards section, select **Card ID masking** and click **Update**.

5.3.3 Set Proximity Reader parameters

The Advanced tab > Card Reader section allows you to configure the card reader parameters.



NOTE: The Cards menu and Card Reader section displays only if **Card only** or **Card + code (two-factor)** is selected on the General tab. See [Section 5.3.1, Authentication method and data storage options](#) for more information.

Follow the steps below to set the Proximity Reader parameters.

1. Go to Settings > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Card Reader section.
2. You can configure HP Common Card Readers or RFIDEas RDR-80583AKU card readers to read two different types of cards. The new HP HIP2 card readers can be configured to read up to four different card types. The following card types are supported:





NOTE: The HP HIP2 card reader provides additional card type and volume control information. The HIP2 reader is intended to function as a standard HP Common Card Reader in devices that have older in-printer agents installed. When used with in-printer agents older than version 20160509, the HP HIP2 reader supports two card types and the volume is not adjustable.


- iClass (dedicated reader)
- LEGIC Prime (dedicated reader)
- Advant CSN (LEGIC, dedicated reader)
- RDR-758x Equivalent (iClass, ISO14443A, ISO15693) CSN
- CEPAS
- ISO 14443B
- FeliCa
- FeliCa (HP)
- HID iCLASS CSN
- I-Code CSN (Philips, NXP)
- my-d CSN (Infineon)
- ISO 15693 CSN
- etag CSN (Secura Key)
- Tag-It CSN (Texas Instruments)
- DESFire CSN
- I-tag CSN (IBM)
- ISO 14443A CSN
- Advant CSN (LEGIC)
- MiFare CSN (Philips, NXP)
- MiFare Ultralight CSN (Philips, NXP)
- Cotag
- Nedap
- ID Teck
- ID Teck Alternate
- Paradox
- CDVI
- PosTech
- Keri NXT UID
- Pyramid UID
- Farpointe Data UID
- Keri PSC-1 26 Bit
- Pyramid (Farpointe Data) PSC-1 26 Bit
- Farpointe Data (Pyramid) PSC-1 26 Bit
- Radio Key (Secura Key -02)


- Secura Key -01
- Indala ASP+ UID (Motorola)
- Indala ASP+ (custom firmware)
- HID Prox UID
- HID Prox
- ReadyKey Pro UID
- Dimpna UID
- HiTag 2
- HiTag 2 Alternate
- HiTag 1 & S
- HiTag 1 & S Alternate
- Deister UID
- GProx-II UID
- Gprox-II UID (HP)
- Gprox-II ID
- Cardax UID
- Russwin UID
- Nexwatch (Honeywell)
- NexKey, Quadrakey, KeyMate, 2Smart Key (Honeywell)
- Keri UID (HP)
- Keri UID
- ioProx (Kantech)
- Awid
- Isonas
- EM 410x
- DIGITAG
- Rosslare
- EM 410x Alternate
- CASI-RUSCO (GE Security, UTC)
- Urmet
- Indala ASP UID (Motorola)
- Indala ASP 26 bit (Motorola)
- Indala ASP (custom firmware)

- Indala ECR (custom firmware)
 - TCOS
3. Next to **Card Type 1**, use the drop-down list to select a card type.
 4. Next to **Card Type 2**, use the drop-down list to select a second card type.
 5. If you are using HP HIP2 card readers, select a third and fourth card type from the drop-down menus.
 6. Under the Card Read Beep Volume drop-down menu, select the volume of the beep sound when cards are presented at the reader.

 **NOTE:** If you are using HP Common Card Readers or RFIDEas RDR-80583AKU card readers on HP FutureSmart or non-FutureSmart devices, the card beep volume can be set to OFF or Maximum only. If Minimum or Medium are selected, the Maximum setting will be used for HP Common Card Readers or RFIDEas RDR-80583AKU card readers.

 **NOTE:** The card reader volume level applies to all devices in the environment. The card reader volume cannot be adjusted for individual devices.

 **NOTE:** The highest volume of the HP HIP2 readers is very quiet and the lowest volume is virtually inaudible.

 **NOTE:** When the Card Read Beep Volume is set to OFF, the reader still beeps at full volume when it is connected, and beeps at the minimum volume when accessed by the solution.

7. Click **Update** to save any changes.

5.3.4 Set Cards parameters

Prerequisites

- “Card Only” or “Card and Code” or “Card or Code” set in Settings > Pull Print, select your server, and then click **Configure**. Go to the General tab.
- Data storage set to “LDAP Server” or “Database” in the Settings > Pull Print, select your server, and then click **Configure**. Go to the General tab.

To set parameters for using proximity cards, complete the following steps:

1. Enter the name of the LDAP attribute to be used to contain your users’ card values into the Cards attribute field. If storing in a database, then this is not required.

- Cards

Card attribute

Cards are read-only

Permit users to self-enroll at a device

Drag and drop to change the order the options appear on the device

1 Username/Password (permanent card)

2 Email (permanent card)

3 Username/Password (temporary card)

4 Email (temporary card)

Permit user network credentials instead of cards

Show card values on pull printing server admin pages

Card ID masking

2. Click the **Cards are read-only** checkbox to disable the AD-Authenticator utility's ability to change cards.
3. The Settings tile > User tab provides the ability for authorized users to examine and change a user's card number. Uncheck the "Show card values on pull printing server admin pages" box to configure the User Editor so that cards may be changed (only to new random values, unless specified as read-only) and emailed to their associated users, but not viewed.


 **NOTE:** After a new HP AC installation, the option "Show card values on pull printing server admin pages" is disabled by default.

4. If you want users to be able to self-enroll, select **Permit users to self-enroll at a device**.

If the **Permit users to self-enroll at a device** option is enabled, four additional options are available:

- **Username/Password (permanent card):** Users can enter network credentials to enroll cards that are stored until the card data is manually deleted.
- **Email (permanent card):** Users can enter an email address to enroll cards that are stored until the card data is manually deleted.
- **Username/Password (temporary card):** Users can enter network credentials to enroll cards that are stored for a temporary period of time. The default time is 12 hours. After the time expires, the card data is removed from the IRM database.
- **Email (temporary card):** Users can enter an email address to enroll cards that are stored for a temporary period of time. The default time is 12 hours. After the time expires, the card data is removed from the IRM database.

 **NOTE:** More than one option can be selected to display on device front panels, so that users can choose how to enroll cards.

 **NOTE:** The options can be re-ordered to change how they display on device front panels. Click and drag the option titles to rearrange the order.

5. To allow for alternative authentication using Windows credentials, select **Permit user network credentials instead of cards**.
6. Select **Card ID masking** if you want Active Directory or the database to read the card ID number, instead of the card raw number, when a card is enrolled. See [Section 5.3.2.2, Card Masking](#).
7. Click **Update** to save any changes you have made.



NOTE:

- The Cards menu displays only if “Card only” or “Card or code” or “card and code (two-factor)” is selected as the storage option on the General tab.
- The Card attribute field displays only if LDAP server is selected as the data storage option on the General page.
- If enabling Card ID masking, any cards that were enrolled before Card ID masking was enabled need to be re-enrolled.
- If your printing environment has multiple types of card readers it is recommended to enable card ID masking. This allows all cards to be read the same way.

5.3.5 Prevent Alternate Windows Authentication when using Card Only Authentication

In some environments, customers do not want users to enter network credentials at the device as an alternative method of authentication if the user forgets their card.

Prerequisites

- Settings > Pull Print and select your server and click **Configure**. Go to the General tab and set to **Cards**.

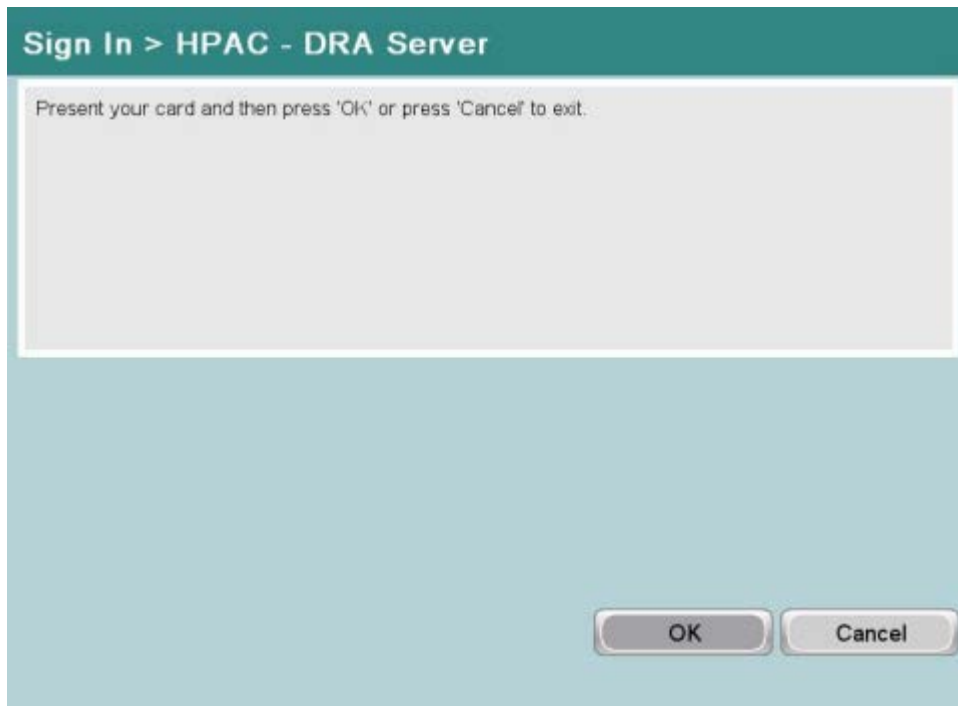


NOTE: Failover authentication via Windows is not supported with Card or Code. If a user Card is not available, a Code can be used. If Code is forgotten, user can go to mycode website to change/reset it.

Set Card Parameters

1. Go to the Settings > Pull Print and select your server and click **Configure**. Go to the > Advanced tab > Cards section.
2. Uncheck “Permit user network credentials instead of cards” and click **Update**.

3. Press the **Pull Print** button on the device. You will be prompted to present your card with no option to provide network credentials.



5.3.6 Prevent User Enrollment at the Device

In some environments, customers do not want users to enroll their cards at the device as the card data may already exist in AD or SQL database.

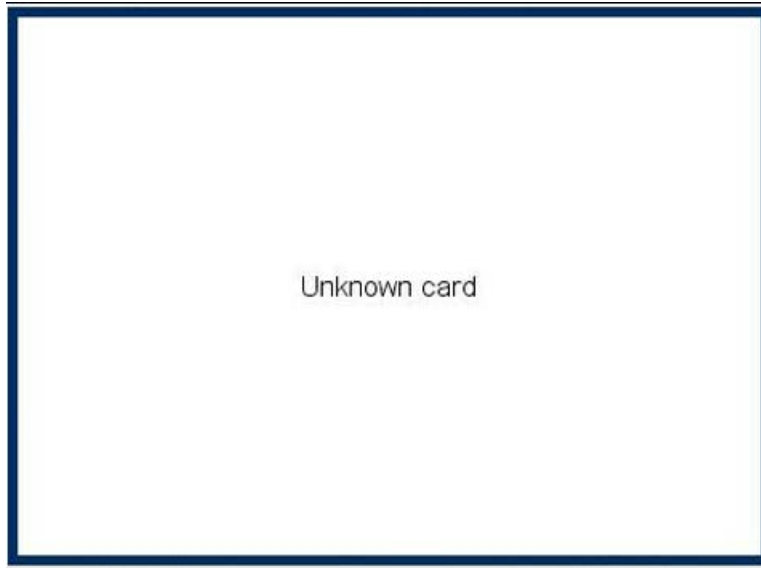
Prerequisites

- Settings > Pull Print, select your server, and then click **Configure**. Go to the General tab and set to **Cards**.

Set Card Parameters

1. Go to the Settings > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Cards section.
2. Unselect "Users to self-enroll at a device" and click **Update**.

3. The device will give an error with no option to enroll the card.

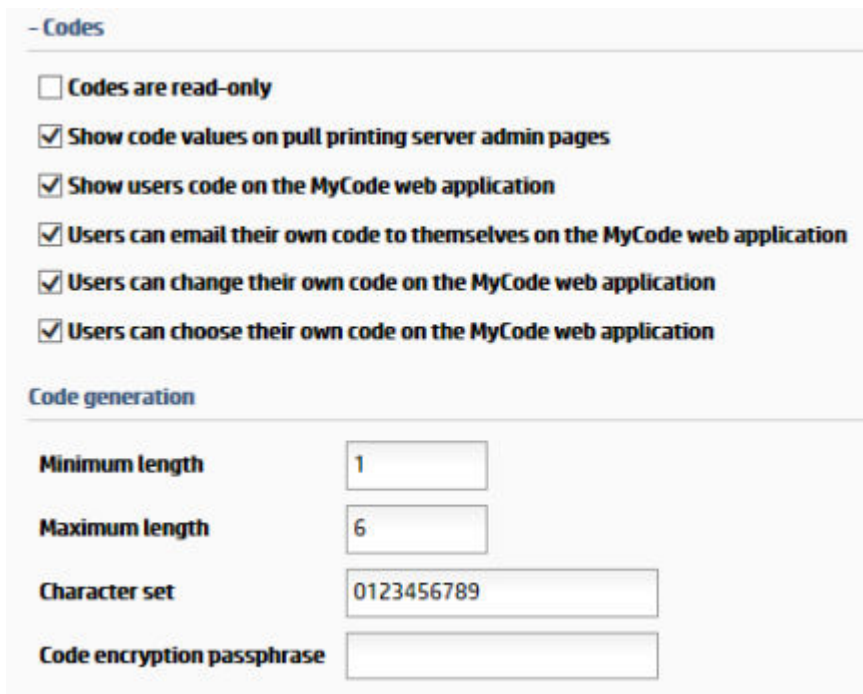


5.3.7 Code parameters when storing in Active Directory


The AD-Authenticator provides a number of options for managing user Codes. This section describes how to configure those options.

To set the Code parameters, complete the following steps:


1. Go to the Settings > Pull Print, select your server, and then click **Configure**. Go to the General tab, and under the Device Authentication Method, change to **Code**.
2. Go to the Advanced tab > Codes section.

A screenshot of a web-based configuration interface for codes. The page is titled "- Codes" and contains several checkboxes and input fields. The checkboxes are: "Codes are read-only" (unchecked), "Show code values on pull printing server admin pages" (checked), "Show users code on the MyCode web application" (checked), "Users can email their own code to themselves on the MyCode web application" (checked), "Users can change their own code on the MyCode web application" (checked), and "Users can choose their own code on the MyCode web application" (checked). Below these is a section titled "Code generation" with four input fields: "Minimum length" (value: 1), "Maximum length" (value: 6), "Character set" (value: 0123456789), and "Code encryption passphrase" (empty).


3. If the code is to be stored in LDAP, as specified in the Settings tile > Pull Print select your server and click **Configure**. Go to the General tab > Data Storage section, then you will need to enter the name of the attribute that the code will be stored in.
 - If the code already exists in the specified attribute (i.e. an employee number) then check the **Codes are read-only** box to prevent overwriting of codes. This will also disable all other options on the page when read-only is specified.

 **NOTE:** Ensure the attribute is indexed to prevent any delays during authentication.

4. Select the settings that meet your organizations environment:
 - **Show code values on pull printing server admin pages:** Unchecking this will allow for codes to be changed (only to new random values, unless specified as read-only) and emailed to their associated users, but not viewed.

 **NOTE:** After a new HP AC installation, the option "Show code values on pull printing server admin pages" is disabled by default.

 - **Show users code on the MyCode web application:** Allow users to view their code through the MyCode website (<http://<servername>/AD-Authenticator/MyCode.aspx>)
 - **Users can email their own code to themselves on the MyCode web application:** Send their active code to their email address (obtained from active directory lookup) through the MyCode website.
 - **Users can change their own code on the MyCode web application:** Allow users to change their codes to a new random value through the MyCode website.
 - **Users can choose their own code on the MyCode web application:** Allow users to choose their own code. The code must still meet the minimum and maximum length, as well as only allowed character set can be used.

 **NOTE:** After a new HP AC installation, the option "Users can choose their own code on the MyCode web application" is disabled by default.

5. By default, code values generated by AD-Authenticator are exactly six numeric digits in length. You can change them to be shorter, longer, variable length, and/or change the character set from which they are made (for example, make them alphanumeric).
 - a. Enter the minimum length for generated codes in **Minimum length**.
 - b. Enter the maximum length for generated codes in **Maximum length**.
 - c. Enter all the characters that can be used for generating codes into the **Character set** field. By default, this field contains 0123456789 which allows the generation of full numeric codes. You can change it to any combination of alpha-numeric characters.
6. By default, user codes are saved in clear text in **Active Directory**. If your codes have not been specified as read-only, you can cause all future codes to be encrypted by placing an encryption passphrase in the **Code encryption passphrase** field. Once you have specified an encryption passphrase, you should immediately use the **Group Manager** application to encrypt all codes saved previously.
7. Click **Update** to save any changes you have made.
8. Still in the Advanced tab, click on SMTP and either select to **Automatically detect SMTP server**, or specify the server and enter a username and password that has access to the server. This is to allow emailing codes to users.



NOTE:

- Do not directly change the code encryption passphrase from one value to another. This will cause an irrecoverable situation where some of your codes are encrypted using the old passphrase and some with the new. Instead, with the old passphrase still in place, use the **Group Manager** application to decrypt all existing codes, change the passphrase, and then use the **Group Manager** application to encrypt the codes with the new passphrase.
- If PIC values contain alphabetic characters, it is important to know that, because of the way LDAP queries work, the alphabetic comparisons of PIC values are performed in a case-insensitive manner.
- To assign codes to individuals or groups please see [Section 9.3, User Tab](#) and [Section 9.4, AD Group Manager](#).

5.3.8 Code Parameters when storing in SQL

- To email codes to users, the SMTP must be configured. See [Section 4.2.2.1, Set SMTP Server parameters](#).
- For assigning codes to individuals review [Section 9.3, User Tab](#) or [Section 9.6, DB User Editor](#).
- To assign codes to groups review [Section 9.4, AD Group Manager](#).
- Code only, card or code, or card and code (two factor) set in the Settings > Pull Print and select your server and click **Configure**. Go to the General tab.

Complete the following steps:

1. Go to the Settings tile, select your server, and then click **Configure**. Go to the Advanced tab > Codes page and select the minimum and maximum length for the code (i.e. in the screen shot below the minimum length the code can be is 4, and the maximum length can be 8).

Code generation	
Minimum length	<input type="text" value="4"/>
Maximum length	<input type="text" value="8"/>

2. Enter the character set that can be used when generating a code. These values can be numeric or alpha characters.
3. To encrypt the codes, follow the steps in [Section 9.4.4, Encrypt or decrypt user PICs](#).

5.4 Database storage

To configure HP Access Control to store user enrollment data (i.e. card, code, or card+code), select **SQL Server** as the storage method.

1. Go to Settings > Pull Print and select your server and click **Configure**. Go to the General tab.
2. Under **Data storage**, select **SQL Server**. If you want to allow users to enroll multiple cards to be associated with their Windows login, select **Multiple cards per user**.
3. Click **Update**.

5.4.1 Common SQL enrollment database

In a multi-server environment, a common enrollment database is required so users do not have to enroll on each HP Access Control server.

Prerequisites

- The SQL server must be configured to accept mixed mode authentication and to have an SQL user previously created with dbcreator rights.
- SQL Server is selected as the data storage method.

NOTE:

- SQL enrollment is required if using delegate/alias printing.
- The login account must have enough rights on the SQL server to create and modify databases (dbcreator or sysadmin)
- SQL Server can be installed on the local server or a remote server.


-
1. To connect or create a database on an SQL server, select **SQL Server**.
 2. Enter the server name and instance (if required) using the server name or IP address.
 3. Enter a name to identify the new database. This can be anything (i.e. HPIRM).
 4. Select either Windows authentication or SQL authentication.
 5. Enter the login credentials of an account with enough rights on the SQL server to create and modify databases.


IMPORTANT:

- To create a new database, you will have to have the *sysadmin* or *dbcreator* role for the credentials entered. To make changes to the IRM database, the credentials entered must be a Login in SQL Server that is either a member of the **db_owner** database role or a member of the **db_datareader** and **db_datawrite** database roles for the IRM database. The db_owner database role can perform all configuration and maintenance activities on the database. The db_datareader database role can run a SELECT statement against any table or view in the database. The db_datawriter database role can add, delete, or change data in all user tables.
- If the Login is a member of the db_datareader and db_datawriter database roles, Execute permissions (in database Properties) must be granted to the user.


5.4.2 Use only SQL database to validate users during authentication

By default, during authentication, AD-Authenticator will validate users via the LDAP server. If the "Validate user via LDAP server during authentication" is unchecked, the user details will be retrieved from the SQL server only during authentication.

 **NOTE:** To add new users (that are not in AD) to the database after "Validate user via LDAP" is unchecked, card/code data needs to be imported into the database. This can be done using the ImportUser tool.

 **NOTE:** When "Validate user via LDAP" is unchecked, users will have to be in AD for alternate authentication and card enrollment to work.

 **NOTE:** When "Validate user via LDAP" is unchecked, rights management is currently not supported.

 **NOTE:** In the Settings tile > User tab, user data is retrieved from AD, even if "Validate user via LDAP" is unchecked.

5.4.3 Import to IRM database


The ImportUser tool allows administrators to import user name/card/code/rights/alias information into an SQL Server database, or export data from SQL to a CSV file. This tool is intended to be used with HP AC 14.1 or newer.

Below is a sample CSV file. To import, the CSV file must contain a header with fixed values and at least two columns: a **user** column and a **card** or **code** column. Other columns, such as rights or alias, are optional.

	A	B	C	D	E
1	user	alias	card	code	rights
2	user1	user1A	1111	1234	1111111111
3	user2	user2A	2222	2345	1111111111
4	user3	user3A	3333	3456	1111111111
5	user4	user4A	4444	4567	1111111111
6					


 **NOTE:** The following column headers are supported:

- alias
- card
- code
- domain
- user
- name
- email
- department
- rights

 **NOTE:** The ImportUser.exe file will get the database connection from the AD-Authenticator web service and read if the server is configured for Code, Card, or Card + Code authentication. The file will also check if the CSV file contains the appropriate columns.

Running the ImportUser.exe file with no parameters will display the following optional parameters:

- `-multicard` enable multicard support
- `-update` update existing users card and/or code
- `-deleteuser` delete all users and alias from the database before processing CSV
- `-deletealias` delete all alias from the database before processing CSV
- `-export` export the configured database to a CSV file

 **IMPORTANT:** If **Multiple cards per user** is enabled on the server (in the HP AC admin console > Settings > Pull Print and select your server and click **Configure**. Go to the General tab > Data Storage section), the parameter `-multicard` must be entered in the command line.

 **NOTE:**

- Optional parameters do not need to be entered in a specific order.
 - If the ImportUser.exe file is not run on the same server as the AD-Authenticator web service, the ImportUser.exe.config file (located in the HP AC installation zip file in the \clients folder) must be edited to add the correct server name. Open the ImportUser.exe.config file and edit the <endpoint address="http://localhost/ad-authenticator/ad-authenticator.asmx" line, where localhost is the name of the server containing AD-Authenticator.
 - If **Multiple cards per user** is enabled on the server (in the Settings > Pull Print and select your server and click **Configure**. Go to the General tab > Data Storage section), the parameter -multicard must be entered in the command line.
-

5.4.4 Importing data

To import data into an SQL Server database, perform the following steps:

1. Navigate to the folder containing the ImportUser.exe program from a command prompt.
2. You can check that the users have been imported by going to the Settings tile > DB User Editor tab. Click **Search/Refresh**.

 **NOTE:** You may have to change the grid page size to view the entries.

For example, the following command line is valid:

```
ImportUser.exe users.csv -update -deleteuser -deletealias -multicard
```


5.4.5 Exporting data

To export data from an SQL Server database to a CSV file, perform the following:

1. Open a command prompt and navigate to the folder containing the ImportUser.exe program.
2. Type importuser.exe c:\<path to where the file will be stored>\<filename> - export (i.e. importuser.exe c:\temp\users.csv - export).
3. The CSV file will be created and placed in the specified directory.

For example, the following command line is valid:

```
ImportUser.exe c:\users.csv -export
```

 **NOTE:** The exported CSV file can also be imported. For example, if you want to switch from SQL CE to SQL Server and avoid re-enrollment, export the data to a CSV file from SQL CE, change the data storage to use SQL Server (go to the Settings > Pull Print and select your server and click **Configure**. Go to the General tab > Data Storage section), and then import the same CSV file into SQL Server.

5.5 Authorization

AD-Authenticator can be used to manage authorization to access walk-up functions of the print device.

See [Section 5.7, Configuring devices](#) to see what features are supported on print devices.

The AD-Authenticator provides two different methods of rights control:

- **Individual rights control:** This method allows you to choose exactly which rights each user has.
- **Group rights control:** This is a batch-control method, based on users' membership in pre-defined Active Directory Groups. This method is ideal when your Active Directory has been populated with groups that

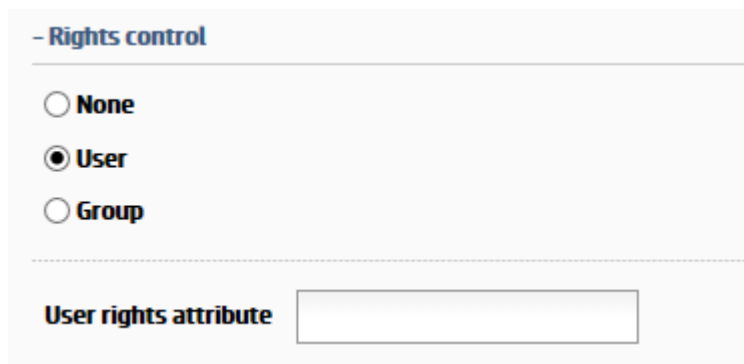
represent a user's role in your organization and that role maps directly to the device functions its users should be permitted to use.

You will need to determine which rights-control method is appropriate for your organization before continuing to complete this section.

5.5.1 Configuring individual rights control

This section describes the procedure for configuring AD-Authenticator to control rights for an individual user.

1. Go to Settings > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Rights Control section.
2. Select **User**.
3. If you selected LDAP as the data storage in the General tab, then the **User rights attribute** field displays. Enter the name of the LDAP attribute to be used to contain your users' assigned rights.



The screenshot shows a configuration panel titled "- Rights control". It contains three radio button options: "None", "User", and "Group". The "User" option is selected. Below these options is a text input field labeled "User rights attribute".

4. For each device feature listed under Protected Features, place a check mark in the check box if the feature should only be available to specific users. Clear the box to allow all users to access the feature. All features are protected by default.

The specific users who can access this feature will be specified later using either the **User** tab or **Group Manager**. See [Section 9.3.2, Change a user's device feature rights](#).

5. Click **Update**.

- Go to the Settings tile > User tab, and search for a user by username or email. The page will now show the functions that are protected.

Pull Print Spooler Database IIS **User** Agent IPM Login License DBUserEdit

USERNAME ▼ janedoe 🔍

Save Add alias Email code Reset

USERNAME: **JANEDOE** NAME: **JANE DOE**

ALIASES: None

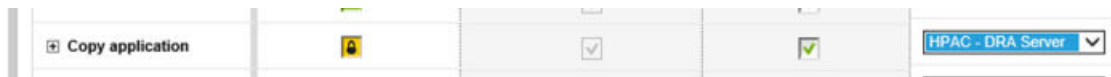
CODE: 092986

RIGHTS CONTROL

<input checked="" type="checkbox"/> COPY	<input checked="" type="checkbox"/> CREATE STORED JOB
<input checked="" type="checkbox"/> COLOR COPY	<input checked="" type="checkbox"/> DIGITAL SENDING SERVICE (DSS) SECONDARY E-MAIL
<input checked="" type="checkbox"/> SEND TO E-MAIL	<input checked="" type="checkbox"/> DIGITAL SENDING SERVICE (DSS) WORKFLOW
<input checked="" type="checkbox"/> SEND FAX	<input checked="" type="checkbox"/> SECURE PULL PRINT
<input checked="" type="checkbox"/> SEND TO FOLDER	
<input checked="" type="checkbox"/> JOB STORAGE	

Select All Deselect All

- Select the functions you want to restrict the user from accessing. You can select them individually or select **Deselect all**.
- Click **Save**.
- In the device's EWS go to **Security > Access Control** and ensure the authentication method is set to HPAC-DRA. Ensure the guest user is locked out (it will show a lock icon). Click **Apply**.



10. At the print device, when a user tries to access a function that they are not permitted to use, they will receive a message (message may vary, depending on device).



5.5.2 Configuring group rights control

This section describes the procedure for configuring AD-Authenticator to control user rights using Active Directory groups.

1. Go to Settings > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Rights Control section.
2. Select **Group**.

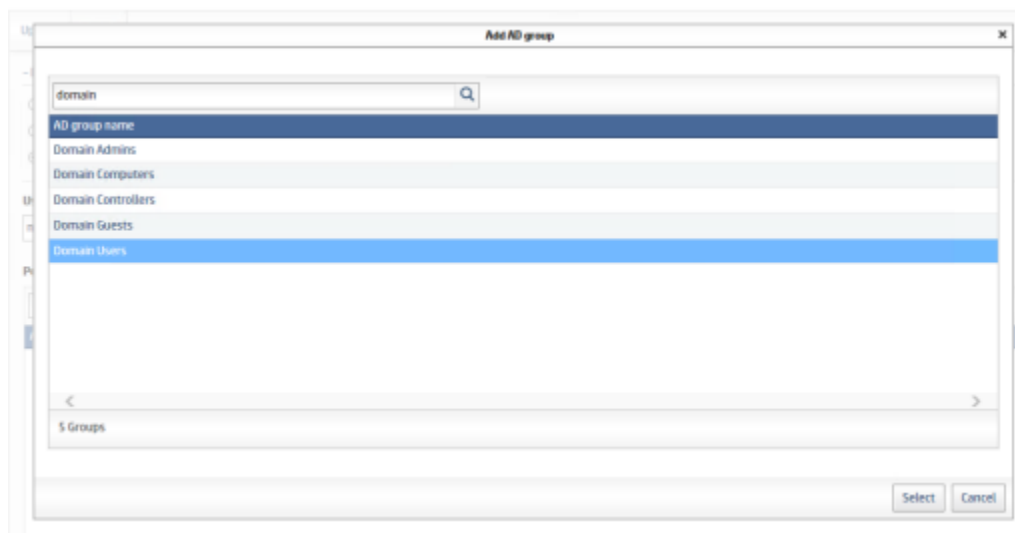
A screenshot of the "Rights control" configuration interface. The title is "- Rights control". There are three radio buttons: "None", "User", and "Group", with "Group" selected. Below this, there are two fields: "User group membership attribute" with the value "memberOf" and "Feature" with a dropdown menu showing "Copy". To the right of the "Feature" field is a checked checkbox labeled "Feature is protected". Below these fields is a section titled "Permitted groups" which contains a search input field with a magnifying glass icon, and "Add" and "Delete" buttons. Below the search field is a table with a header "AD group name" and an empty body. At the bottom left of the table area is a left-pointing arrow.

3. In the **User group membership attribute** field, enter the name of the LDAP attribute that contains the list of groups your users are members of.

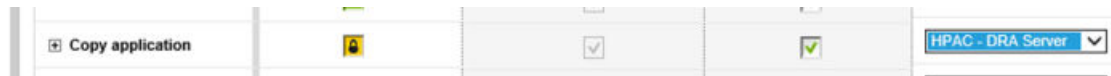
 **NOTE:**

- The default memberOf value is correct for most Active Directory installations.
- Ensure the field entered is indexed to avoid authentication delays.

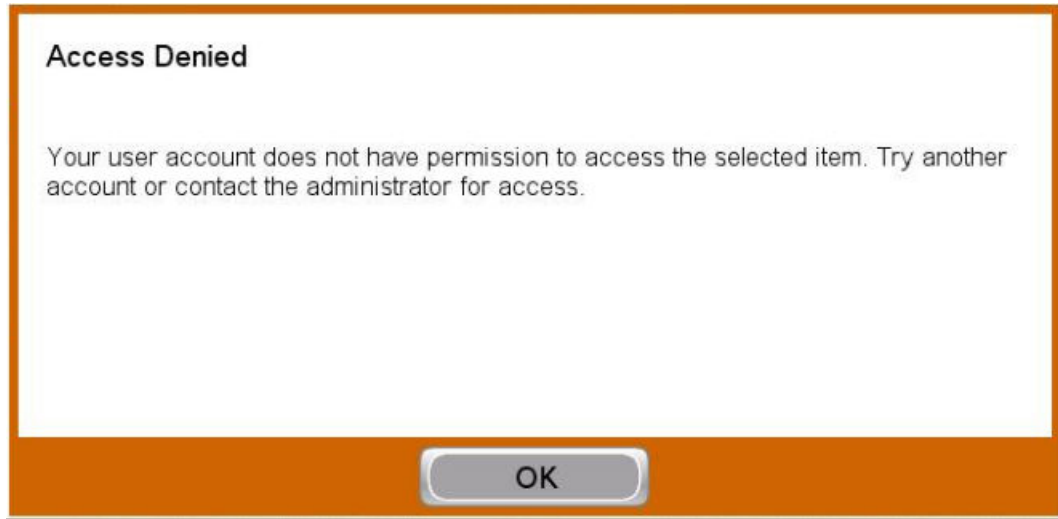
4. Complete the following process for each device feature listed in the **Features** drop-down box:
 - a. Select a device feature in the Features drop-down box.
 - b. Select **Feature is protected** if the feature should only be available to specific users. Clear the box to allow all users to access the feature.
 - c. If you have protected the feature, click **Add**. A page will appear that allows you to select the groups in your Active Directory that will have access to this device feature.
 - d. Enter a group name to allow members of those groups access to the feature. Click **Select** to add the group to the Permitted Groups list.



- e. Repeat this process for each device function you wish to protect.
5. Once you have completed the protection settings for each device feature, click **Update** to save the changes you have made.
 6. In the device EWS go to Security > Access Control and select the HPAC-DRA server for the feature. Ensure the guest user is locked out and click **Apply**.



7. At the device control panel, authenticate and try to use a feature that is protected. A message will appear advising the user that access is denied.



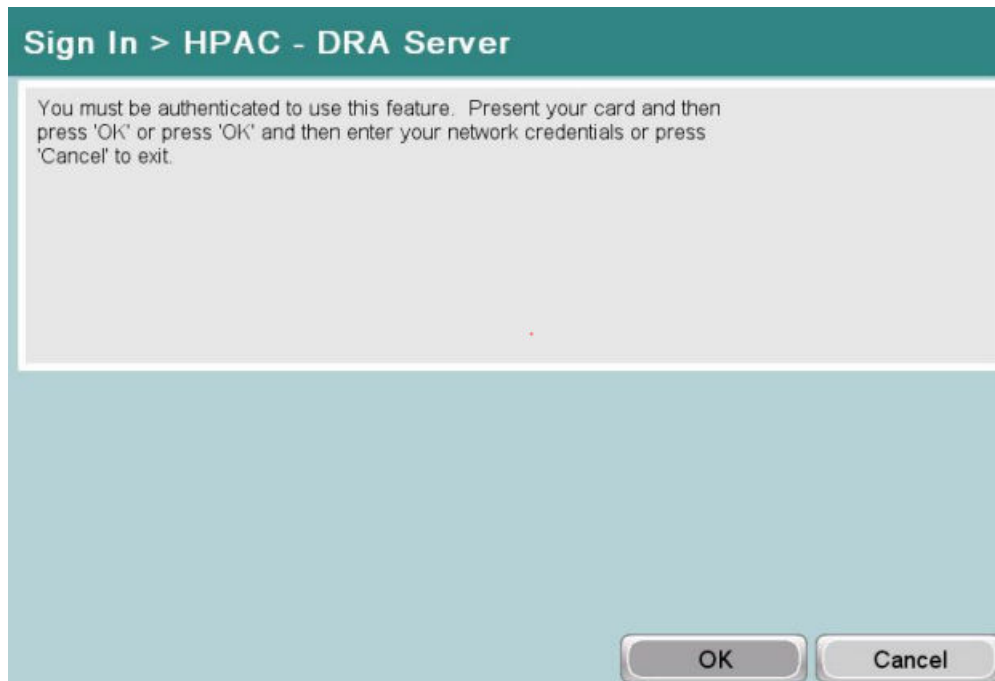
5.6 Authorization to use device features

HP AC can be used to authorize a user's ability to access device features on a MFP. See [Section 5.5, Authorization](#) for more details.

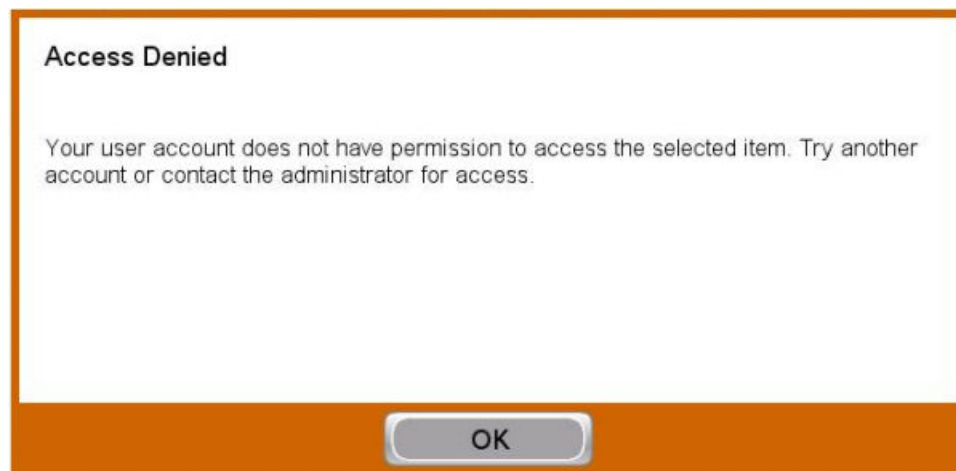
5.6.1 HP MFPs

When the device is configured to require authorization to use certain features, the user will be required to authenticate prior to accessing the device. To authenticate to use a feature do one of the following:

- Authenticate at the device before accessing the feature;
- OR
- Press the feature you want to use and you will be prompted to authenticate.



If you are denied access to use that feature you will receive a message stating access is denied.



5.7 Configuring devices

In order to allow users to authenticate on a device, the device must be configured for authentication from the HP AC Configuration utility.


Prerequisites

- HP Access Control Agent must be installed on the server.
- For IPA authentication, the correct PRN installation file displays in the Installation file field in the **Settings** tile > **Agent** tab.
- A device administrator password is set on the device and matches the device administrator name and password in the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the General tab > Device Authentication section, or matches the device name and password in Devices tile > Admin > Update > Advanced tab.

- Authentication settings are configured. See [Authentication](#).
- The PJI password on the device must match the PJI password on the HP AC server. To set the PJI password on the HP AC server, go to the Settings tile > Pull Print tab > Configure > Advanced tab > HP Device Options > enter the device's PJI Password.

The screenshot shows a configuration window titled "- HP Device options". Inside, there is a label "PJI password" followed by a text input field containing ten black dots. Below the input field, there is a note: "Numeric value between 1 and 2147483647".

- Certificate installed and configured.
- HTTPS is required for communication on the web server and with all printers.
- Communication to the device exists (ping hostname/address) and is defined in DNS for reverse lookups.
- Device is listed as a supported device.
- Device is running the correct firmware.
- If you chose to use the TCPIP/IPPS protocol in the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Pull Printing Options section, make sure IPPS-SSL is enabled on the device. Go to the device web page > Security Settings > SSL Settings. In the Setting of SSL section, make sure IPP-SSL is set to Enable. Click **Submit**.
- Some FutureSmart devices do not close the connection between the server and the device when multiple jobs are printed at once, causing some jobs to not be printed. If you chose to use the TCPIP/IPP or TCPIP/IPPS protocol, and there is a delay between print jobs or not all jobs are printed at FutureSmart devices, it is recommended to set a delay time between disconnecting from a device and attempting to establish a new connection. Go to the Devices tile > Admin > Update > Advanced tab > TCP/IP Options > Disconnect, and set a delay time, in seconds.
Or, to set the **Disconnect** setting for **all devices**, go to the Settings tile > Pull Print tab > Configure > Advanced tab > Pull Printing Options > Disconnect.
- With IPA authentication, FutureSmart agents look at the way the AD-Authenticator is configured in addition to the configuration sent by the HP AC admin console. If the AD-Authenticator has its authorization feature set to "none" the agent will set the PIC level of functionality, and this will be displayed on the **Access Control (HP AC)** EWS page. It will perform authentication only, and the devices' built-in Access Control page settings will control authorization. It is necessary to reconfigure (or restart) the devices when enabling/disabling AD-Authenticator authorization. If "Rights by User" or "Rights by Group" is enabled, the agent will set the DRA level of functionality, and this will be displayed in the **Access Control (HP AC)** EWS page. It will perform authentication and rights management. With HP AC 16.8 and newer, the IRM level of functionality will no longer be selected, as quota is no longer managed by the agent, but instead by OXPd.

 **NOTE:** If the authentication method is set to card or code in the Settings > Pull Print, select your server, Configure > General tab, the device will function as if "Card only" has been selected.

5.7.1 HP Multifunction devices

Supported Features

- Secure Pull Printing
- Authentication


- Card or Windows Authentication
- Card+Code (two-factor)
- PIC
- Card or Code
- Authorization for device functions
- Job Accounting
 - Quota
 - In-printer tracking
- Enrollment


Complete the following steps:

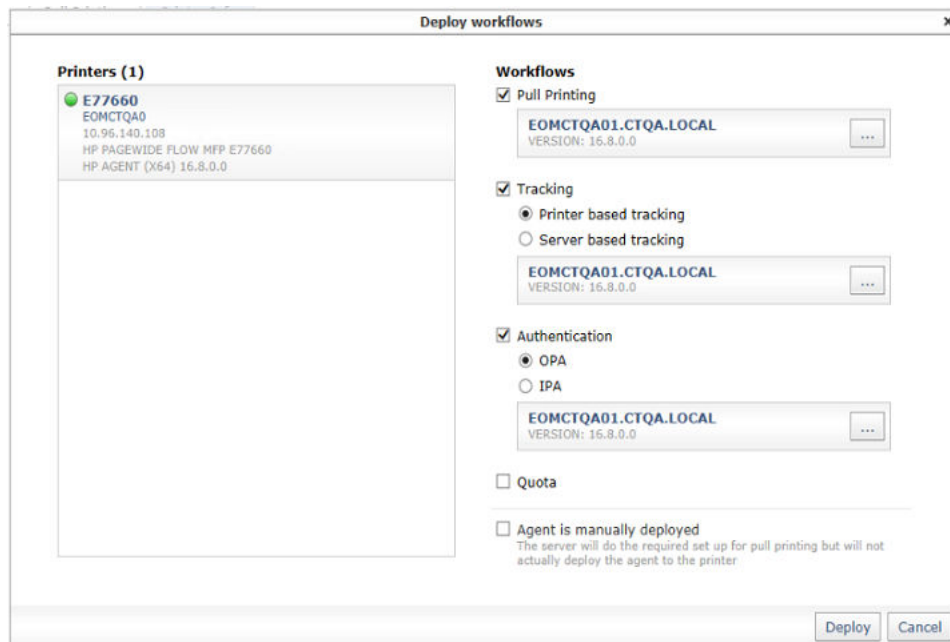
1. In the HP AC configuration utility, go to the **Devices** tile and do one of the following:
 - Select the device from the device list.
 - Scan for devices on the network.
 - Click Admin > Add then enter the IP address or hostname of the device.

See [Section 4.2.1, Adding devices](#).

2. Click Pull Printing > Deploy Workflows. Then select the workflows to deploy to the device(s).

 **NOTE:** With IPA authentication, the device may reboot during the installation process. Please wait for the device to return to the "Ready" state.

 **NOTE:** The HP PageWide Color P75250dn, and HP PageWide Color MFP P77440, P77940, P77950, and P77960 devices require Off-Printer Agent (OPA) to be deployed. This means that when Authentication is deployed to the device, no agent file is installed on the device hard drive. When Authentication is deployed to these devices, OPA will automatically be configured on the device.



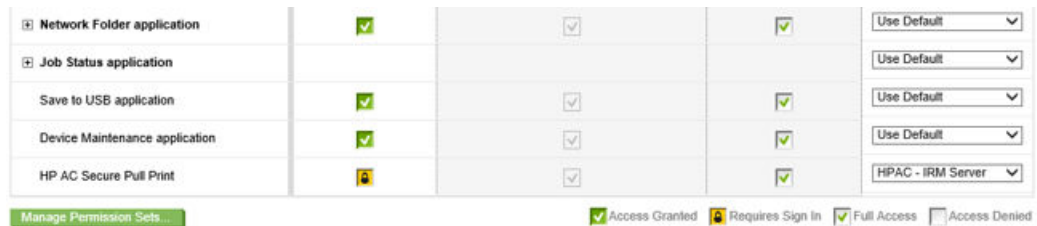
 **NOTE:**

- When configuring HP AC there may be a requirement to set the device to look at multiple IIS servers. When multiple IIS servers are in the Settings > Pull Print area, then the option to configure for a different IIS server will appear for the options in the Devices > Deploy Workflow window.
- When using multiple IIS servers ensure that the server certificates are configured properly. Refer to [Section 4.2.4.2, Creating certificates in a multi-server installation](#).
- When a remote server is selected during deployment, the remote server will do the deployment and licensing of the device.

3. Go to the device EWS to set the authentication method at the device.

FutureSmart devices

- Go to the device EWS > Security > Access Control (in the left pane). Scroll down to HP AC Secure Pull Print and choose the authenticator (i.e. HPAC – IRM Server). Set the HP AC authentication method for each device function to be controlled by HP Access Control.



Network Folder application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
Job Status application				Use Default
Save to USB application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
Device Maintenance application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
HP AC Secure Pull Print	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	HPAC - IRM Server

Manage Permission Sets Access Granted Requires Sign In Full Access Access Denied

- Set the lock icon in the Device Guest column for the chosen options.

Non-FutureSmart devices


- For non-FutureSmart devices, go to **Settings > Authentication Manager** page of the EWS. In the HP AC Secure Pull Print row, select **HPAC Server** as the **Log In Method**. Click **Apply**.

5.7.2 HP single-function printers

Supported features

- Secure Pull Printing
- Authentication
 - Card or Code or Windows authentication
 - Card+Code (two-factor)
 - PIC
 - Card or Code (on FutureSmart devices with a 4.3" display)
- Job Accounting
 - Quota
 - In-printer tracking
- Enrollment

 **NOTE:** HP Non-FutureSmart single-function devices only support card authentication.

 **NOTE:** Enrollment and Windows Authentication only available on FutureSmart devices with 4.3" display.

Complete the following steps:

1. In the **Devices** tile, select the device from the device list if this is a new device and do one of the following:
 - Select the device from the device list.
 - Scan for devices on the network.
 - Click Admin > Add, then enter the IP address or hostname of the device.See [Section 4.2.1, Adding devices](#).
2. Click Pull Printing > Deploy Workflow, then select **Authentication**. The device may reboot during the installation process. Please wait for the device to return to the "Ready" state.



NOTE:

- When configuring HP AC there may be a requirement to set the device to look at multiple IIS servers. When multiple IIS servers are in the Settings > Pull Print area, then the option to configure for a different IIS server will appear for the options in the Devices > Deploy Workflow window.
- When using multiple IIS servers ensure that the server certificates are configured properly. Refer to [Section 4.2.4.2, Creating certificates in a multi-server installation](#).

5.7.3 HP OfficeJet Pro printers

OfficeJet Pro devices do not need an agent installed. This is because the OfficeJet's configuration is stored on the HP AC server and not on the device.

Supported features

- Secure Pull Printing
- Authentication
 - Card or Code or Windows Authentication
 - Card+Code (two-factor)
 - PIC
 - Card or Code
- Authorization for device functions
- Job Accounting
 - Printer Server tracking
 - Print tracking (with "Enable Tracking of Printed Jobs" enabled)
- Enrollment

Prerequisites

For OfficeJet Pro devices, ensure that the following additional prerequisites are enabled:

- Make sure Rights are enabled in the Settings tile > Pull Print > Configure > Advanced > Rights Control section.
- Agent and Secure Pull Print must be installed on the server.
- Make sure the correct OPS certificate or customer certificate displays in the **Certificate** field on the Settings tile > Pull Printing Enterprise, choose your server and click **Configure**.

- HP OPS must be installed on the server, and the OPS and Apache CouchDB services must be running.
- Ensure the correct username and password (that was specified during the installation of the OPS server) is entered in Settings > Pull Print and select your server and click **Configure**. Go to the General tab > HP OPS Server. If the password needs to be changed, please see [Section 15.17, Reinstalling HP OPS](#).
- If the device was previously configured on a different server, you will have to enable the following setting to be able to configure the settings from the new server:
 - ▲ Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > HP OPS Server. Check the Override OPS settings check box. Click **Test Connection** to test the connection to OPS. Then click **Update**.

Complete the following steps:

1. Select the device from the device list in the Device tile and then click Pull Printing > Deploy Workflow.
2. In the **Workflow** window, select **Authentication** to enable IRM authentication and device rights.
3. Click **OK**.

5.7.4 HP PageWide Pro printers

Supported Features

- Secure Pull Printing
- Authentication
 - Card or Windows authentication
 - Card or code
 - Card and code (two factor)
 - PIN/PIC
- Authorization for device functions
- Enrollment
- Job accounting
 - Print server tracking
 - Pull print tracking (via server)
 - Glass activity tracking

Prerequisites

- Device firmware is 1629F (VR 1.2 release) or higher
- PageWide Pro will use OPS only if the firmware requires OPS and will prompt for the installation files
- User database/LDAP/Active Directory is properly configured
- Rights are properly configured in the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Rights Control section.
- Agent and Secure Pull Print are installed and configured
- HTTP activation is enabled on the server



NOTE: The following is currently unsupported:

- Quota for glass activity
 - Allocation
 - Local list authentication
-

5.7.4.1 Configure the device

Authorization controls access to device features by individual user or through AD groups. Before the device is configured the server must be configured for authorization (rights management).

Rights Management Setup

When a device is configured with OPA, all device functions are managed by IRM. This means that authentication changes for a specific feature are made within the Rights Control section. Rights can be setup individually by user or by group membership. For most customers configuration will be done by group membership, as configuring rights individually can be a time consuming administrative task with a large number of users to manage.

Rights control by group membership

1. Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Rights Control section and select **Group**. When using groups instead of individuals, the attribute containing user assigned groups already exists in AD as the memberOf attribute. Select the desired feature (such as copy) and verify that the “Feature is protected” checkbox is selected.
2. Click **Add**, enter a group name, then click **Select** to add the group to the Permitted Groups list.
3. Click **Update**.



NOTE:

- To require authentication for a specific device feature, make sure the **Feature is protected** checkbox is selected. When the **Feature is protected** checkbox is not selected, the feature will not require authentication at the device control panel.
 - The previous steps must be completed for each feature individually.
 - This setup cannot be completed through the device EWS or other tools, such as HP Web Jetadmin.
-

Rights control by individual user

1. Go the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Rights Control section and select **User**. If storing user details in AD, then enter the AD attribute that the user’s rights will be stored in. Make sure this attribute has write permissions and that it is indexed to ensure there are no delays in authentication. If storing in SQL, then this field does not appear.
2. Select the desired feature (such as “copy”) and verify that the **Feature is protected** checkbox is selected.
3. Go to the Settings tile > User tab. Search for the user by entering the username or email.
4. Select functions to restrict the user from accessing. Select individually, or select **Deselect All**. Click **Update**.



NOTE: To change a user’s device feature rights using AD Group Manager, refer to Section “9.3.2 Change a user’s device feature rights” in the HP AC Administrator Guide.

Configuring devices

To configure the device, complete the following steps:

1. In the Device tile under the Admin menu, click **Add**.
2. Select the device from the list and click Pull Printing > Deploy Workflows.
3. Select **Authentication** and click **Deploy**. Deployment will complete in about 30 seconds. Configuration results will appear in the message panel.

5.7.5 XT devices

The XT device is an external device with an attached card reader that allows for Pull Printing at any printer or multifunction device.

XT boxes provide no tracking capabilities. If print tracking is required you will need to configure Pull Print tracking or print server tracking.

Supported features

- Secure Pull Printing
- Job Accounting
 - Print server tracking only
 - Print tracking (with Enable Tracking of Printed Jobs enabled)

Prerequisites

For XT devices, ensure that the following additional prerequisites are enabled:

- Make sure the XT device is connected to a printer and to the network.
- If your server has a firewall, make sure TCP 2000 is open to send configuration files.
- If your server has a firewall, make sure UDP 11000 port is open for device discovery.
- Make sure the authentication method is set to **Card Only** in the Settings tile and select your server and click **Configure**. Go to the General tab.
- Go to Settings > Pull Print and select your server and click **Configure**. Go to the Advanced tab and make sure the Card Reader settings and Card settings are correct.
- Make sure Card ID masking is enabled.



NOTE: The XT device must be rebooted or power cycled after the card type configuration changes. To power cycle the XT device, unplug the power cord from the device and then re-plug the power cord.

Complete the following steps:

1. Select the XT device from the device list in the Device tile, and then click Pull Printing > Deploy Workflows.
2. In the Deploy window, select **Pull printing**. Click **Deploy**.
3. The device reboots and then beeps five times, indicating the device is configured.

5.7.6 HP S900 series devices

Supported features

- Secure Pull Print
- Authentication
 - Card or Windows
 - Card or Code

- Card+Code (two-factor)
- PIC
- Authorization for device functions
- Enrollment
- Job Accounting
 - Quota
 - In-printer tracking

Prerequisites

For the S900 devices, ensure that the following additional prerequisites are enabled:

- Make sure the HP device licenses are available on the HP AC server. An HP device license is required for each device to allow for walk-up authentication.
- If you want to use a front panel QR code for pull printing with a mobile device, make sure to manually generate a QR code prior to configuring the device.
- To license the HP S900 device: Go to the Devices tile and add the HP S900 device. Select the device and click Pull Printing > Deploy Workflows and then select the "Agent is manually deployed" checkbox. The server will do the required set up for licensing but will not actually deploy the agent to the device.



NOTE:

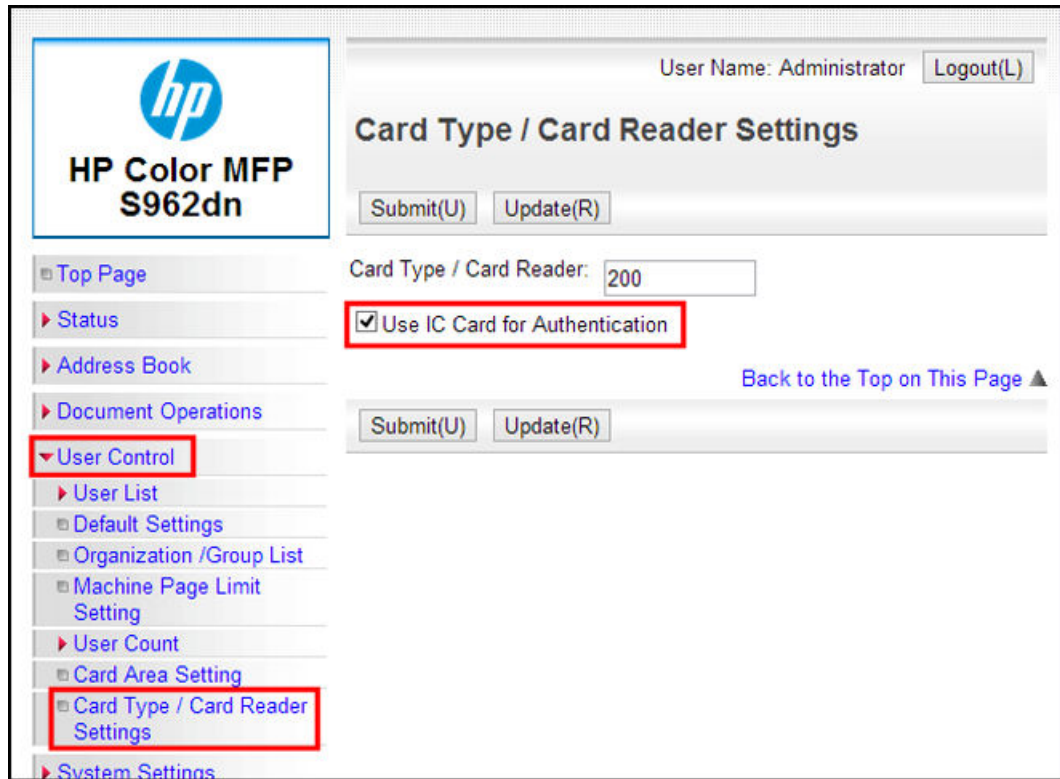
- If you change the IRM authentication method to **Code Only**, you will have to recycle the HPACWS application pool in IIS before authenticating at the device. If an error message displays on the front panel, restart the device.
 - By default, card readers are configured to read HID and iClass card types. If you want the card reader to read different card types, update it before connecting to the printer. Specific parts/kits along with part numbers are required for HIP reader integration on the S900 devices.
-

Complete the following steps:

1. Open a web browser and enter the IP address of the device to go to the device's web page to configure the device. The default username for the device web page is "admin" and the default password is "admin."

2. To install a card reader for card authentication, select **User Control** followed by **Card Type / Card Reader Settings**. Select the **Use IC Card for Authentication** checkbox. Make sure the **Card Type / Card Reader** value is set to 200. Click **Submit**.

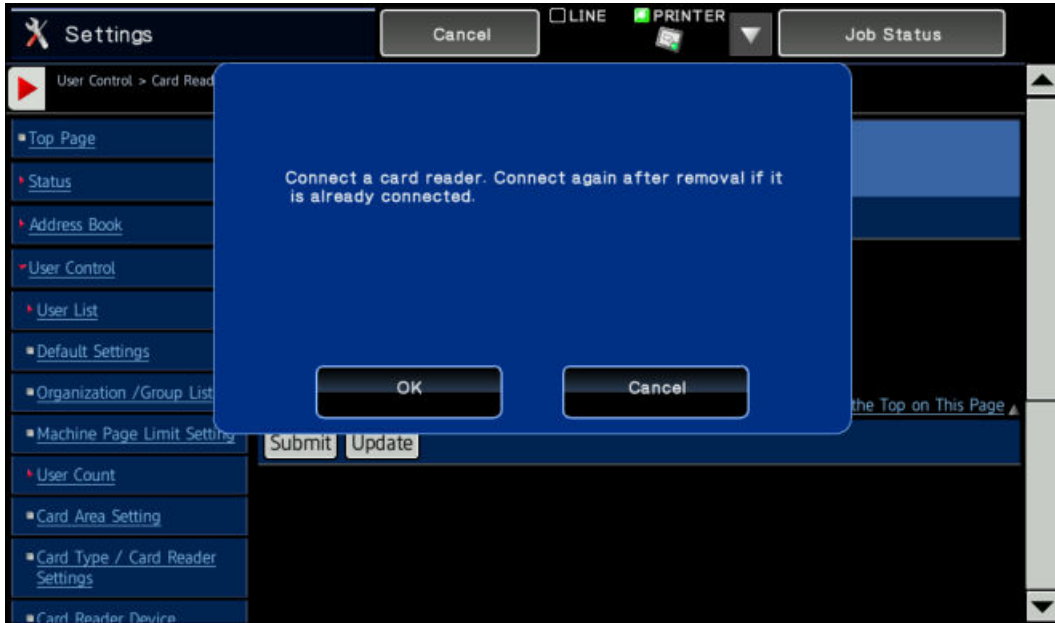
Figure 5-1 Card Reader settings



3. At the device, tap **Settings** > **User Control** > **Card Reader Device Registration**. Then tap **Read**.

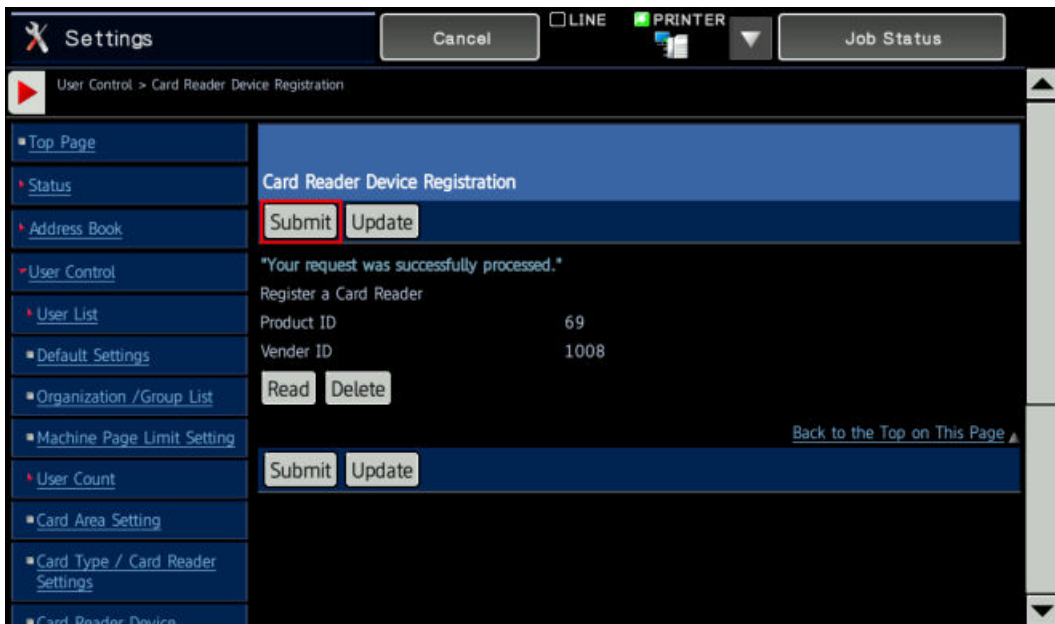
- When prompted, plug in the card reader. The card reader will beep twice. Tap **OK**. The card reader Product ID and Vender ID displays on the screen.

Figure 5-2 Insert card reader prompt



- Tap **Submit** to save the card reader registration.

Figure 5-3 Card reader registration



- To configure the device for card authentication, select **User Control** followed by **Default Settings**. Scroll down to the **Card Setting** section. Select the **Automatic Login with a Card** checkbox. Select the **Card/Front Panel Operation Authentication Approved** checkbox. Specify **Enable** in the **Card ID Registration/Change Authority** drop-down.

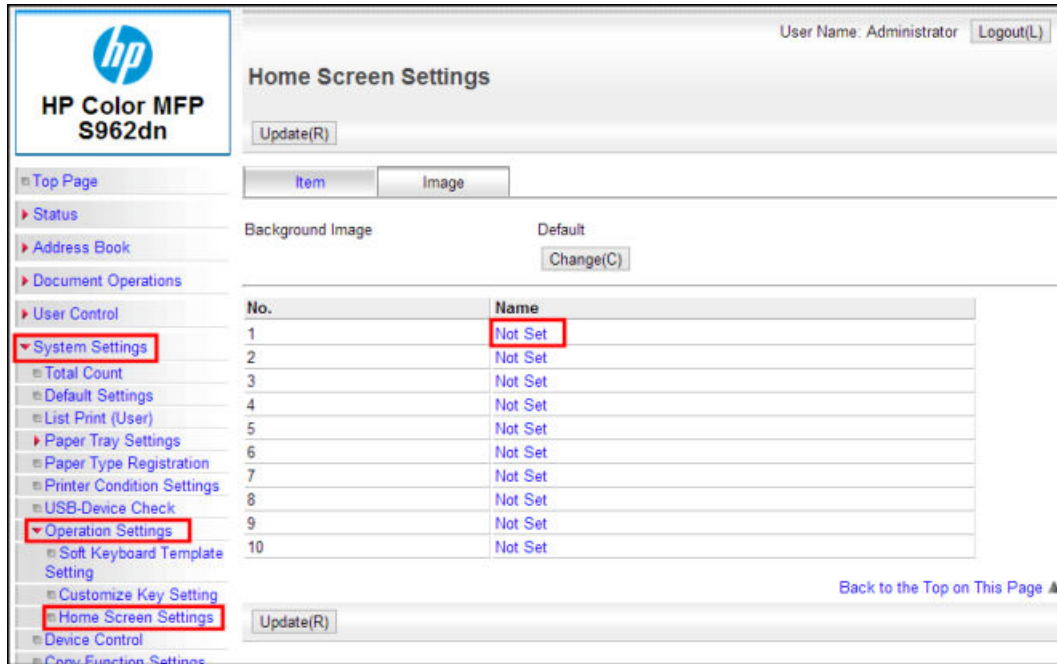
Figure 5-4 Default settings

The screenshot displays the 'Default Settings' page for an HP Color MFP S962dn. The page is titled 'Default Settings' and includes a 'User Name: Administrator' and 'Logout(L)' button in the top right. A left sidebar contains a navigation menu with items like 'Top Page', 'Status', 'Address Book', 'Document Operations', 'User Control', 'User List', 'Default Settings', 'Organization /Group List', 'Page Limit Group List', 'Machine Page Limit Setting', 'Authority Group List', 'Favorite Operation Group List', 'User Count', 'Card Area Setting', 'Card Type / Card Reader Settings', 'System Settings', 'Network Settings', 'Application Settings', 'Energy Save', 'E-mail Alert and Status', 'Job Log', 'Security Settings', 'Custom Links', and 'Operation Manual Download'. The 'User Control' and 'Default Settings' items are highlighted with red boxes. The main content area is divided into sections: 'User Authentication' (set to 'Disable'), 'Authentication Method Setting' (radio buttons for 'Authenticate a User by Login Name and Password', 'Authenticate a User by Login Name, Password and E-mail Address', and 'Authenticate a User by User Number Only'), 'Device Account Mode Setting' (checkboxes for 'Device Account Mode' and 'Allow Login by Different User'), 'Login User' (set to 'Not Set'), 'Actions when the Limit of Pages for Output Jobs' (radio buttons for 'Job is Completed even when the Limit of Pages is Reached', 'Job is Stopped when the Limit of Pages is Reached', and 'After reaching to the page limit, cancel the job and delete the job during receiving'), 'A Warning when Login Fails' (checkbox), 'Disabling of Printing by Invalid User' (checked checkbox), 'Automatically print stored jobs after login' (checkbox), 'Default Network Authentication Server Setting' (set to 'Not Set'), 'Perform LDAP server access control' (checkbox), 'Display Usage Status after Login' (checked checkbox), 'Login Name Display' (set to 'Display login name'), 'Include Job Status in user authentication' (checkbox), 'Automatic Logout Setting' (checked checkbox, set to '60 seconds'), and 'Edit Help Display of Login Screen' (text input field). The 'Card Setting' section at the bottom includes 'Automatic Login with a Card' (checked checkbox), 'Authentication Method Setting' (radio buttons for 'Only Card Authentication Approved' and 'Card / Front Panel Operation Authentication Approved'), and 'Card ID Registration/Change Authority' (set to 'Enable'). The 'Card / Front Panel Operation Authentication Approved' radio button and the 'Enable' dropdown are also highlighted with red boxes.

- On the device web page, select **System Settings** followed by **Operation Settings** followed by **Home Screen Settings**.

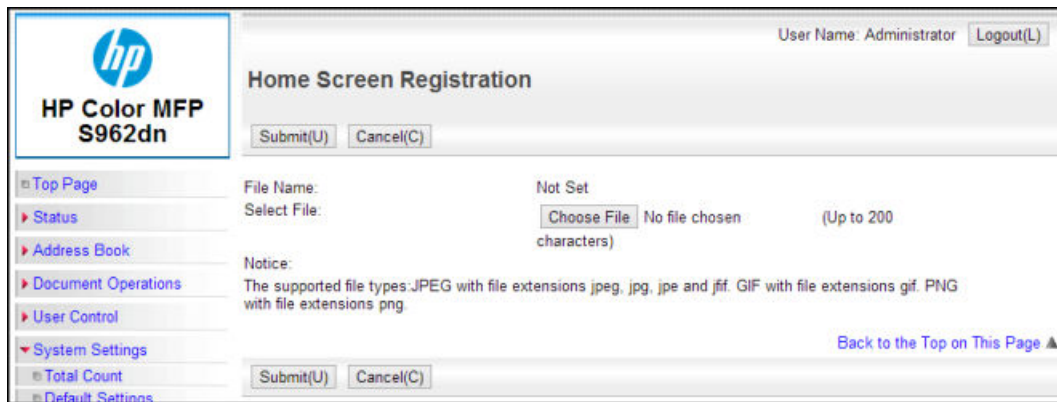
8. Select the **Image** tab followed by one of the **Not Set** links.

Figure 5-5 Home screen settings



9. On the **Registration** screen, specify the name of the image you wish to associate with the Top Level MFP panel for the application. The HP AC icon, named “icon48x44.png”, is located on the HP AC server in the Program Files\HP\HP Access Control\DPR folder. Click **Submit (U)**.

Figure 5-6 Home screen registration



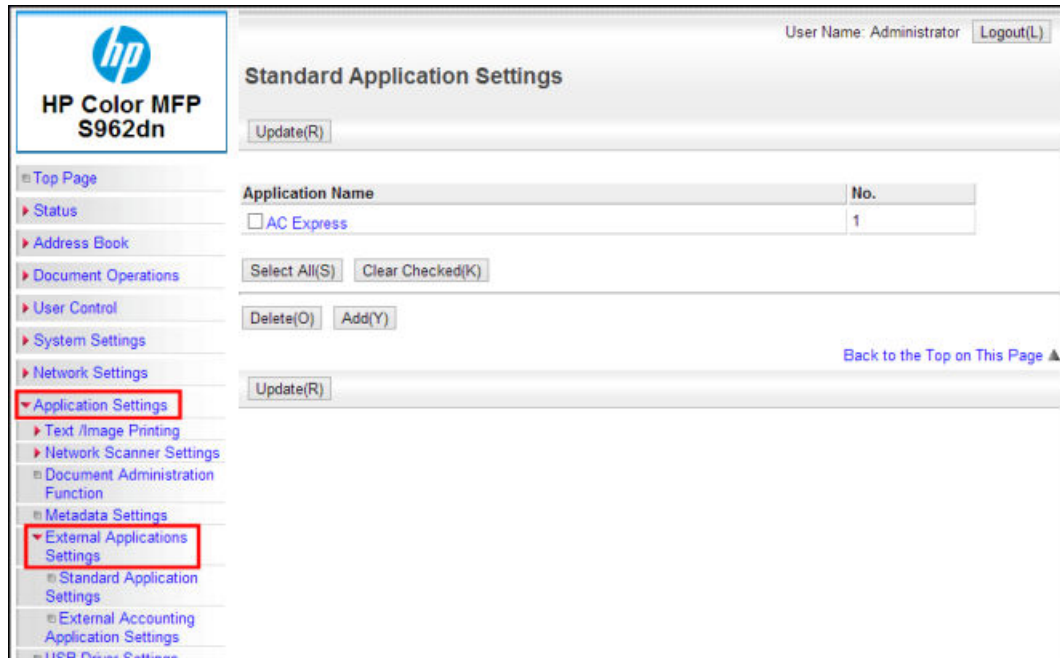
10. After adding the custom image, select the **Item** tab followed by the **Apps Home Button** link. Scroll to the bottom of the page and select the **Use Custom Image** checkbox. Then specify the image you added in step 4b. Then select **Reboot Now** to reboot the device and apply the settings.

Figure 5-7 Custom image



11. To register HP AC Secure Pull Print with the MFP, select **Application Settings** followed by **External Applications Settings**.

Figure 5-8 Standard Application settings



- From the External Application Settings, select the **Add** button. Specify the Application Name as **Secure Pull Print**. Specify the Address for Application UI as **http://serverIP/HPAppsWS/Default.aspx**, where serverIP is the IP address of the server. On the same page, select the **Use Custom Icon** checkbox and then select the image you wish to associate with the Print Pulling application.

Figure 5-9 Standard Application registration

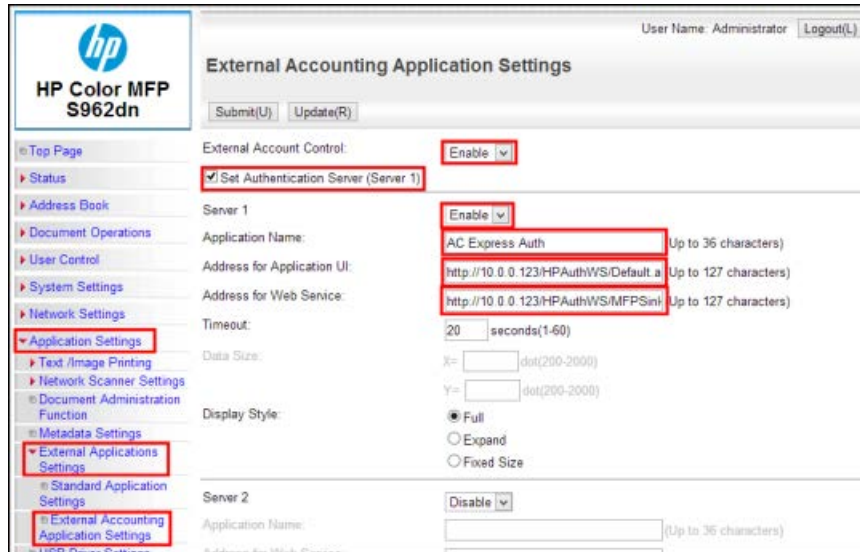
The screenshot displays the 'Standard Application Registration' page for an HP Color MFP S962dn. The page is titled 'Standard Application Registration' and includes a 'Submit(U)' and 'Cancel(C)' button at the top. The left sidebar contains a navigation menu with categories like 'Status', 'Address Book', 'Document Operations', 'User Control', 'System Settings', 'Network Settings', 'Application Settings', 'Text/Image Printing', 'Network Scanner Settings', 'Document Administration Function', 'Metadata Settings', 'External Applications Settings', 'Standard Application Settings', 'External Accounting Application Settings', 'USB Driver Settings', 'E-mail Print Settings', 'Setting for Print from the MFP(FTP)', 'Setting for Print from the MFP(SMB)', and 'Setting for Print from the MFP(SMB)'. The main content area shows the registration form with the following fields and values:

- Application Name: AC Express (Up to 36 characters)
- Address for Application UI: http://10.0.0.123/HPAppsWS/Default.aspx (Up to 127 characters)
- Timeout: 20 seconds (1-60)
- Extended Platform:
- Use Proxy Server:
- Data Size: X= [] dot(200-2000), Y= [] dot(200-2000)
- Display Style: Full, Expand, Fixed Size
- Use Custom Icon:
- File Name: logo48x44.gif
- Select File: Choose File (No file chosen) (Up to 200 characters)
- Notice: The supported file types: JPEG with file extensions .jpeg, .jpg, .jpe and .jif. GIF with file extensions .gif. PNG with file extensions .png.

At the bottom of the form, there are 'Submit(U)' and 'Cancel(C)' buttons and a link 'Back to the Top on This Page ▲'.

- To register the HPAuthWS authentication application with the MFP, select **Application Settings** followed by **External Applications Settings** followed by **External Accounting Application Settings**.
 - Select **Enable** in the **External Account Control** drop-down.
 - Select the **Set Authentication Server (Server 1)** checkbox.
 - Select **Enable** in the **Server 1** drop-down.
 - Specify an **Application Name**.
 - Specify the **Address for Application UI** as **http://serverIP/HPAuthWS/Default.aspx**, where serverIP is the IP address of the server.
 - Specify the **Address for Web Service** as **http://serverIP/HPAuthWS/MFPSink.asmx**, where serverIP is the IP address of the server.

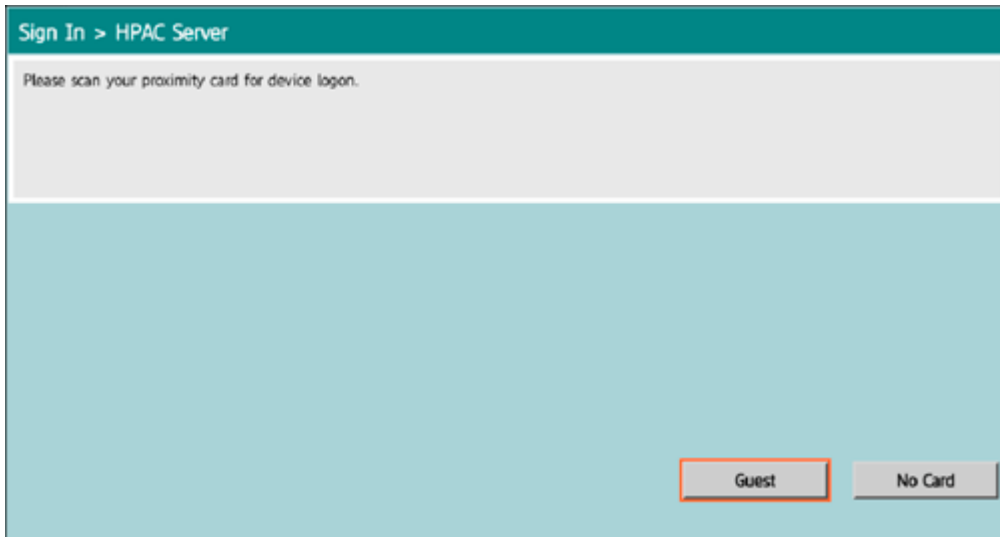
Figure 5-10 External accounting application settings



14. Click **Submit**. Then select **Reboot Now** to reboot the device and apply the settings.
15. In the HP AC configuration utility, go to the Devices tile and do one of the following:
 - a. Select the device from the device list.
 - b. Scan for devices on the network.
 - c. Enter the IP address of the device.
See [Section 4.2.1, Adding devices](#)
16. Select the device from the device list and click **Configure**.
17. In the Configure window select Authentication and/or Authorization and click **OK**.

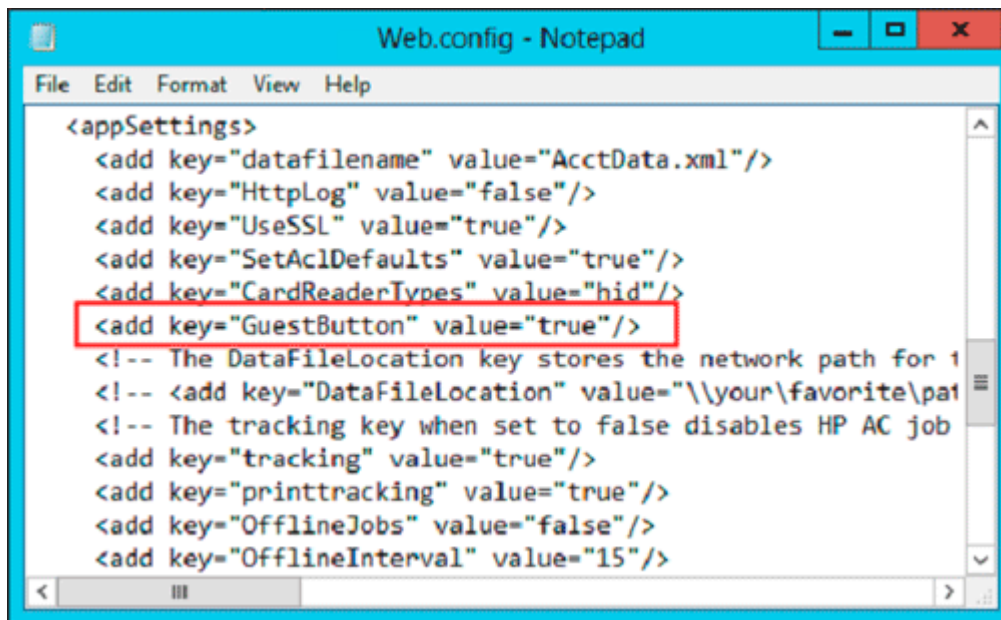
5.7.6.1 Configuring Guest login

HP S900 series printers require authentication prior to using any device features. But with HP AC 15.2, a new Guest button option is introduced that allows users to authenticate as a guest in order to use devices features, such as Copy and Email.



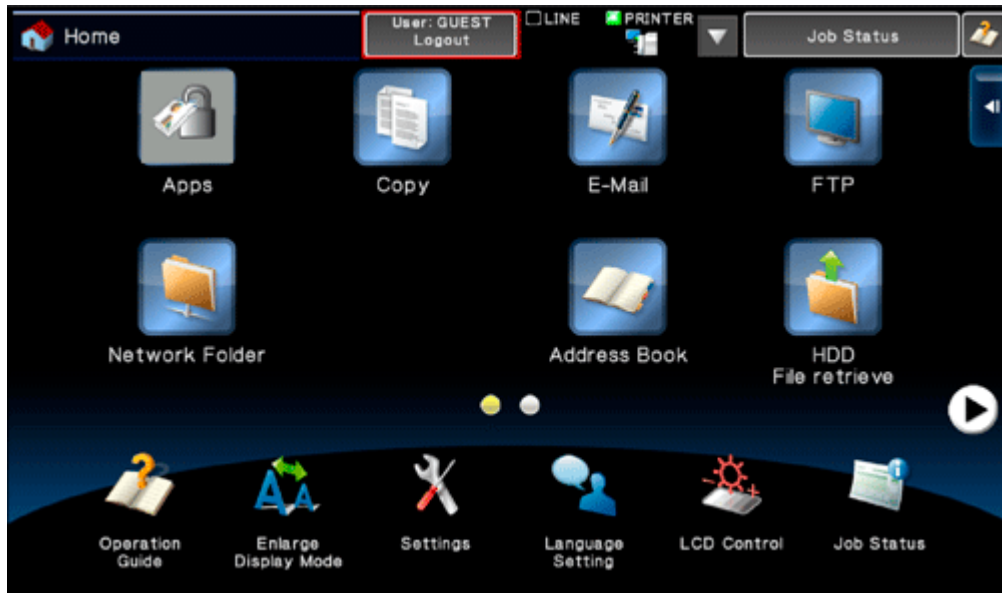
To enable the Guest button feature, follow the steps below:

1. On the HPAC server, go to the `HP\HP Access Control\HPWS\Auth` folder, and open the `Web.config` file in Notepad.
2. On the line `<add key="GuestButton"`, change the value to "true".



3. Turn the printer off and then on.

At the printer, when the user selects the [Guest](#) button, they will be authenticated as user GUEST.



IMPORTANT: If the user is logged in as GUEST and then wants to use the Pull Printing app, the user will have to select **Logout** and then authenticate with their card or code. After authenticating, the user can select the Pull Printing app and view their job list.

5.8 Enrolling a card at the device

The first time a user presents a card at a device they will be prompted to enroll their card.

IMPORTANT: The device must support card enrollment for this feature to work.

NOTE: Card enrollment on HP non-FutureSmart single-function devices is not supported.

Prerequisites

- Printer is configured for Pull Printing and Authentication.
- A card reader is connected to the printer.
- Device is either a supported HP MFP, HP S900 series device, HP OfficeJet Pro, or HP single function FutureSmart with a 4.2" display.
- Users are in Active Directory.
- Device authentication method is set to **Card Only** or **Card+Code (two-factor)** in the Settings tile > Pull Print and select your server and click **Configure**. Go to the General tab.

If the option **Permit users to self-enroll at a device** is enabled, four additional options are available:

- Cards

Cards are read-only

Permit users to self-enroll at a device

Drag and drop to change the order the options appear on the device

1 Username/Password (permanent card)

2 Email (permanent card)

3 Username/Password (temporary card)


4 Email (temporary card)


Permit user network credentials instead of cards

Show card values on pull printing server admin pages

Card ID masking

- **Username/Password (permanent card):** Users can enter network credentials to enroll cards that will be stored until the card data is manually deleted.
- **Email (permanent card):** Users can enter an email address to enroll cards that will be stored until the card data is manually deleted.
- **Username/Password (temporary card):** Users can enter network credentials to enroll cards that will be stored for a temporary time. The default time is 12 hours. After the time expires, the card data will be removed from the IRM database.
- **Email (temporary card):** Users can enter an email address to enroll cards that will be stored for a temporary time. The default time is 12 hours. After the time expires, the card data will be removed from the IRM database.

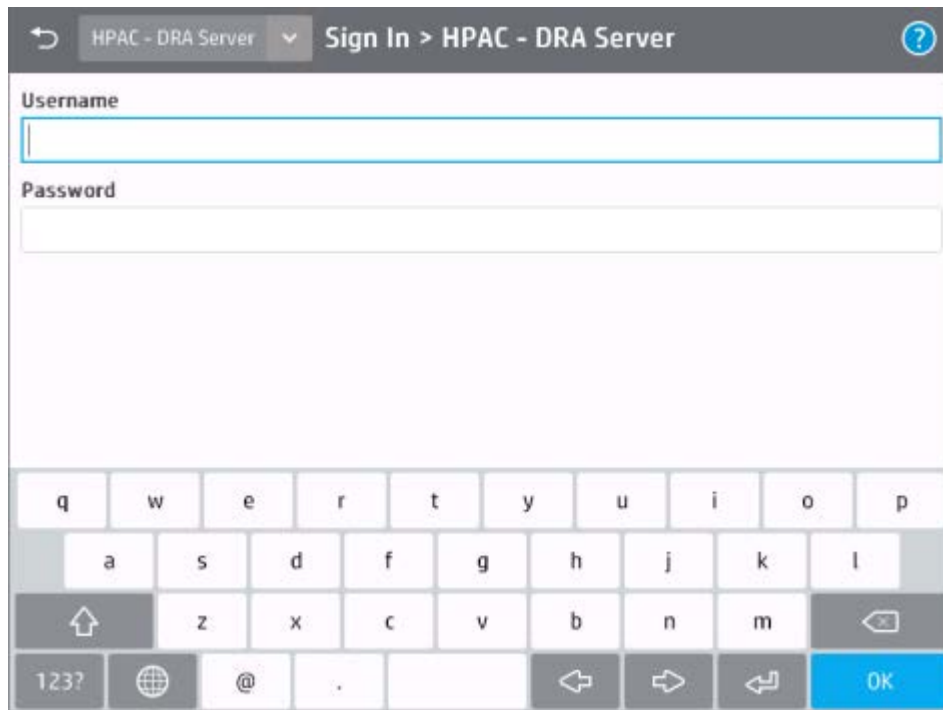
 **NOTE:** More than one option can be selected to display on device front panels, allowing users to choose how to enroll cards.

 **NOTE:** The options can be re-ordered to change how they display on device front panels. Click and drag the option titles to rearrange the order.

5.8.1 HP FutureSmart MFP

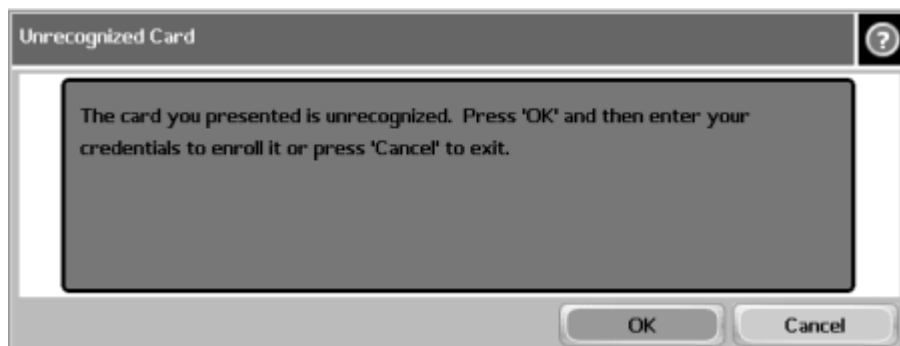
1. Tap your card to the card reader attached to the device.

2. Since the card is unrecognized, the user will be prompted to enter their network credentials. Enter your network Username and Password and press **OK**.



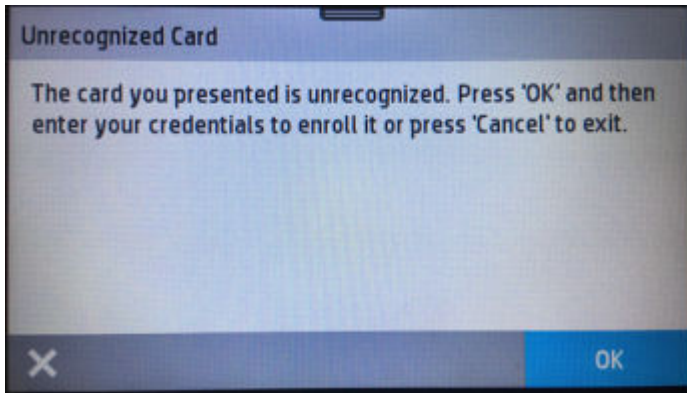
5.8.2 HP non-FutureSmart MFP

1. Present your card to the card reader attached to the device.
2. Since the card is unrecognized, the user will be prompted to enter their network credentials. Click **OK**.
A confirmation message will display.

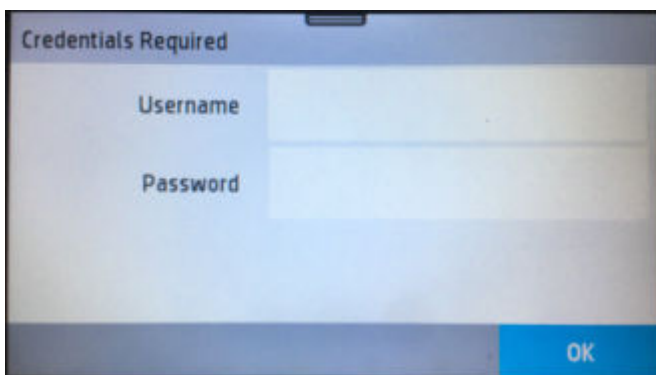


5.8.3 HP OfficeJet Pro and PageWide Pro devices

1. Present your card at the card reader. A message will display indicating that the card is unrecognized (not enrolled). Tap **OK**.

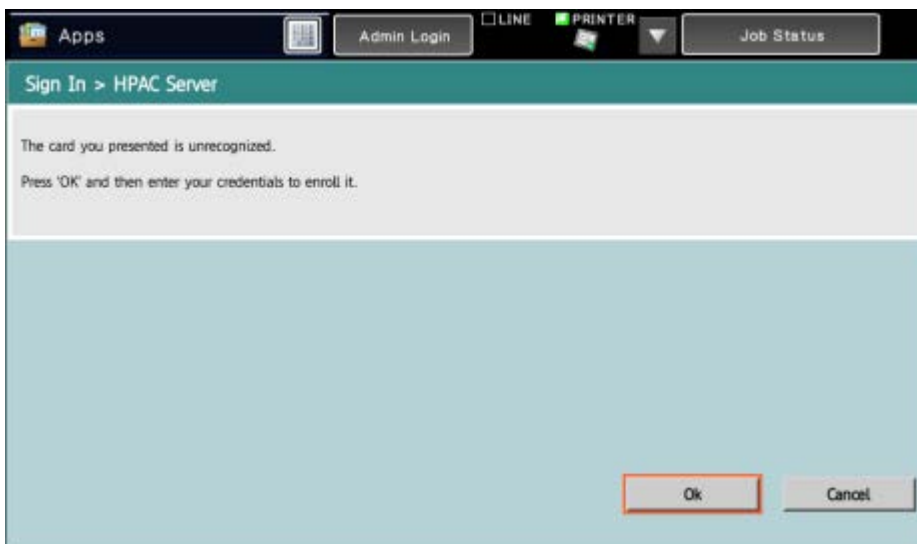


2. Since the card is unrecognized, the user will be prompted to enter their network credentials. Tap **OK**.
3. Enter your network Username and Password and tap **OK**.

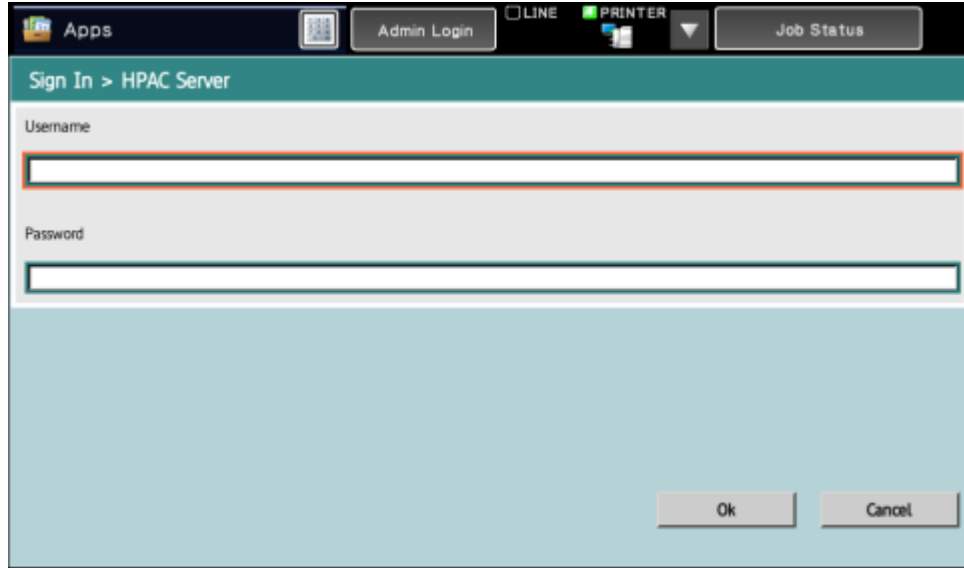


5.8.4 HP S900

1. Present your card at the card reader. A message indicating the card is unrecognized will be displayed. Tap **OK** to enroll the card.



2. Enter your network credentials and tap **OK**.

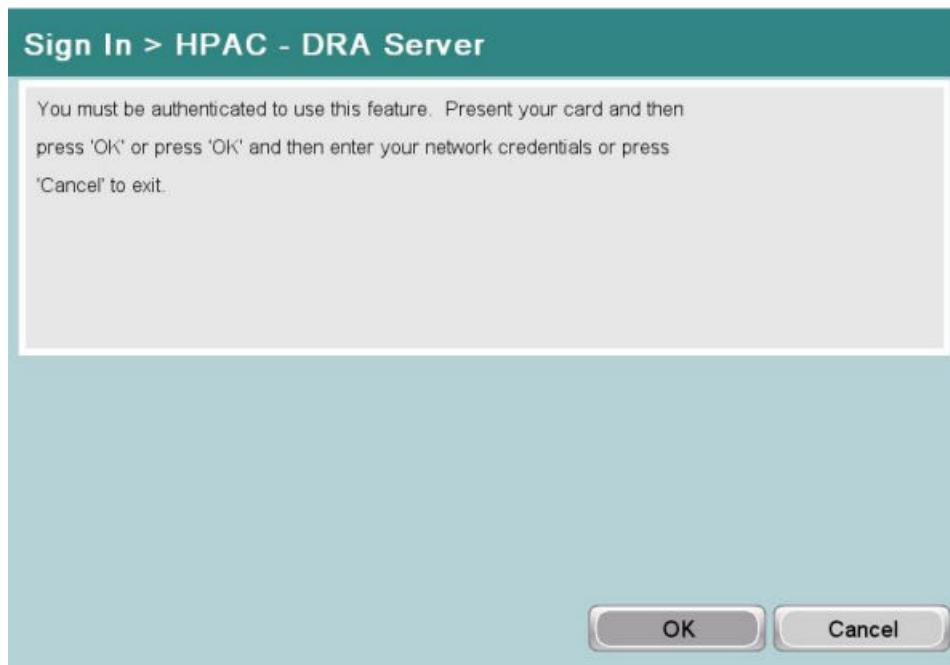


3. Your card should now be enrolled. If a PIC is required, your PIC will be displayed. Otherwise, you will just be logged in. Tap **OK** after acknowledging the PIC. You will be logged in.

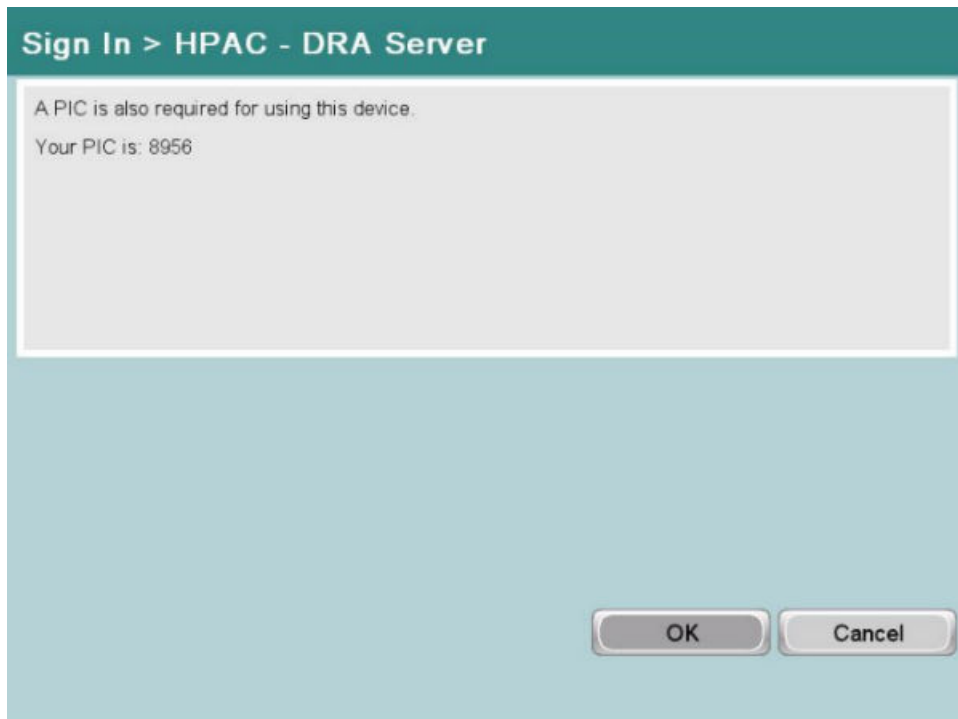
5.8.5 Enrolling a card with Two-Factor Authentication (Card + Code)

Two-Factor Authentication means that users will use their proximity badge + a PIN for an additional layer of security. This prevents users from borrowing your card and accessing the device and the pull print jobs. This is different from alternative windows authentication, which is designed so that if a user forgets a card they can still authenticate at the device.

1. Present your card and when prompted press **OK** to enter your network credentials.



2. Since two-factor is enforced and the user is newly enrolled you will be shown a screen indicating your PIC.



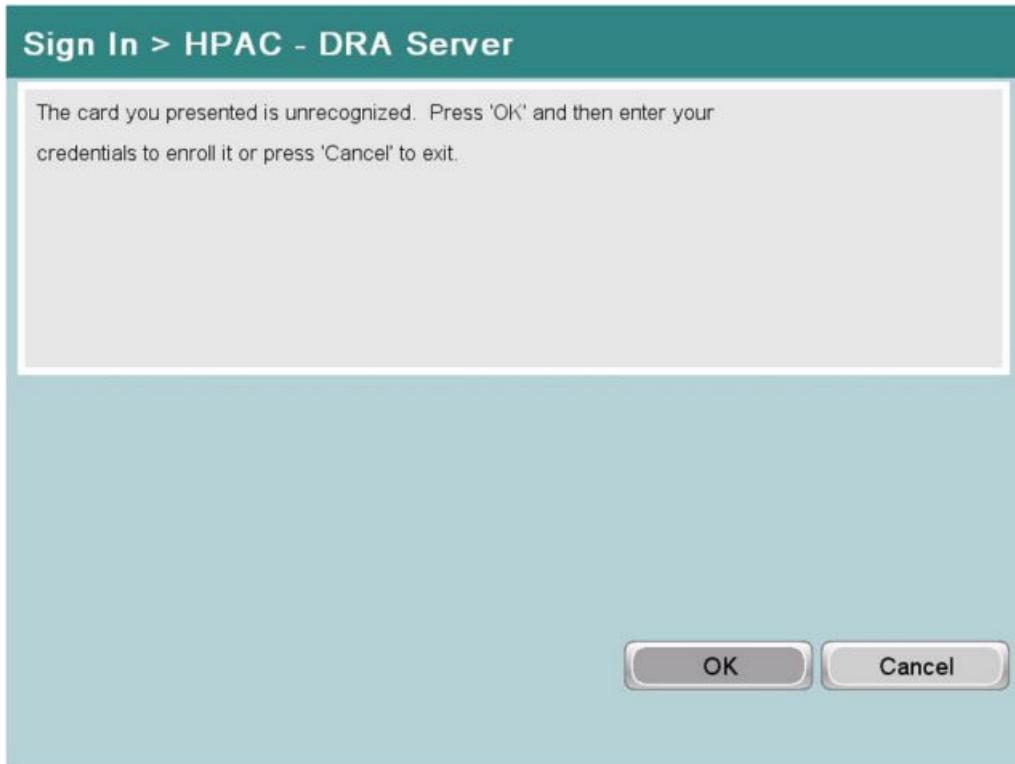
 **NOTE:**

- In step 1, if the user hits **Cancel** and authenticates with their Windows credentials they will not be prompted for a code, until they present their card.
- The code can be an existing code in active directory, or a random code generated by the application that is stored in an SQL database as typically writing to AD is not permitted.

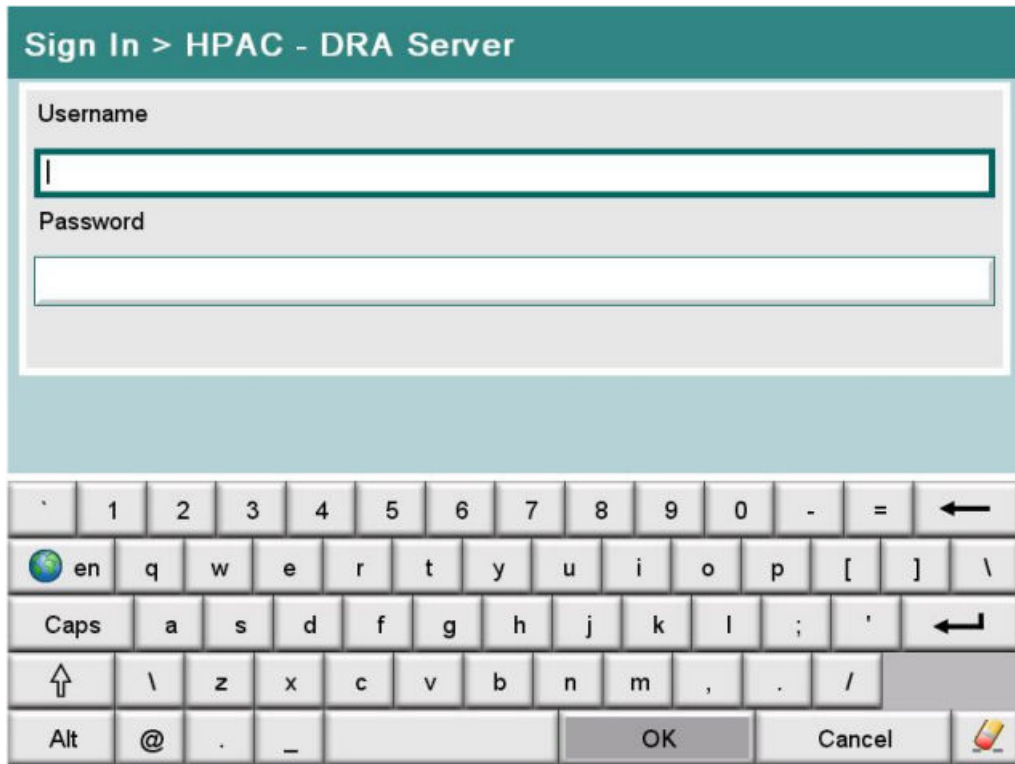
5.8.6 Enrolling a card with Card or Code Authentication

When using Card or Code authentication the first time you present your card you will be asked for your network credentials. After associating your card with your network credentials, you can use your card to access the device functions, or you can press a function and the system will automatically assume you want to use code authentication and prompt you for your code.

1. Present your card and when prompted tap **OK** to enter your network credentials.



2. Enter your network credentials and tap **OK**.



5.8.7 Enrolling a card from a client PC

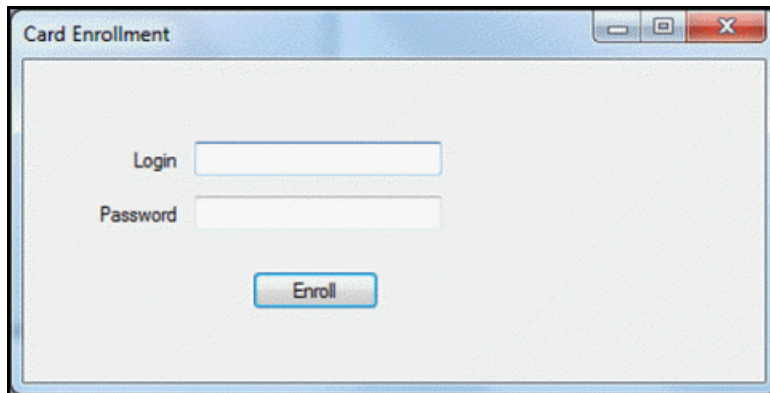
The Card Enrollment application is a desktop application that allows users to register the cards themselves from a computer. Users simply log in and present their card to a connected card reader from a client PC. The Card Enrollment application then communicates with the AD-Authenticator server and enrolls the card to that user.

Prerequisites

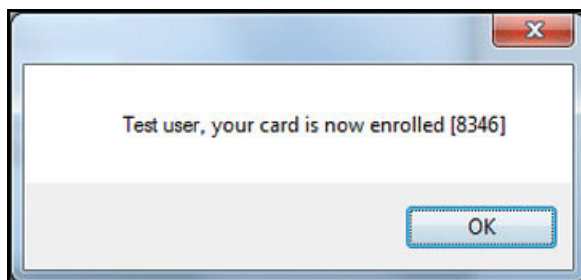
- HP Access Control Card Enrollment application
- Users contained in Active Directory
- Device authentication method is set to **Card only** or **Card+Code (two-factor)** in the HP Access Control Configuration Utility (Settings tile > Pull Print and select your server and click **Configure**. Go to the General tab).
- A card reader is connected to a PC, with the PC on the same network as the HP AC server
- See [Section 2.2, Server requirements](#).

Complete the following steps:

1. Open the **Card Enrollment** application.



2. Enter your network credentials and click **Enroll**.
3. The card reader will beep once. Present your card to the card reader and the card reader will beep twice.
4. A message will display confirming card enrollment.



5.8.8 Touch-to-Sign in

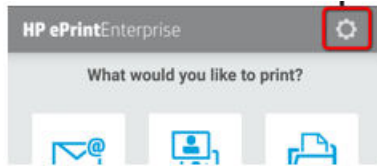
Prerequisites

- HP Jetdirect 2800w NFC/Wireless Accessory
- HP AC server installed and configured

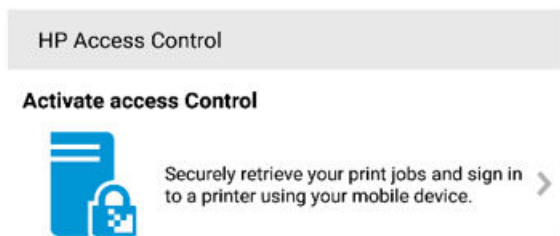
- Mobile device connected to same network as the HP Access Control Server
- HP ePrint App installed on the mobile device
 - Android device with NFC

Complete the following steps:

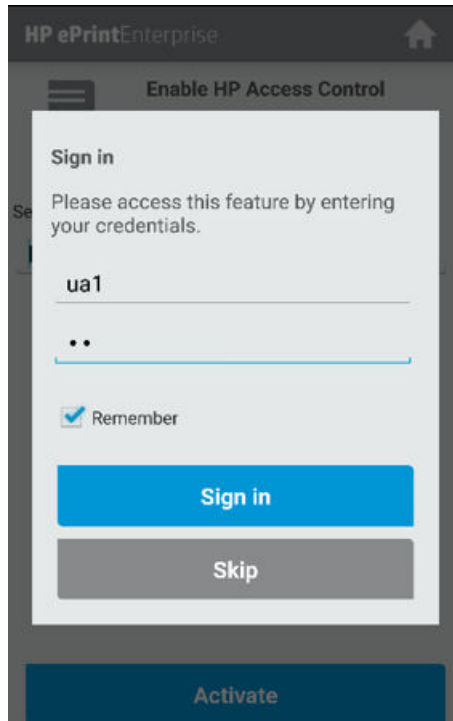
1. In the HP ePrint Enterprise application, open the Application Settings screen in the top right corner.



2. Activate HP Access Control.



3. Follow the wizard to provide the server address and enter your user credentials.



4. Present the smartphone, with the HP ePrint Enterprise app only, to the **HP Jetdirect 2800w NFC/Wireless Accessory** on the printing device.

The first time you will be asked to register your smartphone. A unique ID will be created through the NFC connection for future authentications.

5.8.9 Enrolling a card with an email address

Prerequisites

- The Data Storage must be set to **SQL Server** for users to enroll via email address.
- Make sure SMTP settings are set up in order for users to receive emails. Go to the **Settings** tile > **Pull Print** tab > **Configure** > **Advanced** tab > **SMTP**.

Follow the instructions below to enable enrolling a card with an email address.

1. Go to the **Settings** tile > **Pull Print** tab > **Configure** > **Advanced** tab > **Cards**.
2. Enable **Permit users to self-enroll at a device**. These sub-options will display on the device front panel during authentication if one of these check boxes is selected. By default, the option **Username/Password (permanent card)** is enabled. Select the **Email (permanent card)** option. Then click **Update**.

- Cards

Cards are read-only

Permit users to self-enroll at a device

Drag and drop to change the order the options appear on the device


1 Username/Password (permanent card)

2 Email (permanent card)

3 Username/Password (temporary card)

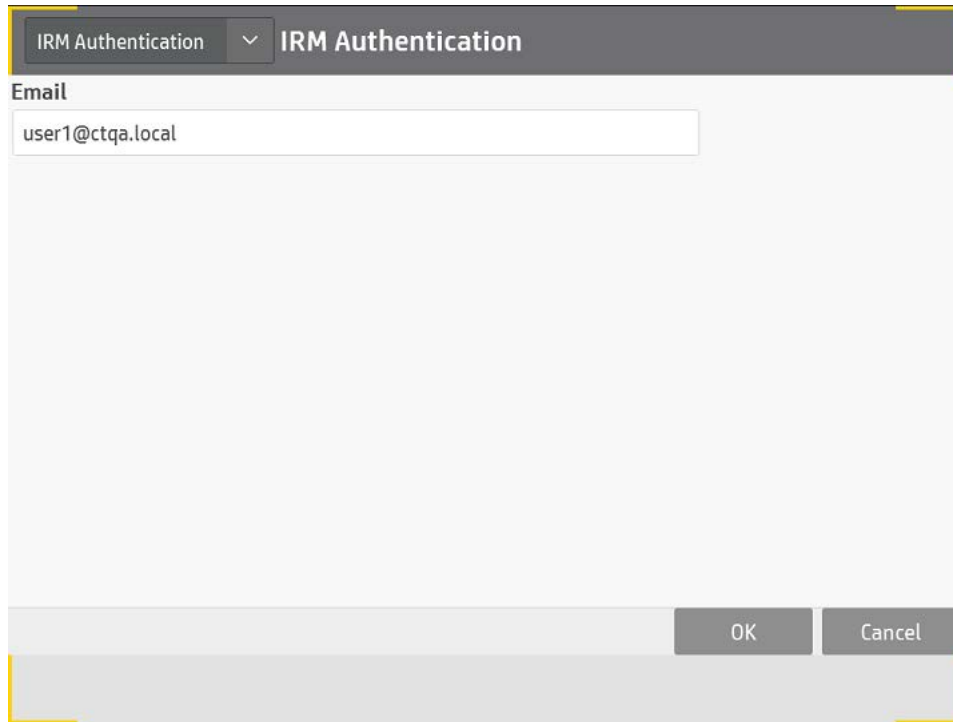
4 Email (temporary card)

 **NOTE:** The sub-options can be reordered by clicking and dragging the sub-option tile.

 **NOTE:** If **Email (temporary card)** is selected, users will be allowed to enroll temporary cards. This means after a specified time (the default time is 12 hours) the card data will be automatically removed from the IRM database.

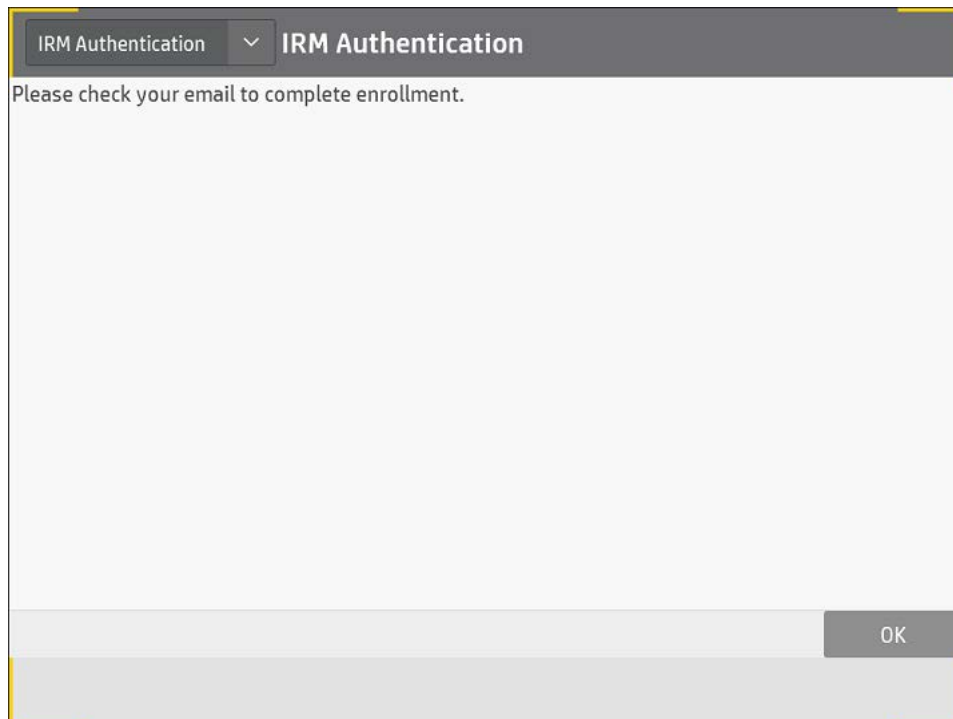
3. Deploy OPA or IPA authentication to a device.

4. At the device, present a card. When prompted, select to enroll the card and then enter an email address.



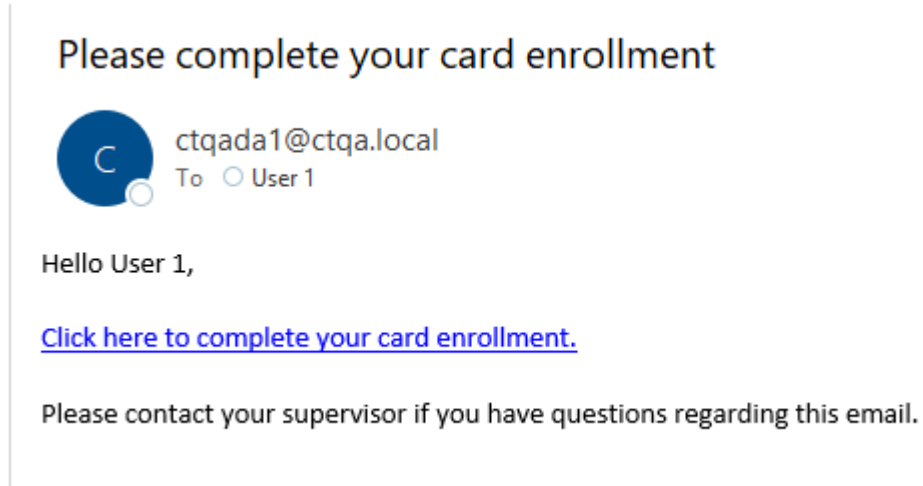
The screenshot shows a dialog box titled "IRM Authentication" with a dropdown menu on the left. Below the title is a section labeled "Email" containing a text input field with the text "user1@ctqa.local". At the bottom right of the dialog are two buttons: "OK" and "Cancel".

5. A message displays telling the user to check their email to complete enrollment.



The screenshot shows a dialog box titled "IRM Authentication" with a dropdown menu on the left. Below the title is a message that reads "Please check your email to complete enrollment." At the bottom right of the dialog is a single button labeled "OK".

- Next, the user receives an email.



- The user needs to click the link within the email to complete enrollment.

Enroll

Card data has been successfully recorded



6 Secure Pull Printing

6.1 Secure Pull Print

6.1.1 Introduction


With HP Access Control (HP AC) Secure Pull Print, every pull print server can communicate with each other to enable remote job capabilities. This means that users can store jobs on one server and then release jobs from a different device managed by a different server. Pull print jobs can be released from single-function or multifunction printers.

6.1.2 Configuring Pull Print Settings

Prerequisites

 **NOTE:** The prerequisites for configuring Secure Pull Print Settings are detailed in [Section 2.2, Server requirements](#).

Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Remote Servers tab which allows the definition of remote HP AC servers. The following options are available in the Remote Servers tab:

 **NOTE:** The Remote Servers tab does not display if the HP AC Express bundle is installed.

- **Automatically search for remote jobs:** The Pull Printing workflow may automatically make requests for queued jobs on remote HP AC servers if no jobs exist on the HP AC server of the device. Depending on the location of the remote servers and the quality of the connection, this might introduce a fairly significant wait time in some environments. If this option is unselected, users may be presented with a remote jobs option at the device to manually check for remotely queued jobs. Two options will be available if this feature is selected
 - **Option 1:** HP AC will contact each remote pull printing server, in order, until jobs are found. Once jobs are found on a particular remote server, the search will finish and those jobs will be reported back to the user.
 - **Option 2:** HP AC will contact each remote pull printing server, in order, until it has processed the entire list. All of the jobs from all of the remote pull printing servers will be reported back to the user.

- **Remote Servers:** The list of remote pull printing servers will be used to request remote jobs for a user. Use the **Add**, **Delete**, and **Test connection** buttons to manage this list. The order of this list is important as, when a remote job request is made, HP AC will contact each remote pull printing server, in order, until jobs are found. Once jobs are found on a particular remote server, the search will finish and those jobs will be reported to the user. It is recommended that the fastest or most commonly accessed remote servers be placed at the top of this list.

General Remote servers Advanced

At the printer

Automatically search for remote jobs

This pull printing server will contact each remote pull printing server, in order, until jobs are found. Once jobs are found on a particular remote server, the search will finish and those jobs will be reported back to the user.

or

This pull printing server will contact each remote pull printing server, in order, until it has processed the entire list. All of the jobs from all of the remote pull printing servers will be reported back to the user.

Remote servers

Add	Delete	Test connection

Server ID	Description	Test connection
1	eomctqa01.ctqa.local:631	

1. Go to the Settings tile > Pull Print tab, select your server, and then click **Configure**. In the Advanced tab > Pull Printing Options section, complete the following steps:
 - a. Enter the job expiry time (global setting) in hours or days in the Job expires after fields. By default, jobs stored on the HP Access Control print server expire after 24 hours.
 - b. If you want to retain print jobs after expiry, select the Retain Print-Keep jobs. Jobs that are indefinitely retained can be deleted only by users from the mobile release app, by users from an MFP front panel or by administrators using the HP AC admin console.

- Pull Printing options

CommType

Job expires after

Disconnect

Sort jobs by

Retain "Print-Keep" jobs beyond expiration

Enable tracking of purged jobs

Display all jobs


QR Code

PJL Parsing

Encryption at rest

2. The CommType field defines the way SPP Enterprise will communicate with the printer. The choice of protocol will depend on the destination device, its capabilities, and the level of control and feedback required from the device. Click **Update** after making any changes.
- TCPIP/LPD is the most common communication type used in TCP/IP environments to send print data between hosts and to deliver output to devices. The LPD (Line Printer Daemon) protocol has been implemented by all printer network card manufactures as a simple protocol to deliver output to a device. This protocol is the lowest common denominator and can be used for most devices or hosts but it provides very limited feedback from devices about the success of a print request and provides no facilities for checkpoint restart of a failed request.
 - TCPIP/IPP instructs HP AC to use the Internet Printing Protocol (IPP) to deliver documents to IPP enabled devices or servers. The IPP standard was developed by an Internet working group, consisting of all major printer manufacturers, and defines a sophisticated protocol for communication with network attached printers or IPP enabled servers (such as HP AC). The IPP protocol provides more sophistication than the LPD or SOCKETS communication types and enables HP AC to retrieve information about the device status before delivery. This means that HP AC will detect printer problems and set the printer status to 'intervention required' if the device is offline due to a paper jam, no paper, or other conditions requiring attention. IPP does not provide the guaranteed delivery to the output hopper that PJL communication offers, but it will give improved performance when printing large numbers of small documents and still provide feedback of device errors.
 - TCPIP/SOCK is a direct socket protocol that provides a simple direct communication channel between SPP Enterprise and the printer engine. A connection is established to TCP/IP port 9100 and all data sent by SPP Enterprise is passed through directly to the printer.
 - The TCPIP/LRSQ protocol provides a sophisticated mechanism for transferring print files between HP AC servers. The LRSQ protocol provides data compression and encryption between HP AC print servers and provides more direct control over the print attributes at the destination host.
 - TCPIP/PJL implements a bi-directional communication channel with the printer engine using the PJL (Printer Job Language) job management language. This protocol provides the most sophisticated control of print delivery, including guaranteed delivery of each page to the output hopper, checkpoint restart in the event of a failure, and full device status information (i.e., page jam, load paper, etc.). The default implementation delivers one document at a time and waits for all pages to be delivered to the output tray before commencing delivery of the next document. While this provides the highest level of assured delivery, it can introduce a delay between documents caused by the printer engine winding

down while the paper path is completely cleared. When printing a large number of small document this delay between jobs is most noticeable.

 **NOTE:** The TCPIP/PJL protocol does not display if the HP AC Express bundle is installed


- TCPIP/IPPS is a secure protocol that allows SPP Enterprise to encrypt the data stream sent to the device.

 **NOTE:** If TCPIP/IPPS is selected and IPPS is not enabled on the device, IPP will be used to print jobs and the job will not be encrypted.

- ▲ Before selecting a protocol, verify the protocol is supported and enabled on the device. Go to the device's embedded web server and browse to Networking > Management Protocols > Other > Enable Print Services, and make sure the protocol is listed and enabled.


3. To control the display of jobs in a particular order on device front panels, change the **Sort jobs by** option. The **Date ascending** option sorts jobs from newest to oldest, and the **Date descending** option sorts jobs from oldest to newest.

 **NOTE:** If jobs are retained, the order of the jobs will be based on the date/time that the jobs were submitted, not the last time the jobs were released.

 **NOTE:** When **Print All** is used, jobs will be printed in the order they were submitted, regardless of the sort order settings.

4. If you want to retain print jobs after expiry, select the Retain Print-Keep jobs. Jobs that are indefinitely retained can be deleted only by users from the mobile release app, by users from an MFP front panel or by administrators using the HP AC admin console.

 **NOTE:** Single-function devices will not print retained jobs.

 **TIP:** If **Retain "Print-Keep" jobs beyond expiration** is selected and **Enable one-touch release** is selected, only jobs with a status of "Waiting" will be printed, and if there is at least 1 "Printed" job in the list, the list of jobs will always display.

5. Enabling the tracking of purged jobs will allow any jobs that have been expired or deleted to be tracked for job accounting. When the **Enable tracking of purged jobs** box is checked, an XML file is created for each job that is purged.

The XML file includes information such as the purged job name, the date the job was submitted, and the date the job was purged. The XML files are created in one of the following locations:


- If Job Accounting is installed on the same server as Secure Pull Print, the XML files are created in the following folder:

Program Files\HP\HP Access Control\temporary\DTM

- If Job Accounting is installed on a different server, the XML files are created in the following folder:

Program Files\HP\HP Access Control\temporary

When purging is complete, the XML files are pushed to the Job Accounting server in the \Temporary \DTM folder.


 **NOTE:** Requires the installation of the Job Accounting Server component or having a job accounting server on the network.

6. When Use device IP address is enabled, this checkbox allows the spooler to identify the printer via IP address instead of host name, in case the host name has changed and a printer has not been reconfigured. It is recommended that printers have fixed IP addresses.


- To improve performance, you can specify the number of jobs that should be delivered to the device concurrently. In the Overlapping Jobs field, enter a number from 1 through 9 to determine the number of jobs to be released at one time. Overlapping the delivery of multiple documents to the device can prevent delays that can occur between documents caused by the device clearing the paper path before confirming job completion.

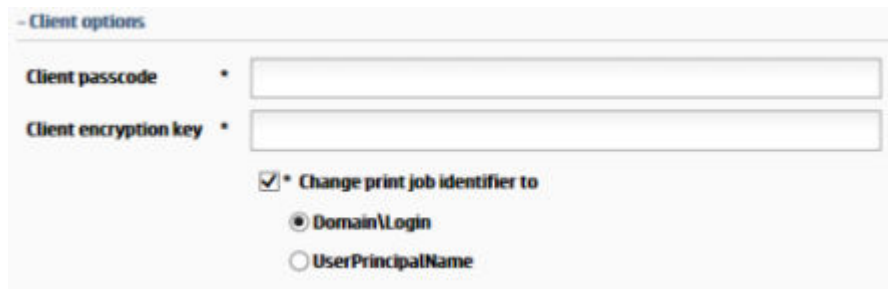
 **NOTE:**

- The value chosen should be the lowest value required to prevent delays between documents, and will vary depending on the speed and capabilities of the target printer. A value of 3 should be sufficient for most printers.
- When using Point and Print with SPP Enterprise, the SPP Enterprise port monitor must be used to enable **Encryption at rest**. An LPR shared queue does not support encryption at rest. To use encryption with an LPR local queue, the HP AC Print Client must be installed on client workstations.

 **TIP:** If you want end-to-end encryption from the user workstation to the printer, install HP AC Print Client on user workstations with encryption enabled, enable **Encryption at rest** on the HP AC server and select **TCPIP/IPPS** as the printing protocol.

- Enable **Encryption at rest** to encrypt print jobs using AES 256 while they are on the HP Access Control server.

 **NOTE:** When enabling encryption, the printer definition files must be updated. Go to the Devices tile > Devices menu > Update Printer Definition.



The screenshot shows a configuration window titled "- Client options". It contains two text input fields: "Client passcode" and "Client encryption key", both marked with an asterisk. Below these fields is a checked checkbox labeled "Change print job identifier to". Underneath the checkbox are two radio button options: "Domain\Login" (which is selected) and "UserPrincipalName".

- The Client Passcode is used for authentication between the server and client workstations, and applies when Local Job Storage, via the Enterprise Print Client, is installed on client workstations. The Client Passcode uses a cryptographic nonce to establish secure communication between the client and server. The Client Passcode and Client Encryption Key must be applied before installing Local Job Storage on client workstations. Enter any value between 0 and 254 characters.

 **IMPORTANT:**

- If the Client Passcode is changed after installing the Enterprise Print Client on client workstations, users will not be able to release jobs. You must reinstall the Enterprise Print Client.
- After changing the Client Passcode, go to the File menu > Restart Services.

 **NOTE:**

- The Client Encryption Key is stored in the passcode.dat files in the C:\Program Files\HP\HP Access Control\bin folder on the server and in the Program Files\HP\HP Access Control Print Client\bin folder on client workstations.
- By default, communication between the server and clients are encrypted. The Client Passcode and Client Encryption Key are optional if you want to change the default keys.

- The Client Encryption Key field allows for encryption of job metadata between the server and client workstations when Local Job Storage, via the Enterprise Print Client, is installed on client workstations. The

Client Passcode and Client Encryption Key must be applied before installing Local Job Storage on client workstations. Enter hexadecimal characters of 128 bits, 192 bits or 256 bits in the text field.

 **IMPORTANT:**

- If the Client Encryption Key is changed after installing the Enterprise Print Client on client workstations, users will not be able to release jobs. You must reinstall the Enterprise Print Client.
- After changing the Client Encryption Key, go to the File menu > Restart Services.

 **NOTE:**

- The Client Encryption Key is stored in the encryptionkey.dat files in the Program Files \HP\HP Access Control\bin folder on the server and in the Program Files\HP \HP Access Control Print Client\bin folder on client workstations.
- If **Encryption at rest** is enabled and Client encryption key is used with Local Job Storage, the Enterprise client on the workstation will use the Client encryption key and not the Encryption at rest key.

-
11. If you want to change users' identification format, see the section the Configuring Print Job Identifier section of this guide.
 12. Click **Update**.
 13. If any changes were made to fields that have an asterisk, click **File > Restart Service** to restart the required services.


6.1.2.1 IPPS inbound support

Prerequisites:


- Requires IPP printing enabled on the computer.
- The client computers must have the proper certificates installed in the Trusted Root Certificate Authorities store.

Follow the steps below:

1. To enable SSL/TLS inbound printing it is first necessary to create a certificate signing request for your server and a private key. This can be done using the openssl command line tool (located in the \Program Files\HP\HP Access Control\bin folder) using the following command:

 **NOTE:** Substitute `hpac_hostname` with your server's fully qualified DNS name.

```
openssl req -newkey rsa:2048
-keyout hpac_hostname.key
-keyform PEM
-out hpac_hostname.csr
-outform PEM
```

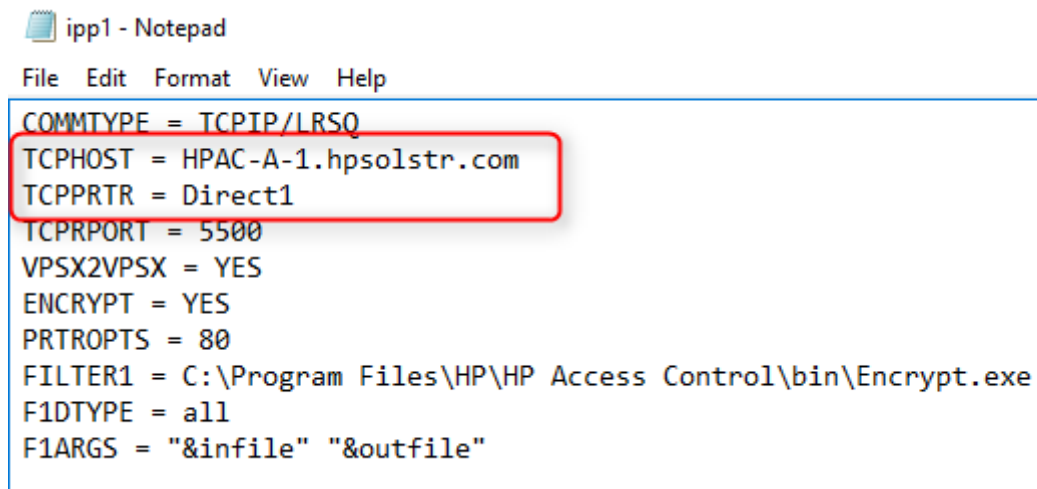
 **NOTE:** You will be prompted to provide additional details to complete the certificate signing request and two files will have been created.

- A certificate signing request file with an extension of .CSR.
- A private key file with an extension of .KEY.

The certificate signing request file (hpac_hostname.csr) should then be sent to a Certificate Authority (CA) who will validate the request and create a PEM format (Base64 encoded) certificate.


The PEM format (Base64 encoded) certificate along with any intermediate CA certificates need to be concatenated together into a single file (e.g., hpac_hostname.cer).

2. The certificate (hpac_hostname.cer) and the keyfile (hpac_hostname.key) should be copied to the HPAC server.
3. In HPAC > Settings tile>Spooler tab>Configure>Advanced, double-click in the SSL Chain File field and select the chain file. This is the public key and will be shared with clients connecting with IPPS. Double-click in the SSL Key File field and select the key file. This is the private key. In the Passphrase field, enter the certificate passphrase if required.
4. Specify the server port number that HPAC should open for inbound SSL communication. Go to HPAC > Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Pull Printing Options and specify the required inbound IPPS port (recommended 5443, but can be changed).
5. Restart the SPP Enterprise service.
6. Under Pull Print queues create a queue to receive the IPPS jobs. This queue is not a pull print queue, but an inbound connection for IPP jobs that will route the job to the pull print queue specified in the line TCPPRTR=.
7. Go to \Program Files\HP\HP Access Control\spoolroot\ptr folder and open the pull print queue previously created in Notepad. Replace the contents of the file with the following text, where TCPHOST is the name of the HPAC server, TCPPRTR is the name of the pull print queue on the server and FILTER1 is the path of the filter.



```
ipp1 - Notepad
File Edit Format View Help
COMMTYPE = TCPIP/LRSQ
TCPHOST = HPAC-A-1.hpsolstr.com
TCPPRTR = Direct1
TCPRPORT = 5500
VPSX2VPSX = YES
ENCRYPT = YES
PRTOPTS = 80
FILTER1 = C:\Program Files\HP\HP Access Control\bin\Encrypt.exe
F1DTYPE = all
F1ARGS = "&infile" "&outfile"
```

8. In the Settings > Pull Print, select your server and click **Configure**. Go to the Advanced tab and enable encryption at rest and enter an encryption key. Click on apply and restart server.
9. Install on the client PCs the IPP printer (for example, https://servername:5443/queue where the port matches the port specified in Spooler>Configure>General>General Parameters>TCPIP/IPPS port.

 **NOTE:** If using your own supplied certificates, then specify the SSL Chain file, the SSL key file and the passphrase and the IPPS port field. It is recommended to use a certificate provided by the customer.

6.1.2.2 Peer Validation

In addition to encrypting the communication to the device using SSL/TLS, it is also possible to positively validate that the device HP AC has contacted, is truly the device we are expecting. Peer validation verifies the certificate presented by the device to confirm its credentials and authenticity.


To enable HP AC to confirm the identity of the device, you will have to first create a valid certificate for each printer and upload the certificate to the device. All printers that support SSL/TLS communication will provide a dialog in their Embedded Web Server configuration interface to generate a Certificate Signing Request (CSR). This CSR must then be passed to your Certificate Authority (CA) to be signed (in the format required by your printer model), then the signed printer certificate must be installed on the printer. Again, this can be done using the Embedded Web Server on the printer.

For HP FutureSmart devices with FS 4 firmware, create the CSR by going to the EWS > Security tab > Certificate Management page > Create Certificate Signing Request.

For HP FutureSmart devices with FS 3 firmware, create the CSR by going to the EWS > Networking tab > Authorization > JetDirect Certificate section > Configure > Create Certificate Request.

For HP Non-FutureSmart devices, create the CSR by going to the EWS > Networking tab > Authorization > Certificates > JetDirect Certificate section > Configure > Create Certificate Request.

For HP PageWide Pro devices, create the CSR by going to the EWS > Network tab > Advanced Settings > Certificates page > Printer Certificates section > Configure button.

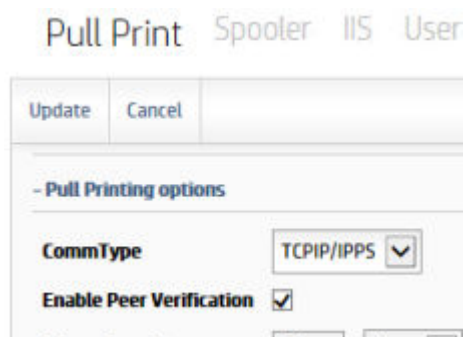
 **IMPORTANT:** If the CSR contained the device hostname, then the device must be added in the Devices tile using hostname. If the CSR contained the device IP address, then the device must be added in the Devices tile using IP address.

IMPORTANT: On HP FutureSmart devices with FS 4 firmware, set the Certificate Usage for the certificate to use "Network Identity."


Finally, you will have to ensure that the certificate for the certificate signing authority that was used has been added to the SSL Options section of HP AC (located in the Settings tile > Spooler > Configure > Advanced tab > SSL Options). See the previous section, IPPS Inbound Support, for more detailed steps.

After performing these steps, you can enable Peer Verification in the printer definition (Devices tile > select device > Admin > Update > Advanced tab > SSL Options > select Enable Peer Verification).

Alternatively, you can enable the global setting by going to the Settings tile > Configure > Pull Print tab > Advanced tab > Pull Printing Options > Enable Peer Verification, and then go to the Devices tile > Devices menu > select Update Printer Definitions.




With peer validation enabled, HP AC will confirm the identity of the device each time a connection is established. If the credentials are incorrect, it will immediately terminate the connection and refuse to send data to the device.

 **NOTE:** If credentials were incorrect and the connection to the device was terminated, the status of the device in the Devices tile will be stopped and a Peer Validation error displays in the Devices tile > Printer Info tab. To enable the device again, go to the Devices tile > select the device > Command > Start.

6.1.2.3 Configure Print Job Identifier

6.1.2.3.1 User Identifier

 **NOTE:** The option to change the Print Job Identifier (in the Settings tile > Pull Print > Configure > Client Options) does not display if the HP AC Express bundle is installed.

HP Access control requires authentication to know who the user is so that it can track the details on the activity of the user, associate pull print jobs to the user, and allow for user rights management. The base requirement is that the user identifier is matched against the login ID (proximity badge ID or code ID).

The default user identifier is the sAMAccountName attribute, and *changing the print job identifier is not required* for a multiple domain environment with the following:

- Unique login that is not duplicated in the different domains, and
- Data for all users is accessible from a single entry point with a single LDAP or Global Catalog query that can authenticate the user's credentials and confirm user details. This normally implies that there is a trust relationship between domains, which are part of a common forest.

If the print job identifier needs to be changed, because the environment does not support the above requirements, then the print job identifier must be changed on all HP AC pull print servers.

User Identifier for multiple domains with non-unique logins

For pull printing it requires that the user identifier for the print jobs is unique so that print jobs from one user do not appear in the job list for another user. In addition to the default sAMAccountName attribute, HP Access Control can store jobs from users as either domain\username (DomainA\jdoe) or as userPrincipalName (jdoe@domainA.com) by configuring the Print Job Identifier within HP Access Control.

The same user identifier must be used for both pull printing (Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Client Options > Change Print Job Identifier) and for authentication and enrollment (Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > LDAP User Attributes).

sAMAccountName

The sAMAccountName is used to support clients and servers from Windows. The sAMAccountName is set as the default attribute within the HP Access Control utility.

The sAMAccountName can be used for authentication and enrollment if it is unique across the domains.

If usernames are not unique in the global catalog, the sAMAccountName should not be used, and userPrincipalName is the recommended best practice.

userPrincipalName

The userPrincipalName (UPN) is the recommended login for Windows users, if you have to change the print job identifier. At login time a UPN is validated by searching the LDAP server location set in the Settings tile > Pull Print and select your server and click **Configure**. Go to the General tab > LDAP Server section.

For authentication and enrollment, when using the userPrincipalName, the entire syntax must be used (jdoe@domainA.com). This is also required for usernames entered into the User Editor.

When using the userPrincipalName attribute, the **HP AC Enterprise Print client** is required, and must be installed after server configuration, so that the settings are pushed from the server to the client during installation.

domain\login

When the default sAMAccountName cannot be used, one option is to configure the user identifier to be domain \login. The login will typically be the sAMAccountName for that user.

One benefit of this choice is that, for a given user, if the login is not repeated for other users in the other domains, the user does not necessarily need to enter the domain, but just the login name when enrolling a card or using alternate windows authentication at the print device control panel.

If the user has a duplicate sAMAccountName across domains, then the user would be required to enter domain \login at login.

 **NOTE:** Using domain\login does not support the following features:

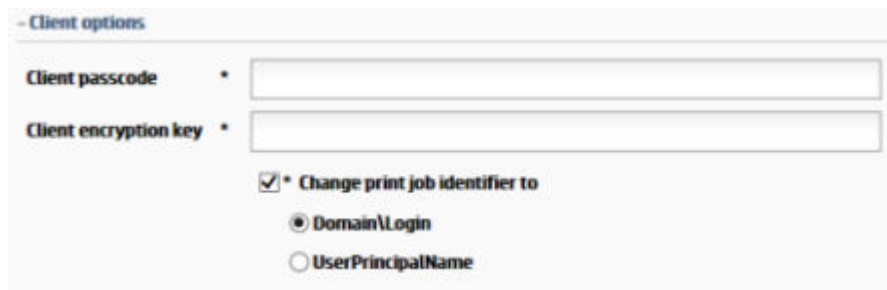
- Multi-vendor devices;
- Delegate, and
- Alias.

When using the domain\login, the **HP AC Enterprise Print client** is required, and must be installed after server configuration, so that the settings are pushed from the server to the client during installation.

6.1.2.3.2 Configuring to use Domain\Login

1. In the HP AC utility navigate to the Settings tile and select your server and click **Configure**. Go to the Advanced tab > LDAP User Attributes, confirm the username attribute is set to **sAMAccountName** (default) and click **Update**.
2. Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Client Options section. Click the box next to **Change print job identifier**, select **Domain\Login**, and then click **Update**.

Figure 6-1 User identifier in the SPP Enterprise tab



The screenshot shows the 'Client options' section of the HP AC utility. It includes two text input fields: 'Client passcode' and 'Client encryption key', both marked with an asterisk. Below these is a checked checkbox labeled 'Change print job identifier to'. Underneath the checkbox are two radio button options: 'Domain\Login' (which is selected) and 'UserPrincipalName'.

3. On the client PC it is required to install the **HP AC Enterprise Print client**. *Note: this must be done AFTER configuration of the HP AC server as the server settings for the Print job identifier are applied to the client at the time of install.*

6.1.2.3.3 Configuring to use userPrincipalName

1. In the HP AC utility navigate to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > LDAP User Attributes and change the username attribute to **userPrincipalName** and click **Update**.
2. To test, go to the Settings tile > User tab and enter the userPrincipalName for a user and press Enter.

3. Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Client Options section. Click the box next to **Change print job identifier**, select **UserPrincipalName**, and then click **Update**.
4. On the client PC it is required to install the **HP AC Enterprise Print client**. *Note: this must be done AFTER configuration of the HP AC server as the server settings for the Print job identifier are applied to the client at the time of install.*

6.1.2.4 Configuring PJP Parsing for Non-Windows Printing

Prerequisites

- HP AC Enterprise installed and configured.

The Enterprise port monitor can use a filter (PJPHeader.exe) to parse the PJP header for non-Windows printing, or with HP ePrint Enterprise, getting the username/job name from the PJP. Along with the Enterprise port monitor, this is used when printing from a system that does not generate standard PJP information.

1. Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Pull Printing Options section.
2. In the **Options** section, select **PJP parsing** to enable this.


 **NOTE:** Enabling PJP Parsing may affect performance.

6.1.2.5 Configuring PJP Overlap

Prerequisites

- HP AC Enterprise installed and configured.

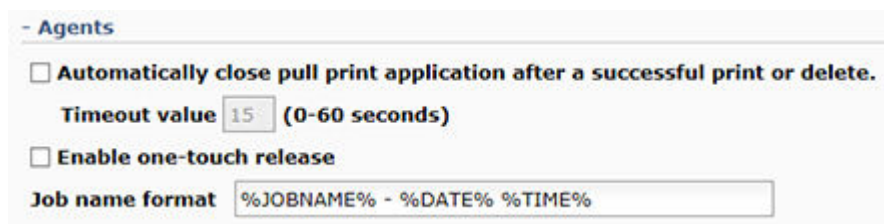
To improve performance, you can specify the number of jobs that should be delivered to the device concurrently. In the PJP overlap field, enter a number from 1 through 9 to determine the number of jobs to be released at one time. Overlapping the delivery of multiple documents to the device can prevent delays that can occur between documents caused by the device clearing the paper path before confirming job completion.

 **NOTE:** The value chosen should be the lowest value required to prevent delays between documents, and will vary depending on the speed and capabilities of the target printer. A value of 3 should be sufficient for most printers.

6.1.2.6 Configuring the Pull Print app on devices

Go to the Settings tile > Pull Print tab > Configure > Advanced tab > Agents section to configure the Pull Print app behavior on devices.

Figure 6-2 Agents section in Advanced tab



Select "Automatically close pull print application after a successful print or delete" and set a "Timeout value" if you want the app to close after the specified time and return the user to the home screen of the device. This will not log out the user.

 **NOTE:**

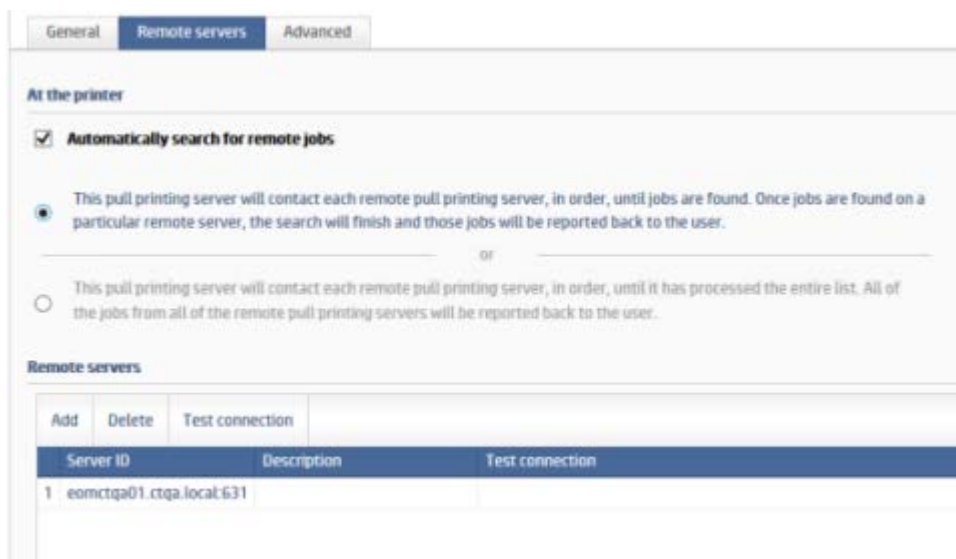
The auto close feature is not supported on PageWide Pro devices.

The Job Name Format field allows you to customize the way a print job displays in the job list on devices. Modify the field using macros to add or remove print job information. Available options are %JOBNAME%, %PAGE%, %SIZE%, %DATE%, %TIME%, and %SENDER%.

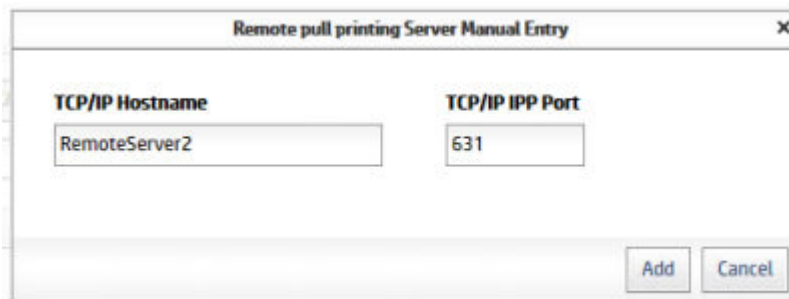
6.1.3 Adding additional SPP Enterprise servers for pull print remote jobs

Remote jobs allows users to pull jobs from different locations. Users can store a job on one server, then release the same job at a different location from a printer configured on a different server. Servers listed here are local servers and any remote print servers that will participate in roaming and be queried for print jobs. To add additional servers, complete the following steps:

1. In the HP AC configuration utility, go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Remote Servers tab.
2. In the Remote Servers section, click **Remote Servers**.



3. Click the "Manually add pull printing server" button. Enter the hostname of the remote server, then verify the TCP/IP IPP Port number. Click **Add**.



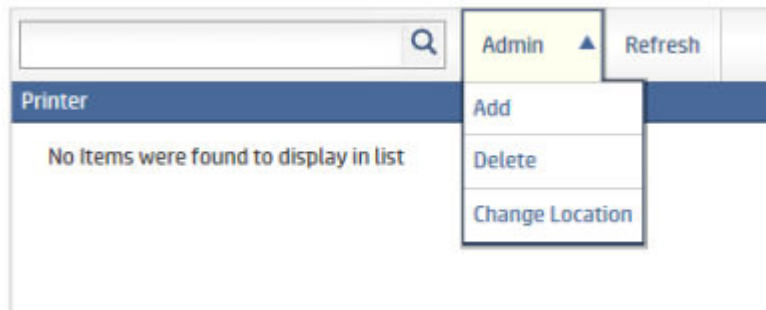
6.1.4 Adding pull print queues on the server


NOTE: After a new HP AC installation, a PersonalQ is automatically created, named "PULLPRINT".

SPP Enterprise pull print queues will allow the server to receive jobs printed from client computers. When jobs are received from client computers, the jobs are stored in the Program Files\HP\HP Access Control\spoolroot

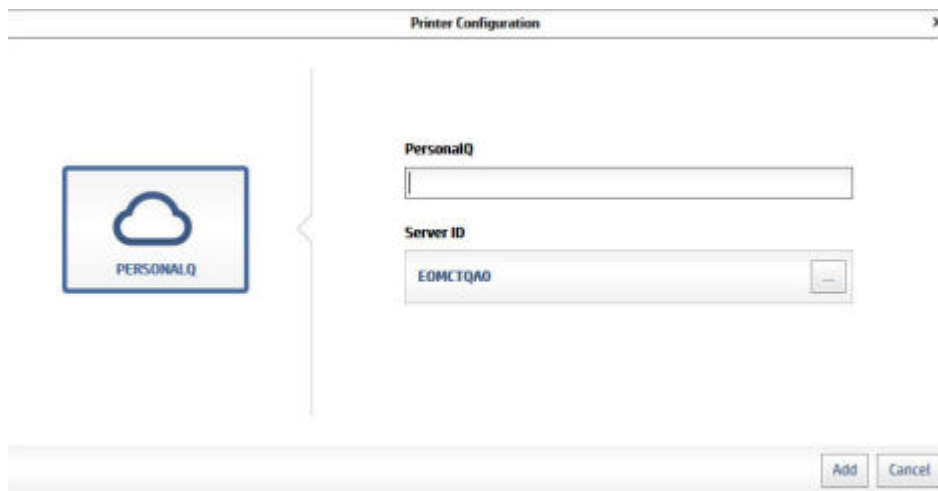
\spool\Queue folder, where Queue is the name of the pull print queue. Each job is stored as two files, a DAT file and an INF file. To add a pull print queue, complete the following steps:

1. In the HP AC configuration utility, go to the PersonalQ tile.
2. Click **Admin > Add**.




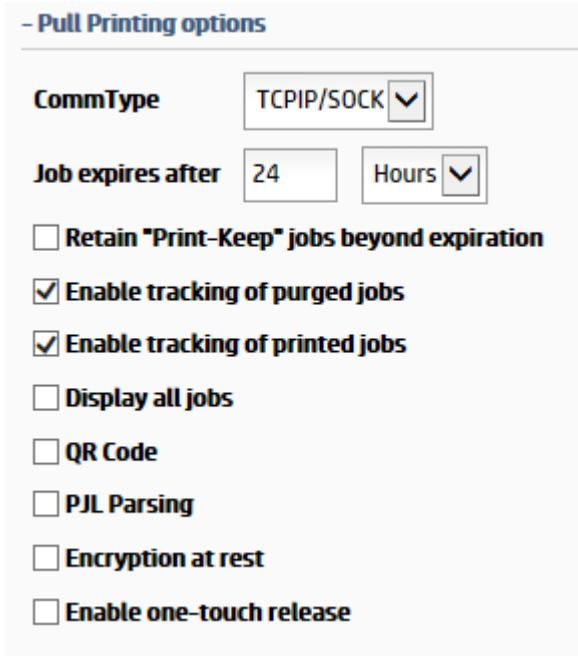
 **NOTE:** When a pull print queue is created from the HP AC configuration utility, a printer definition file is created in the Program Files\HP\HP Access Control\spoolroot\prtr folder. This printer definition file is required to allow the print queue to receive print jobs from client printers.

3. Enter any name for the pull print queue. Select the server where you want the PersonalQ to be stored and then click **Add**.



- To have all jobs from all servers display automatically on the front panel, go to Settings > Pull Print and select your server and click **Configure**. Go to the Remote Servers tab and select **Automatically search for remote jobs**. When disabled, the user will need to manually select the **Remote Jobs** button on the front panel to view all pull print queues. When enabled, there is an option to "Stop at first server with jobs". When this option is enabled, users will see jobs stored on the first server that was detected with stored jobs, instead of jobs from all SPP Enterprise servers.

 **NOTE:** With card authentication and Automatically search for remote jobs enabled, when a user presents his or her card at an HP single-function device, all jobs will be printed at once.



- Pull Printing options

CommType TCPIP/SOCK ▾

Job expires after 24 Hours ▾

Retain "Print-Keep" jobs beyond expiration

Enable tracking of purged jobs

Enable tracking of printed jobs

Display all jobs

QR Code

PJL Parsing

Encryption at rest

Enable one-touch release

- To have all jobs display in one job list, go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Pull Printing Options and select **Display all jobs**. When disabled, the user will have to select the pull print queue first, prior to viewing the job lists.

6.1.5 Assured Job Delivery

HP AC Secure Pull Print offers assured job delivery when using TCPIP/PJL as the communication protocol from the HP AC server to the print device.

Assured Job Delivery offers the following benefits:



NOTE:

- TCPIP/PJL is required.
- Not supported with encryption.
- This is supported only with HP AC Enterprise.
- The Enterprise spooler assures that the delivery of all the pages of the document are successfully sent prior to sending the next document to the print device.
- Validation of the delivery of each page is done, by verifying that each page has been successfully delivered to the output tray of the print device. Only after the validation that all pages have been delivered for the current document will the next document be sent for printing.

- Print data is immediately suspended if the print device reports an OFFLINE error before or during data delivery. Sending of the print data will not resume until the printer reports an ONLINE status.
- If a device fails during printing, HP AC will continue to print that document once the failure is cleared, unless the printer has been rebooted or the job has been canceled by the user.

Complete the following steps:

1. Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Pull Printing Options section.
2. Under the options section change the protocol to TCPIP/PJL.
3. Click **Update**.

6.2 Configuring Scan to Home Directory

Prerequisites

- HP firmware version 3.6 or newer
- Verify folder access enabled in the EWS
- AD attribute where the home directory path is located (i.e. homeDirectory)
- Device's EWS configured for Save to Network folder using a Personal Shared folder
- Sign-in method for the network folder application set to use HP AC as the sign-in method when using the In Printer Agent (IPA), and guest access disabled OR Rights control enabled for the Send to Folder in the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab.

Follow the steps below:

1. Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > LDAP User Attributes section.
2. Under the home folder attribute, enter the attribute where the home directory path is stored.

6.3 Set up the HP Access Control (HP AC) Secure Pull Print server for email printing

Users are able to store documents for pull printing from Microsoft Office or PDF documents by emailing the documents to a designated email address. The email address must be assigned in the admin console > Settings > Pull Print and select your server and click **Configure**. Go to the Advanced tab > SMTP section. See [Section 4.2.2, Email](#) for more information.

Before emails and attachments can be printed from the HP ePrint Enterprise app, certain settings must be set on the HP Access Control (HP AC) Secure Pull Print server.



NOTE:

- The following file types are supported for pull printing: DOC, DOCX, XLS, XLSX, PPT, PPTX, VSD, PDF, TXT, JPG, JPEG, BMP, GIF, PNG, TIF, and TIFF.
- When printing email attachments, the attachment along with any screenshots, including email signatures, print on separate pages, regardless of the size.
- If using SPP Enterprise, files are stored in the pull print queue that was created first.

Prerequisites

- You are logged into the server with a domain account with local administrator rights.
- The HP AC SPP Mail service is started.
- Microsoft Office is activated with each application installed and registered to the current user.
- A local printer is installed with a PCL5, PCL6 or PS driver and set as the default printer.
- On a 64-bit server, validate the OS version of Microsoft Office. Open the Windows Task Manager with the Office application open. In the Processes tab, a 32-bit version application displays *32 in the name.
- In the Settings tile > Pull Print, select your server and click **Configure**. Go to the Advanced tab > SMTP section and make sure the settings are correct. See [Section 4.2.2, Email](#) for more information.
- With Microsoft Office 2016, it may be required to create a folder named "Desktop" in both of the following folders:
 - C:\Windows\SysWOW64\config\systemprofile\
 - C:\Windows\System32\config\systemprofile\

Complete the following steps to set up the Secure Pull Print server for mobile email printing.

1. Launch DCOM.
2. If you are using a 32-bit version of Microsoft Office on a 64-bit server, complete the following steps:
 - a. Run the following command in Command Prompt: **mmc -32**

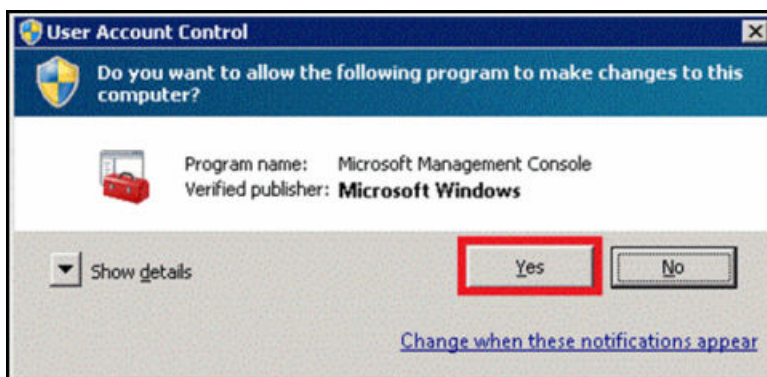
```

Administrator: Command Prompt
Microsoft Windows [Version 10.0.15063]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>mmc -32

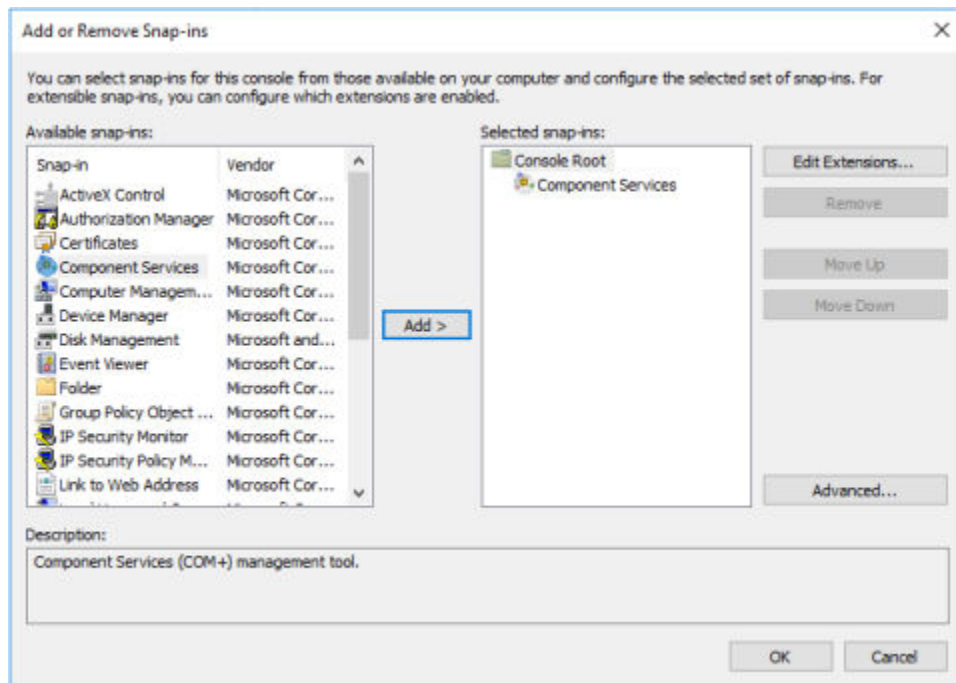
C:\WINDOWS\system32>
  
```

- b. When the User Account Control window displays, click **Yes**.



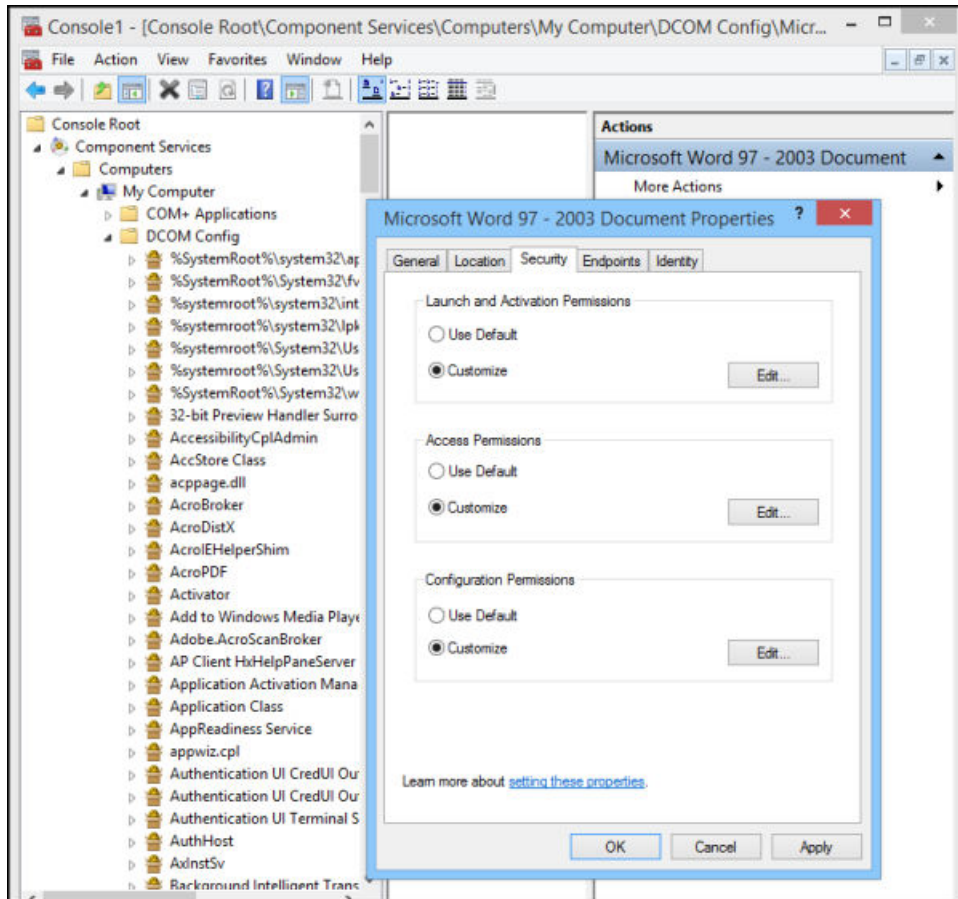
- c. In the Console window, click the **File** menu and then click **Add/Remove Snap-in**.

- d. In the Add or Remove Snap-ins window, click **Component Services** from the Available snap-ins section. Click **Add**. Click **OK**.

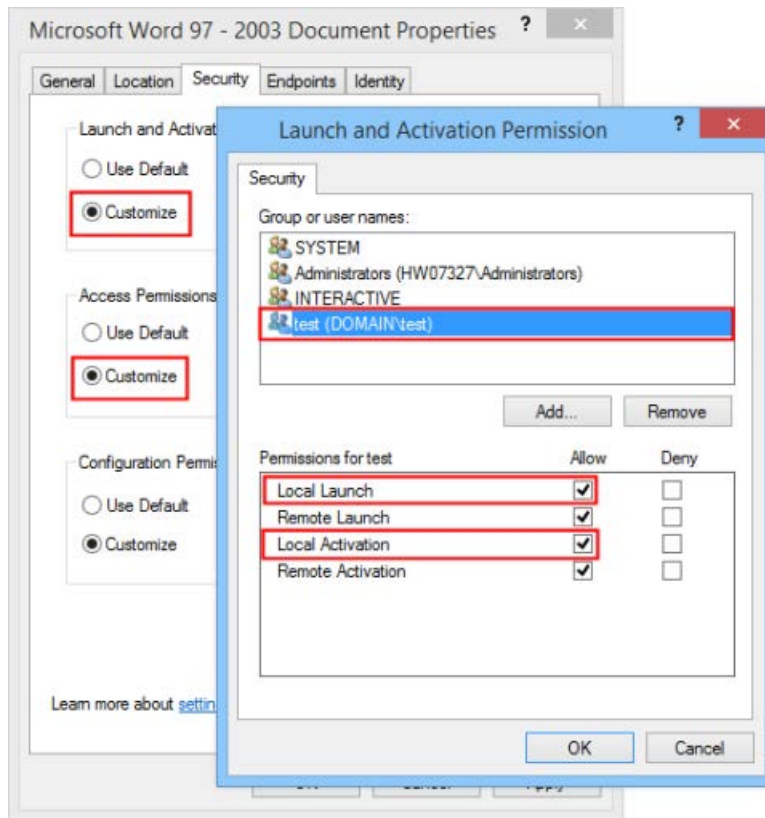


 **NOTE:** If you are using a 64-bit version of Microsoft Office, go to **Administrative Tools** and open **Component Services**. Change the user login in the DCOM settings for each of the Office applications.

3. In the Security tab, under **Launch and Activation Permissions**, select **Customize**.



4. Add the user selected to start the HP AC SPP Mail service. Select **Local Launch** and **Local Activation**. Click **OK**. Repeat the same steps in the Access Permissions section.

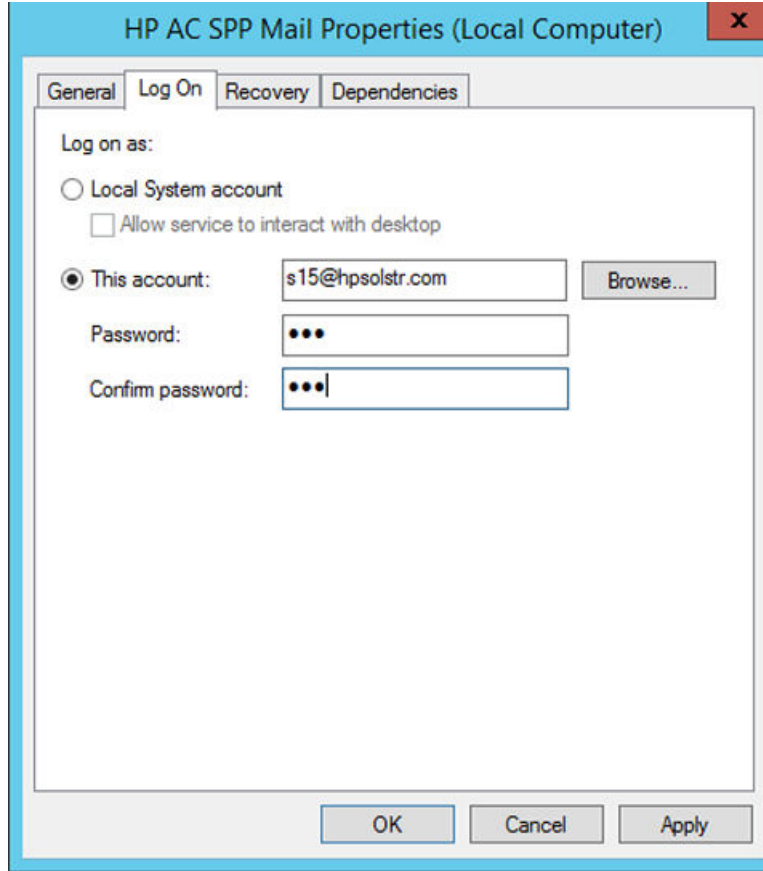


5. In the Identity tab, select **This user** and enter the user/password selected to start the HP AC SPP Mail service.



6. After configuring DCOM, log off the server and send an email to validate that the settings are correct.
7. Configure email settings in the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > POP3/IMAP section. The email address entered here is the one that users will forward emails to.

- Configure the HP AC SPP Mail service to start with a domain account (services.mmc). Restart service.



- Go to the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > Email Processing section. Check if you want users to process email attachments only or email + body text and have them appear as pull print jobs in their stored jobs folder.
- Select a printer to process the files. The driver must be installed locally on the server.

 **NOTE:**

- Email jobs must use the settings and features, such as color or duplex settings, of a printer before they can be processed as pull print jobs. Click the drop-down list to select an installed pull print queue created locally on the server with the features you want to apply to email jobs. The printer must be a local printer with a PCL5, PCL6 or PS print driver.
- If the "Service not started with a domain account" message displays in the Email Processing section, you must restart the HP AC SPP Mail service with a domain account. To restart the service with a domain account, go to Administrative Tools > Services. Right-click the HP AC SPP Mail service, then click Properties. Under the Log On tab, select This account and enter the credentials of a domain account. Click **OK**. Restart the HP AC SPP Mail service.

6.4 Set up Server for Touch-to-Release

Mobile Release allows for releasing of secure pull print jobs using a smartphone. Use of the QR code feature allows for easy detection of printers by scanning the QR code on the device, selecting your pending print jobs, and releasing the jobs to the device to be printed. Mobile Release is supported on any device.

Prerequisites

- Smartphone connected to the same network as the HP Access Control server
 - HP ePrint Enterprise app for your smartphone
 - HP AC installed and configured
 - QR code enabled on the device if using QR code for job release
 - Print device configured for pull printing
 - Driver compatible with the print devices
 - The device needs to be added to the Device list and configured for pull printing (no agent install required) to create the printer definition (Device tile)
 - See [Section 6.5, Configuring devices for pull printing](#).
-

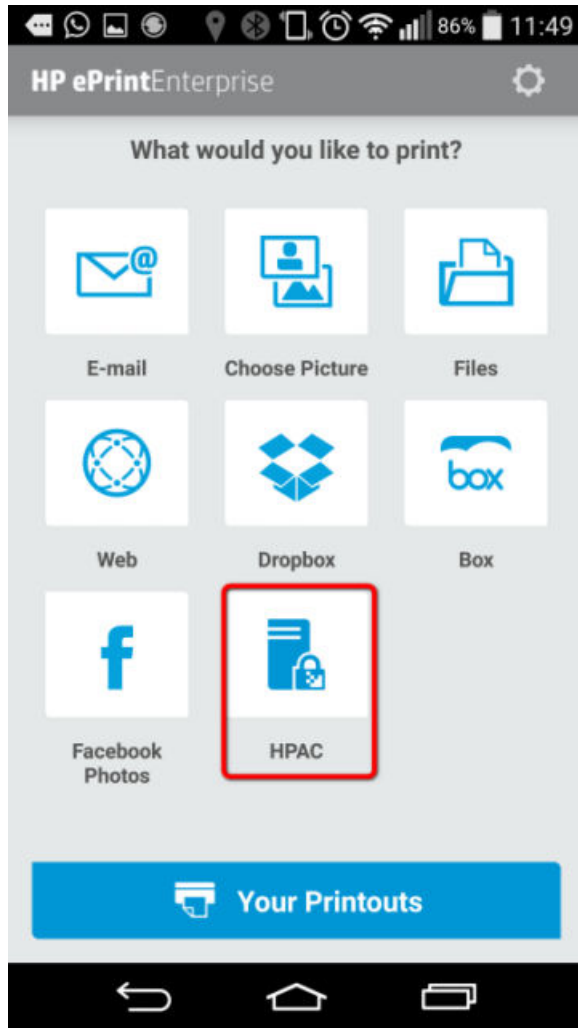


NOTE:

- For iOS devices the identification of the printer can be done through a bar code.
 - Android support is NFC only.
-

Complete the following steps:

1. Tap the HP AC icon on your smart phone in the ePrint Enterprise application.




2. To select the destination printer, present the smartphone to the HP Mobile Print Accessory.

6.4.1 One-touch Release

One-touch release allows HP MFPs, HP OfficeJet Pro, and HP PageWide Pro devices to print all documents at login with minimal user interaction, similar to single function devices. After authenticating at the device and selecting the Secure Pull Print application, all jobs are printed, without having to view the job list and selecting **Print All**.

1. Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > Agents options and select **Enable one-touch release**.
2. In the "if the number of jobs is less than equal to" enter the number of jobs that will trigger the one-touch release action (i.e. if the number entered is 5, if the # of jobs is 5 or less then all jobs will be released. If more than 5 jobs then a job list will be presented).

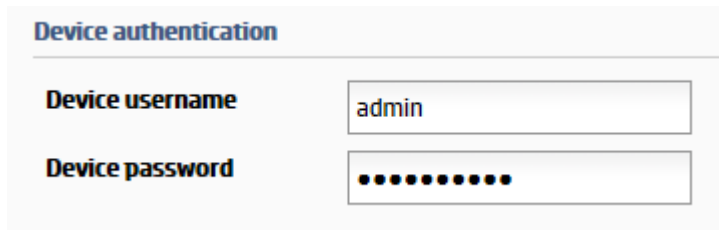
 **NOTE:** If there is at least one job with a status of "printed," then the job list will be displayed.

6.5 Configuring devices for pull printing

In order to allow users to pull jobs from the pull print queue to a device, the device must be configured for pull printing from the HP AC configuration utility.

Prerequisites

- HP Access Control (HP AC) Agent and HP Access Control (HP AC) Secure Pull Print must be installed on the server.
- Before installing any solution on HP devices, make sure the correct PRN installation file displays in the Installation file field in the Settings tile > Agent tab.
- The device has been configured for authentication. See [Section 5.7, Configuring devices](#)
- Make sure a device administrator password is set on MFPs and matches the device administrator name and password in the Settings tile > Pull Print, select your server and click **Configure**, go to the General tab > Device Authentication section, or it should match the password set in the Device tile > Admin > Update > Advanced tab.

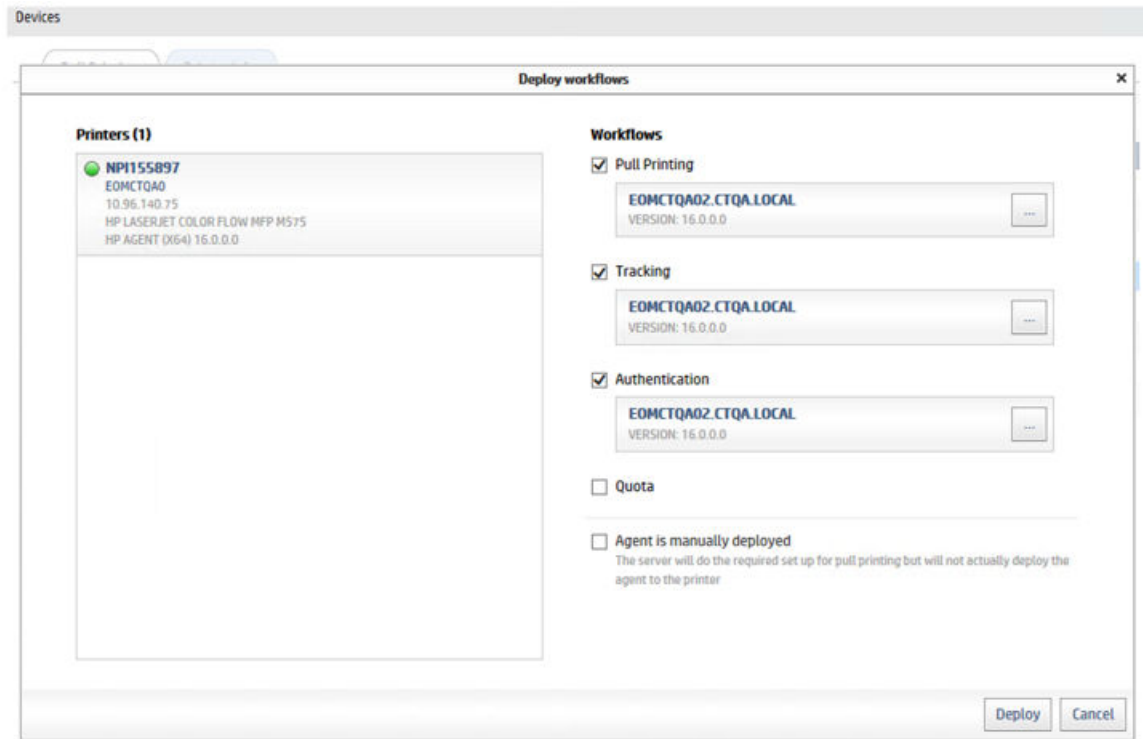


The screenshot shows a configuration form titled "Device authentication". It contains two input fields: "Device username" with the value "admin" and "Device password" with a masked password represented by ten dots.

Device authentication	
Device username	admin
Device password	••••••••••

6.5.1 HP multi-function printers

1. In the HP AC configuration utility, go to the **Devices** tile.
2. Do one of the following:
 - Select the device from the device list.
 - Scan for devices on the network.
 - Click Admin > Add, then enter the IP address or the hostname of the device.
 - See [Section 4.2.1, Adding devices](#).
3. Click **Admin > Add**, then enter the IP address of the device.



NOTE:

- When configuring HP AC there may be a requirement to set the device to look at multiple IIS servers. When multiple IIS servers are listed in the Settings tile > Pull Print tab, then the option to configure for a different IIS server will appear for the Pull Printing option in the Devices > Deploy Workflow window.
- When using multiple IIS servers ensure that the server certificates are configured properly. Refer to [Section 4.2.4.2, Creating certificates in a multi-server installation](#).
- When a remote server is selected during deployment, the remote server will do the deployment and licensing of the device.

4. Go to the device EWS to set the authentication method at the device.

- On the EWS page, go to the Security tab, and click **Access Control**. Then scroll down to HP AC Secure Pull Print and choose the authenticator (i.e. HPAC – IRM Server). Set the HP AC authentication method for each device function to be controlled by HP Access Control.

Network Folder application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
Job Status application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
Save to USB application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
Device Maintenance application	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Use Default
HP AC Secure Pull Print	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	HPAC - IRM Server

Manage Permission Sets: Access Granted Requires Sign In Full Access Access Denied

- Set the lock icon in the Device Guest column for the chosen options.
- For a non-FutureSmart device, go to the **Settings > Authentication Manager** page of the EWS. In the HP AC Secure Pull Print row, select **HPAC Server** as the Log In Method. Click **Apply**.

6.5.2 HP single-function printers

Complete the following steps:

1. In the **Devices** tile, select the device from the device list.
2. Click Pull Printing > Deploy Workflows, then select **Pull Printing**. If you want to use HP AC authentication and rights management, also select **Authentication**. Click **Deploy**.

6.5.3 HP OfficeJet Pro printers

Prerequisites

These additional prerequisites are required for HP OfficeJet Pro devices:

- Make sure the correct OPS certificate displays in the Certificate field in the Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tab > HP OPS Server section.
- Ensure the correct username and password is entered that was specified during the installation of the OPS server. If the password needs to be changed, please refer to the [Section 15.17, Reinstalling HP OPS](#) section of this guide.
- If the device has been previously configured on a different server, to be able to configure the settings from the new server you will have to enable the following setting: Settings tile > Pull Print and select your server and click **Configure**. Go to the Advanced tile and expand HP OPS Server and check **Override OPS setting**. Click the **Test connection** button and then click **Update**.

Complete the following steps:

1. Select the device from the device list in the Device tile, then click Pull Printing > Deploy Workflows.
2. In the Deploy Workflows window, select the following components:
 - Select **Pull printing** to enable the Secure Pull Print app button.
 - Select **Authentication** to enable HP AC authentication.
3. Click **OK**.

6.5.4 HP PageWide Pro devices

6.5.4.1 HP PageWide Pro


Prerequisites

- Device firmware 1629F (VR 1.2 release) or higher
- PageWide Pro devices will use OPS only if the firmware requires OPS and will prompt for installation
- User database/LDAP/Active Directory is properly configured
- In the Settings tile, rights are properly configured if authorization is required
- Agent and Secure Pull Print are installed and configured
- HTTP activation is enabled on the server

Prerequisites

- Secure Pull Printing
- Authentication
 - Card or Windows authentication
 - Card or code

- Card and code (two factor)
- PIN/PIC
- Authorization for device functions
- Enrollment
- Job accounting
 - Print server tracking
 - Pull print tracking (via server)
 - Glass activity tracking

 **NOTE:** The following is currently unsupported:

- Quota for glass activity
 - Allocation
 - Local list authentication
-

6.5.4.2 Configuring devices


To configure the device, complete the following steps:

1. Select the device from the list in the Device tile, and then click Pull Printing > Deploy Workflows.
2. Select **Pull printing** and **Authentication** and click **Deploy**. Configuration will complete in about 30 seconds. Configuration results appear in the message pane.

6.5.5 XT devices

Prerequisites

- Make sure the XT device is connected to a printer and to the network.
- If your server has a firewall, make sure TCP 2000 is open to send configuration files.
- In the Settings tile > Pull Print, select your server and click **Configure**. Go to the General tab > Device Authentication Method and make sure it is set to **Card Only**.
- In the Settings tile > Pull Print, select your server and click **Configure**. Go to the Advanced tab > Card Reader section and make sure the Card settings are correct. Also, make sure “Card ID masking” is enabled.

 **NOTE:** The XT device must be rebooted or power cycled after the card type configuration changes. To power cycle the XT device, unplug the power cord from the device and then re-plug the power cord.

Complete the following steps:

1. Select the XT device from the device list, then click Deploy Workflows.
2. Select **Pull printing** and then click **Deploy**.

The device reboots and then beeps five times, indicating the device is configured.

6.5.6 HP S900 series devices

Prerequisites

- Make sure the HP AC device licenses are available on the HP Access Control server. An IRM license is required for each device to allow for walk-up authentication.



NOTE:

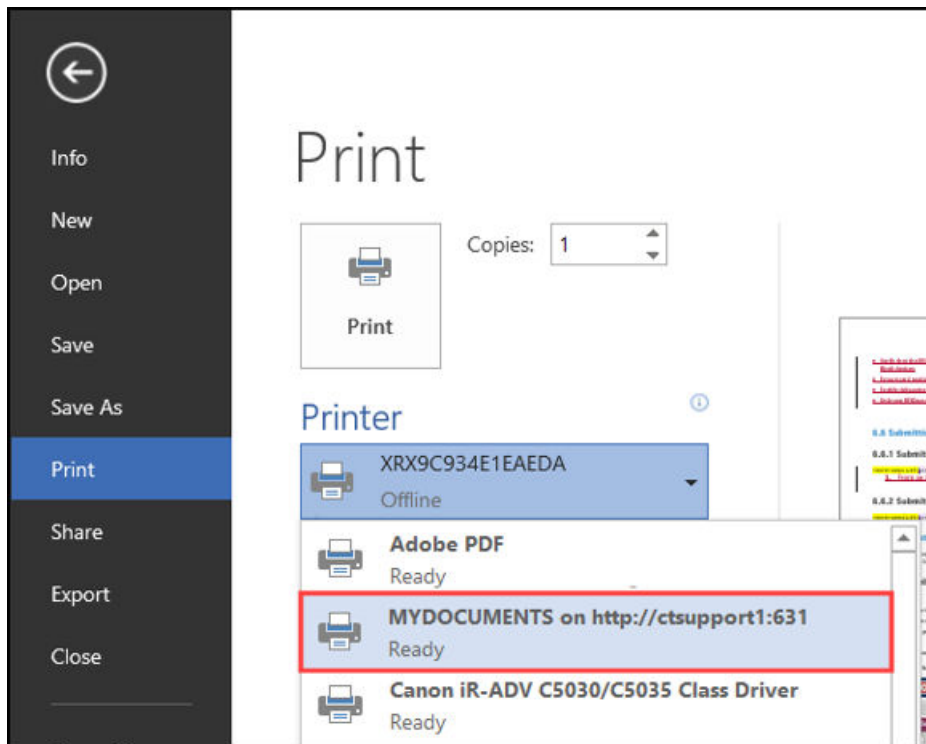
- Device configured for authentication. See [Section 5.7.6, HP S900 series devices](#).
- If you change the device authentication method to **Code Only**, you will have to recycle the HPACWS application pool before authenticating at the device. If an error message displays on the front panel, power off and restart the device.
- By default, card readers are configured to read **HID** and **iClass** card types. If you want the card reader to read different card types, update the card reader before connecting to the printer. Specific parts/kits along with part numbers are required for HIP reader integration on the S900 devices.

6.6 Submitting jobs for pull print

6.6.1 Submit from a PC

To submit pull print jobs from a PC, complete the following steps:

1. From an application, such as Microsoft Word or Adobe Reader, select **File > Print**.
2. From the list of printers, select the pull print printer you would like to use.



3. Click **Print**.


6.6.2 Submit from email

Prerequisites

- The HP AC SPP Mail service is started.
- Microsoft Office is activated with each application installed and registered to the current user.
- A local printer is installed with a PCL5, PCL6 or PS driver and set as the default printer.


- On a 64-bit server, validate the OS version of Microsoft Office. Open the Windows Task Manager with the Office application open. In the Processes tab, a 32-bit version application displays *32 in the name.
- The settings in the Email tab of the configuration utility are correct. See [Section 4.2.2, Email](#) for more information.


From the email client send an email to the email address of the HP AC server, as defined in the Settings tile choose your server and click **Configure**. Go the Advanced tab > POP3/IMAP section.

 **NOTE:** The following file types are supported for pull printing: DOC, DOCX, XLS, XLSX, PPT, PPTX, VSD, PDF, TXT, JPG, JPEG, BMP, GIF, PNG, TIF, and TIFF.

6.7 Pull Printing from the devices

The following sections describe methods to print stored jobs.


 **IMPORTANT:** When pull printing with SPP Enterprise, if a user has a mix of pull print jobs and shared delegated jobs, not all jobs will release at once if Print All is selected at the device. The user will have to select Print All to print all pull print jobs and then select Print All again to print all shared delegated jobs.

 **NOTE:** At a device front panel, when **Print All** is selected, jobs remain visible on the screen until all jobs are printed. Tap Refresh to refresh the job list.

6.7.1 HP single-function printers

Prerequisites

- The printer is configured for Pull Printing and Authentication.
- A user has pending jobs in the pull print queue.

 **NOTE:** On devices without a 4.2" display the user will have to have a card previously enrolled.

Complete the following steps:

1. Present your registered card at the card reader. IRM identifies the registered card, authenticates the user, and locates your stored jobs in the spool folder. All of your stored jobs are then pulled from the spool folder, printed, and then deleted.
2. Collect your printed documents.

6.7.2 HP single-function printers with a 4.2" display

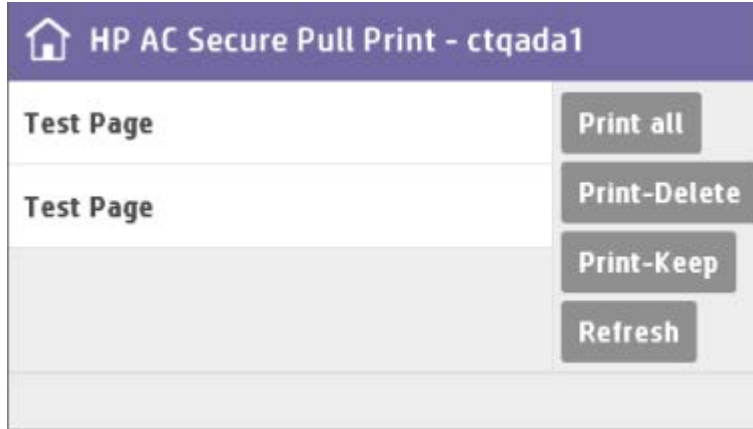
Prerequisites

- The printer is configured for Pull Printing and Authentication.
- A user has pending jobs in the Pull Print queue.

Complete the following steps:

1. Present your registered card at the card reader, enter your code or Windows credentials.

2. Select the documents to be printed from the list and tap the desired **Print** button.



3. Collect your printed documents.

 **NOTE:**

- When Print-Keep is selected, an "R" will display next to the job list to indicate that the job is retained.
- When all jobs in the list are retained, the **Print All** button is disabled.

6.7.3 HP multi-function printers

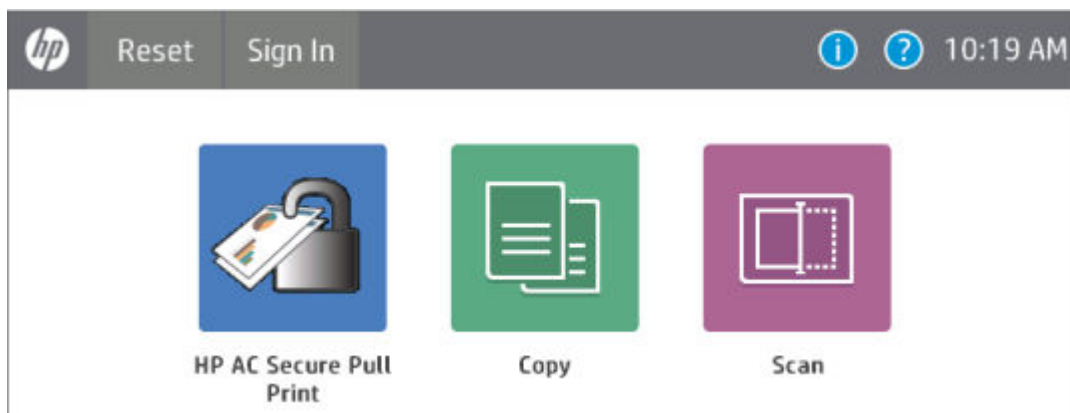
Prerequisites

- The printer is configured for Pull Printing and Authentication.
- A user has pending jobs in the pull print queue.


 **NOTE:** The MFP front panel screen may vary, depending on the printer model.

Complete the following steps:

1. At the device front panel, tap the HP AC application.



2. Authenticate at the device using either card, code, or Windows authentication.
3. Select documents from the document list. Tap **Print-Delete** to print and then delete the document from the document list. Tap **Print-Keep** to print and keep the document in the document list.

 **NOTE:** When Print-Keep is selected, an "R" will display next to the job name to indicate that the job is retained.

 **NOTE:** When all jobs in the list are retained, the **Print All** button is disabled.



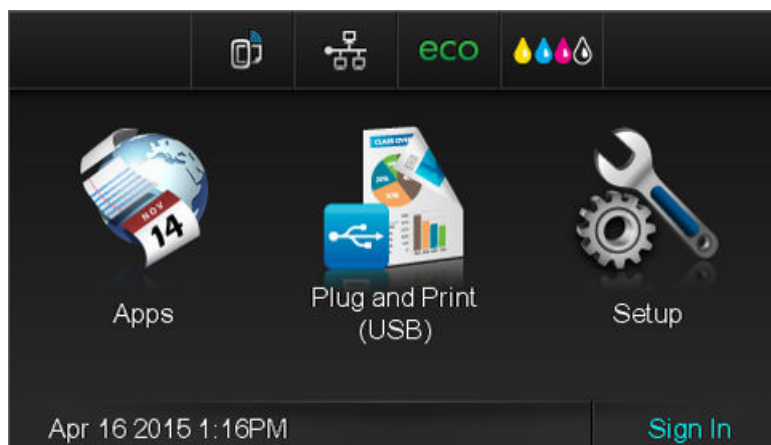
6.7.4 HP OfficeJet Pro printers

Prerequisites

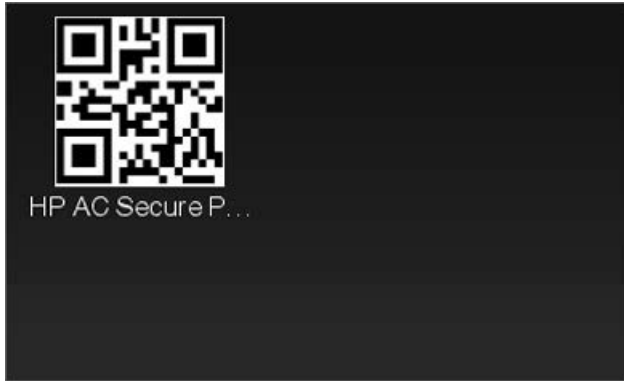
- For users to pull print remote jobs, make sure the "Automatically search for remote jobs" checkbox is selected in the HP AC configuration tool > Settings tile > Pull Print, select your server and click **Configure**. Go to the Remote Servers tab.
- A user has pending jobs in the pull print queue.
- The printer is configured for Pull Printing and Authentication.

Complete the following steps:

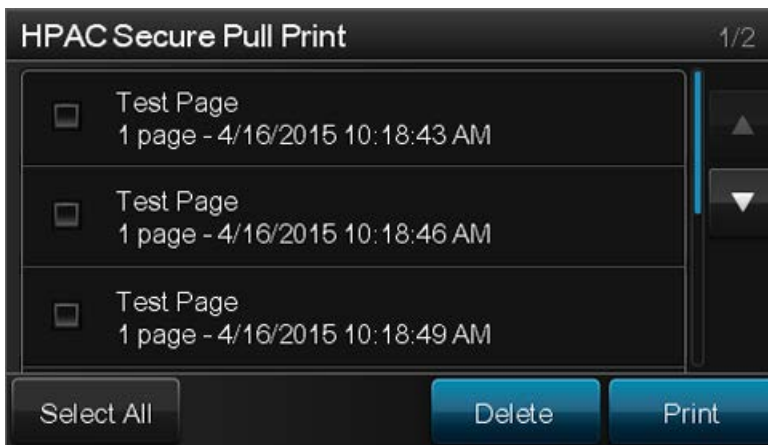
1. After authenticating at the printer, tap **Apps**.



2. Tap HP AC Secure Pull Print.



3. Select documents from the document list. Tap **Print**.



 **NOTE:**

- Due to the limitation of HP OfficeJet and PageWide Pro device front panels, the **Print-Keep**, **Print-Delete**, and **Print-All** buttons are not available.
 - Due to the limitation of HP OfficeJet Pro devices, no more than 50 jobs can be displayed in the job list. Also, due to a character limitation of the URL (a concatenation of print job URIs that is used to connect to the server), not all selected jobs may be printed or deleted. When using SPP Enterprise, and depending on the length of the server name and queue name, the maximum number of jobs that can be printed or deleted at one time is 10.
-

6.7.5 XT card readers

Prerequisites

- The XT device is connected to a printer and the network.
- The XT device is configured for pull printing.
- Cards are registered to users.
- Device authentication set to **Card only**.

- For users to pull print remote jobs, make sure the “Automatically search for remote jobs” checkbox is selected in the HP AC configuration tool > Settings tile > Pull Print, select your server and click **Configure**. Go to the Remote Servers tab.
- A user has pending jobs in the pull print queue.

Complete the following steps:

1. Present your registered card at the XT card reader. The XT device identifies the registered card, authenticates the user, and locates your stored jobs in the spool folder. All of your stored jobs are then pulled from the spool folder, printed, and then deleted.
2. Collect your printed documents.

6.7.6 HP S900 Series

Prerequisites

- A user has pending jobs in the pull print queue.

Complete the following steps:

1. To log in at the device, present your card at the card reader or enter your PIC to authenticate.
2. Touch **Apps**. If more than one application is configured on the device, tap the pull printing application.



3. Select documents from the document list. Tap **Print All** to print all documents in the list. Tap **Print-Delete** to print and then delete the document from the document list. Tap **Print-Keep** to print and keep the document in the document list.



NOTE:

- If the device authentication method is set to Card + Code (two-factor) and you log out by presenting a proximity card at the card reader, the following message displays: "Authentication failed. Please confirm the card." Tap **OK** to log out.
- If you change the device authentication method, you will have to recycle the HPACWS application pool before authenticating at the device. If an error message displays on the front panel, power cycle the device.
- If a user is logged in and another user presents his proximity card at the card reader, the first user will be automatically logged out and the second user will be logged in.

6.7.7 Touch-to-Release

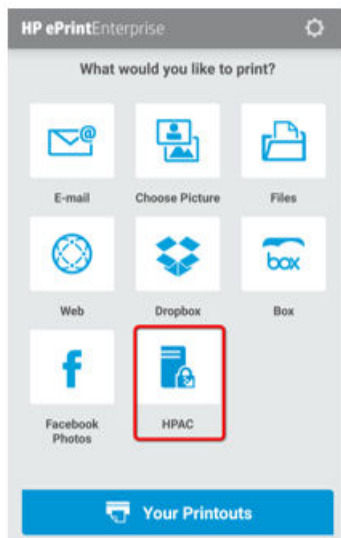
TTR (Touch-to-Release) is supported in all devices with HP AC Secure Pull Printing configured and licensed. On iOS devices, the identification of the printer is done through a QR code. Android devices can use either the QR code, NFC, IP address, or a previously used/selected printer.

Prerequisites

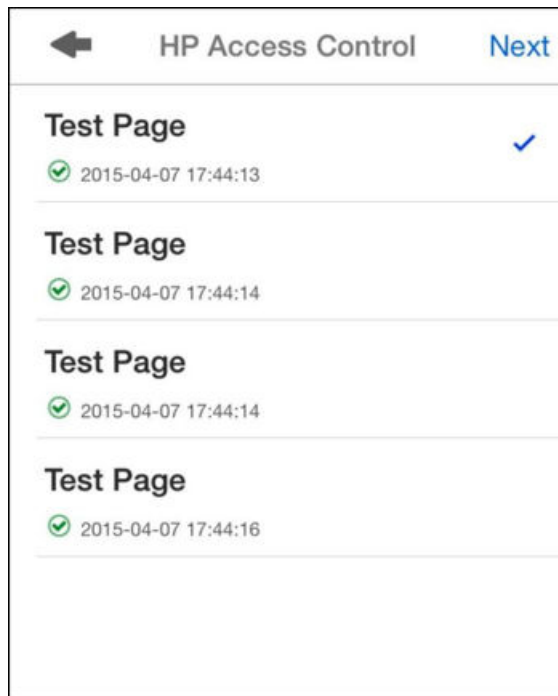
- HP Access Control server version 14.0 or higher installed and configured
- Mobile device connected to same network as the HP Access Control server
- HP ePrint Enterprise app version 1.11.0 or higher installed on the mobile device. QR code enabled on the MFP or Printer (if using QR code for job release)

Complete the following steps:

1. Open the HP ePrint Enterprise application on your mobile phone.
2. Tap the **HPAC** icon.



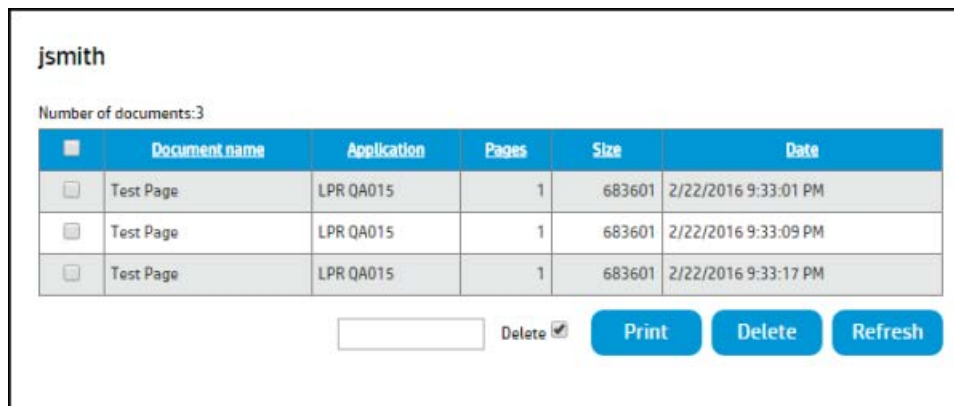
- Once communication is established with the HP AC server, a list of print jobs will display. Select the ones you want to print, then scan the QR code on the printer or MFP. The documents will now print.



6.7.8 Releasing jobs from a web page

Complete the following steps to use the Secure Pull Print Web page to route jobs from the server to a printer or MFP:

- Open a Web browser and in the address field, enter the following URL, where server is the name or IP address of the server:
`http://server/mydoc`
- When prompted, enter the user name and password, with the user name in the following format: domain \username. Click **OK** and the HP Access Control (HP AC) Secure Pull Print Web page displays:



- Enter the IP address of the printer or MFP in the Address field.
- Click a job from the Jobs list and then click the **Print** button to direct the job to the printer or MFP. To delete a job from the Jobs list, click a job from the list and then click the **Delete** button.

5. To refresh the Jobs list, click the **Refresh** button.
6. Select **Delete** to delete the job after it is printed. If **Delete job** is unchecked, the job will remain in the Jobs list after it is printed.

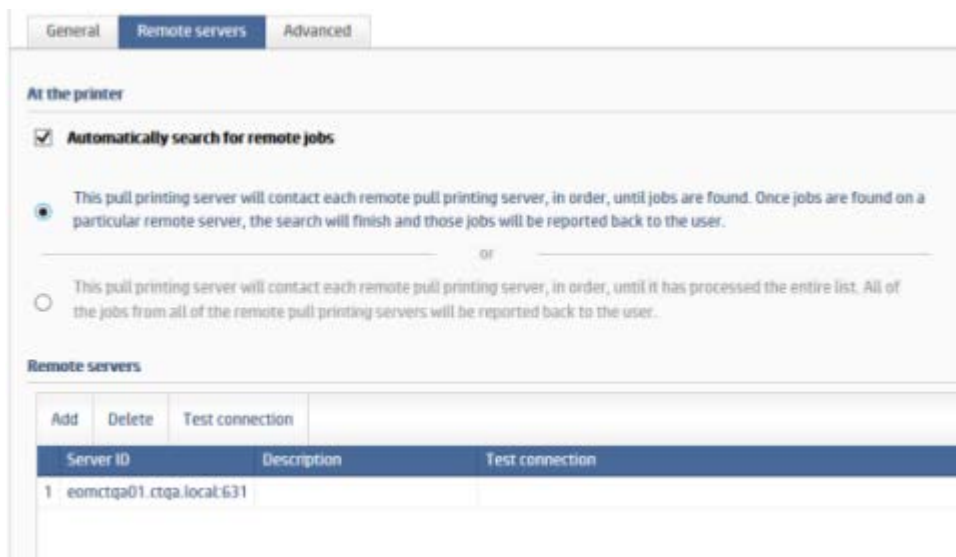
6.7.9 Releasing print jobs from remote print server - User requested

Prerequisites

- The printer is configured for Pull Printing and Authentication.
- Go to the Settings tile > Pull Print and select your server and click **Configure**. Go to the Remote Servers tab.

The Pull Printing workflow might automatically make requests for queued jobs on remote HP AC servers if no jobs exist on the HP AC server of the device. Depending on the location of the remote servers and the quality of the connection, this may introduce a fairly significant wait time in some environments. If the "Automatically search for remote jobs" option is unselected, users might be presented with a remote jobs option at the device to manually check for remotely queued jobs. Two options will be available if this feature is selected:

- **Option 1:** HP AC will contact each remote pull printing server, in order, until jobs are found. Once jobs are found on a particular remote server, the search will finish and those jobs will be reported back to the user.
- **Option 2:** HP AC will contact each remote pull printing server, in order, until it has processed the entire list. All of the jobs from all of the remote pull printing servers will be reported back to the user.

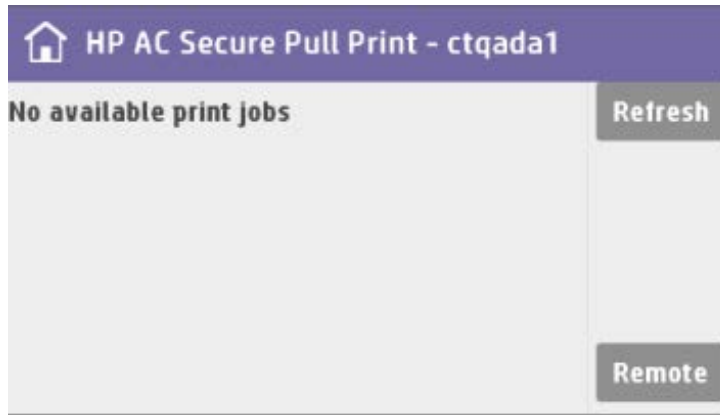


- A user has pending jobs in the pull print queue.

Complete the following steps:

1. At the device front panel, authenticate yourself and then tap the **HP AC Secure Pull Print** application.

2. If the "Automatically search for remote jobs" option is disabled, and no jobs are stored on the primary server, the "Remote jobs" button displays.



3. Tap **Remote jobs** to view stored jobs from other servers.
4. Select documents from the document list. Tap **Print-Delete** to print and then delete the document from the document list. Tap **Print-Keep** to print and keep the document in the document list.

6.7.10 Pull Printing with HP AC Enterprise with Roaming

When users print from client computers to a PersonalQ, jobs are stored on the server. Users can then go to any configured printer, authenticate and pull print jobs to the printer.


6.7.10.1 HP single-function printers

Prerequisites

- The printer is configured for Pull Printing and Authentication.
- Cards are registered to users.
- A card reader is connected to the printer.
- For users to pull print remote jobs, make sure the "Automatically search for remote jobs" checkbox is selected in the Settings tile > Pull Print, select your server and click **Configure**. Go to the Remote Servers tab.

Complete the following steps:

1. Present your registered card at the card reader. HP AC identifies the registered card, authenticates the user, and locates your stored jobs in the spool folder. All of your stored jobs are then pulled from the spool folder, printed, and then deleted.
2. Collect your printed documents.

 **NOTE:** When users first authenticate at a printer, all jobs in all pull print queues on the default server are printed. If the user authenticates again, and no jobs are on the default server, all jobs in all pull print queues from remote job servers are printed.

6.7.10.2 HP single-function printers with a 4.2" display

Prerequisites

- The printer is configured for Pull Printing and Authentication.
- If you want to use proximity cards, make sure a card reader is connected to the printer.
- For users to pull print remote jobs, make sure the “Automatically search for remote jobs” checkbox is selected in the Settings tile > Pull Print and select your server and click **Configure**. Go to the Remote Servers tab.
- A user has pending jobs in the pull print queue.

Complete the following steps:

1. Present your registered card at the card reader. When users first authenticate at a printer, all jobs in all pull print queues on the default server are printed. If the user authenticates again, and no jobs are on the default server, all jobs in all pull print queues from remote job servers are printed.
2. A list of pending jobs will be presented. Select your job(s) and tap **Print**.
3. Collect your printed documents.



NOTE: When users first authenticate at a printer, all jobs in all pull print queues on the default server are printed. If the user authenticates again and no jobs are on the default server, all jobs in all pull print queues from remote job servers are printed.

7 High availability options

7.1 Network Load Balancing configuration

Network Load Balancing provides high availability for authentication, job accounting data, and releasing pull print jobs.

Prerequisites

- Certificates configured for virtual IP



NOTE: HP does not certify Network Load Balancing software, and it is the responsibility of the customer and is outside the support of HP Access Control.

The NLB implementation is intended to be vendor neutral. Different load balancers have been tested to work but not all have been verified.

It is highly recommended that NLB be configured to support HTTP traffic on port 80 and HTTPS traffic on port 443 prior to addition to the HP AC list.

Under an NLB configuration where some devices may be deployed manually, defining the `vpsxServerURL` in the HP Access Control/DPR/web.config file may be necessary to properly license devices. HP S900 devices, HP ScanJet devices, and Canon devices require manual deployment in order to license the devices.

7.1.1 Configure HP Access Control for NLB

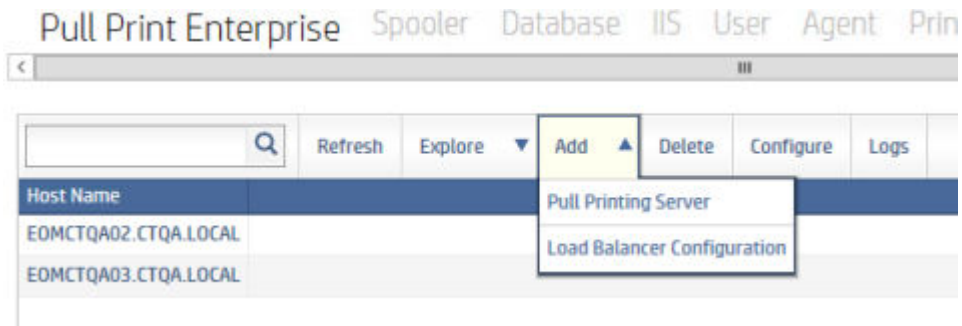
Prerequisites

- Virtual IP/Hostname of the NLB
- Properly functioning DNS
- Certificates issued to the Virtual IP/Hostname of the NLB
- Verify required network ports are opened. See Appendix A of this guide for more information on network ports.
- Session persistence enabled in the NLB
- Port monitoring enabled in the NLB

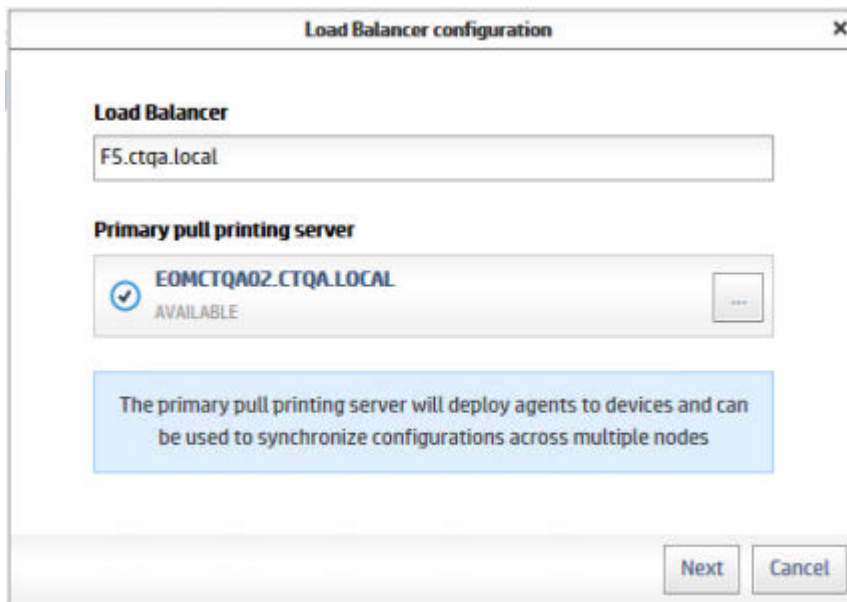
Complete the following steps:

1. Go to Settings tile > Pull Print > Add > Pull Printing Server to add all nodes in the load balancer.

If HP AC was upgraded from 15.X, the previously configured servers will display in the server list. On new installs of HP AC, you will have to add each server node to the server list before configuring for NLB. In the next step, one of the nodes will be selected as a primary pull printing server in order to synchronize settings and configurations from one node across all other nodes.



2. Click **Add > Load Balancer Configuration**. In the Load Balancer field, enter the virtual server FQDN. Then select the primary pull printing server. The primary pull printing server will deploy agents to devices and can be used to synchronize configurations across multiple nodes. Click **Next**.



3. On the Load Balancer Configuration screen, click **Add** to add additional nodes to the NLB.
4. Repeat steps 1-3 on all nodes, so that every node has a Load Balancer Configuration. And on all other nodes, make sure the primary node is set to be the Primary Pull Printing Server.

 **NOTE:** Expect to see "Out of sync" warning messages. This is just a reminder that the nodes are not yet synced.

5. On the primary server click **Command > Create Certificate** to create a security certificate that will be generated with the NLB address. These certificates are synced to the different nodes as long as existing certificates are not already in place. **Command > Set As Primary** changes the primary HP AC server of the NLB. This server will be used for deployment operations and as the source for server configuration settings. **Command > Sync** attempts to sync an out-of-sync HP AC server with the primary node.
6. On the primary node server, select the Primary Pull Printing Server, then click **Configure**. A new window displays to configure the server. In the General tab, configure the server with the preferred settings.
7. Go to the Remote Servers tab. Each node in the load balancer must be added to the Remote Servers list. If HP AC was upgraded from 15.X, servers may already be populated in the remote servers list. If not, add each server node manually.
8. Make sure "Automatically search for remote jobs" is enabled, and select the second radio button to make sure the "pull print servers contact each remote pull print server.. until it has processed the entire list."

- In the Advanced tab, configure the server with the preferred settings. The "Access Point" field is the address of the access point in the load balancer or cluster. It can either be the hostname or the fully qualified domain name. The "This Node" field is the address of the current node in the load balancer or cluster. The "Other Nodes" fields are used for server grouping, to display all jobs from all servers belonging to the same group. The "Other Nodes" fields are the addresses of the other nodes in the load balancer that the current server needs to interact with. Select the "Process jobs from all nodes" check box to query each node for jobs.

The screenshot shows the 'Advanced' configuration tab for 'Load Balancer and Cluster Parameters'. It includes the following fields and options:

- Access point:** A text input field containing 'NLBVIP.DOMAIN.COM'. Below it is a descriptive note: 'This is the address of the access point in the load balancer or cluster. It can either be the hostname or the fully qualified domain name.'
- This Node:** A text input field containing 'SERVER1.DOMAIN.COM'. Below it is a descriptive note: 'This is the address of the node in the load balancer or cluster. It can either be the hostname or the fully qualified domain name.'
- Other Nodes:** A section with a descriptive note: 'These are the addresses of the other nodes in the load balancer that this server needs to interact with. A node can either be a hostname or a fully qualified domain name.' It contains one text input field with 'SERVER2.DOMAIN.COM' and three empty text input fields below it.
- Process jobs from all nodes:** A checked checkbox with the label 'Process jobs from all nodes'. Below it is a note: 'If this option is checked then HP AC will query each node for jobs.'

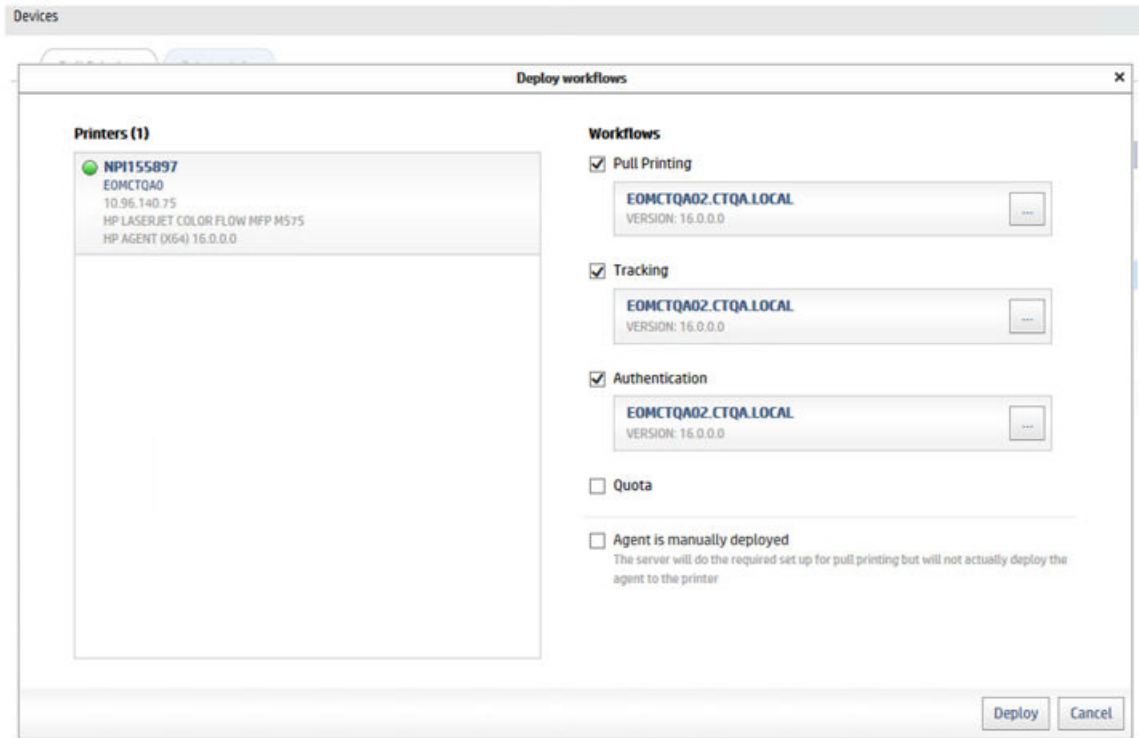
- NOTE:** Previously in HP AC you could only specify the access point and the name of the node HP AC runs on. Now you can specify the other nodes in the load balancer. This means all jobs stored on other nodes can be queried and users can view all jobs at devices. Also by knowing the names of the other nodes in a load balancer, HP AC can forward Dynamic DNS updates to the other nodes. This means if client workstations change IP addresses, all nodes within the load balancer will be updated with the new IP addresses.
- NOTE:** With server grouping, other load balancers can be added to the Remote Servers list (in the **Settings tile > Pull Print tab > Configure > Remote Servers** tab) in order to query remote jobs stored on nodes belonging to separate load balancers. When the load balancer name is added to the Remote Servers list, all jobs from all nodes will be viewed by the user in their job list on devices.
- NOTE:** For each server added in the "Other Nodes" fields, the server's hostname and fully qualified domain name must be added to the pullprintheosts file (located in the "HP Access Control\bin" folder). Also the load balancer access point, as well as any internal or external load balancer hostnames, must be added to the pullprintheosts file. The pullprintheosts file must be identical on every node in the load balancer.
- NOTE:** It is also important to make sure all printers and PersonalQs are identical across all nodes in the load balancer. This is because in Active/Active load balancer environments, when users print to a print queue using the VIP of the load balancer, it is unknown which node will receive the job.

- After making changes to the primary node, select the other nodes in the load balancer configuration list, and click **Command > Sync** to sync all other servers with the primary node.

NOTE: If Local Job Storage is used on client workstations, and client workstations connect to the NLB instead of directly to the pull print server, and the client workstations have a single network card with a fixed IP address, and the NLB is not configured to properly forward the client IP address, there is an option to use the Windows DNS instead of the built-in HP AC DNS to release jobs at devices. On all nodes of the NLB, go to Control Panel > System > Advanced System Settings. In the System Properties window, click "Environment Variables". In the System Variables section click **New**. In the Variable Name field, enter `DISABLE_DDNS`. In the Variable Value field, enter `1`.

7.1.2 Deploy workflows to devices

- ▲ Navigate to the Devices tile. Select the devices to be configured with the virtual server information.



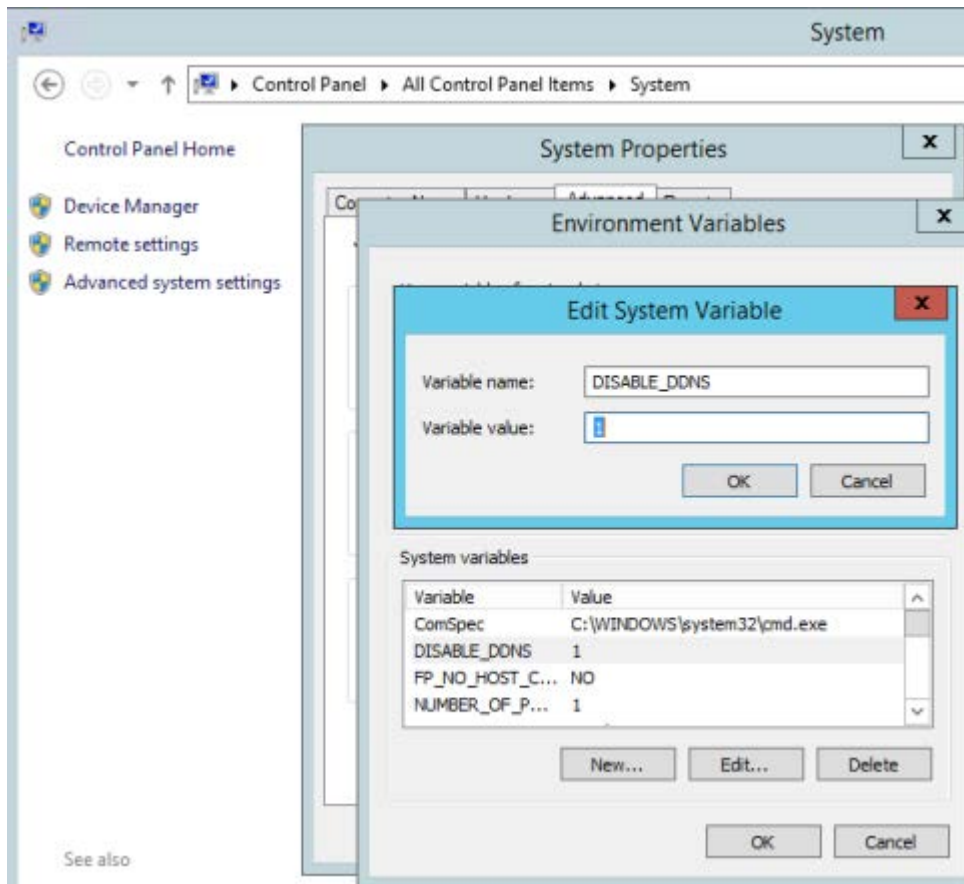
NOTE: During deployment, printer definition files are automatically created on the NLB nodes.

7.2 Configuring HP AC Secure Enterprise for Pull Printing on a Cluster

A failover cluster is a group of independent computers that work together to increase the availability of applications and services. The clustered servers (called nodes) are connected by physical cables and by software. If one of the cluster nodes fails, another node begins to provide service (a process known as failover). Users experience a minimum of disruptions in service.

HP AC is hosted in the Failover Cluster as a Generic Service Application. The Generic Service Application is a group within the cluster that includes all of the critical components that are required by HP AC to function. The cluster is created and managed using the Failover Cluster Manager which is an installable feature in Windows. It is installed and accessed through the Server Manager application.

IMPORTANT: When running HP AC in a Windows cluster, the hostname for each of the HP AC nodes, as well as the name of the "client access point," must also be specified in the HP AC license file.



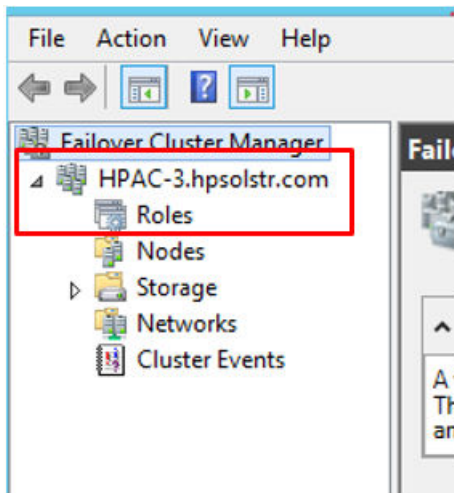
7.2.1 Preparing the Cluster Server for HP AC Enterprise

First you will prepare the server for the HP AC installation. You will create a Virtual Server (IP Address, Network Name, and physical disk resource that is accessible from both servers) with the SPP Enterprise Spooler service.

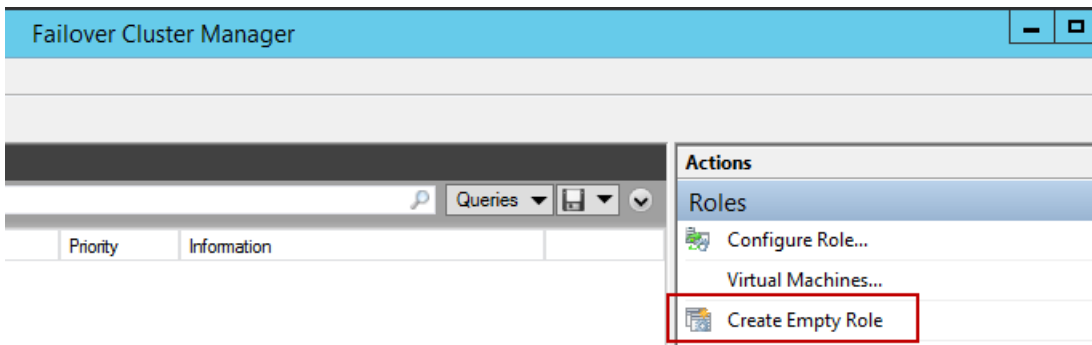
NOTE: Do not stop SPP Enterprise through services.msc when working on a cluster. The services are only to be managed from the Failover Cluster Management tool by bringing the services online or offline. Stopping a clustered component triggers a failover to the other node.

Create a Server Group (Virtual Server)

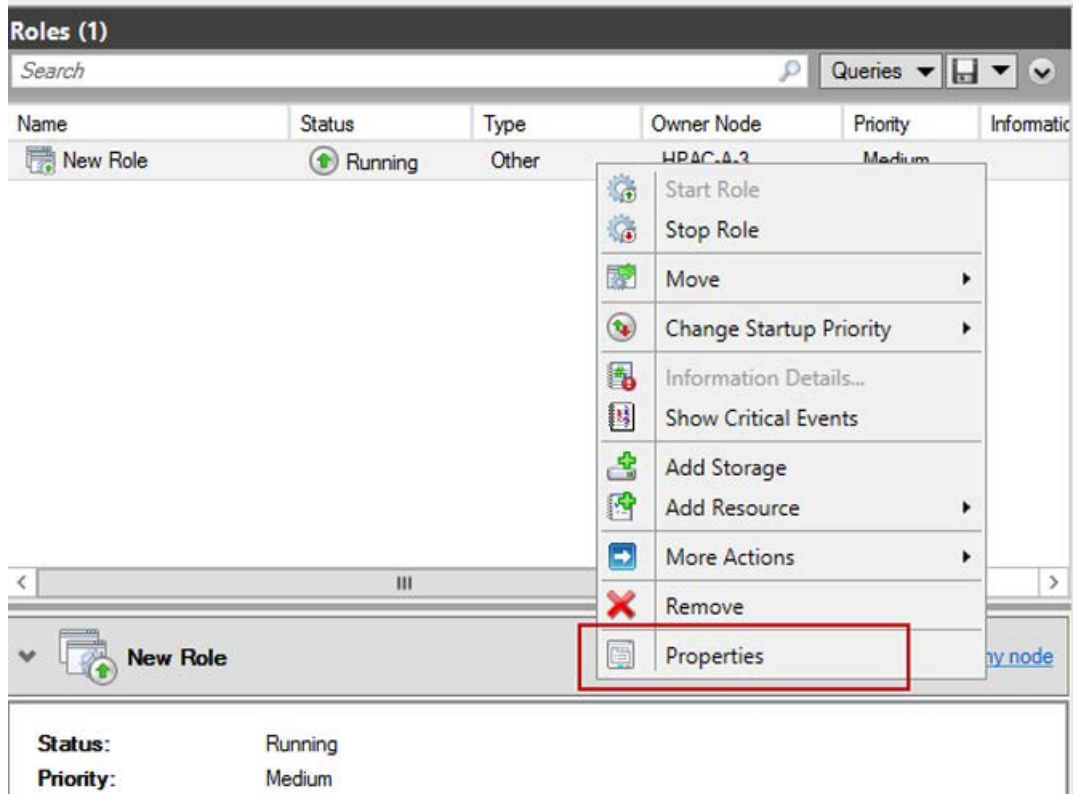
1. Launch **Failover Cluster Management**. Expand the cluster and click **Roles**.



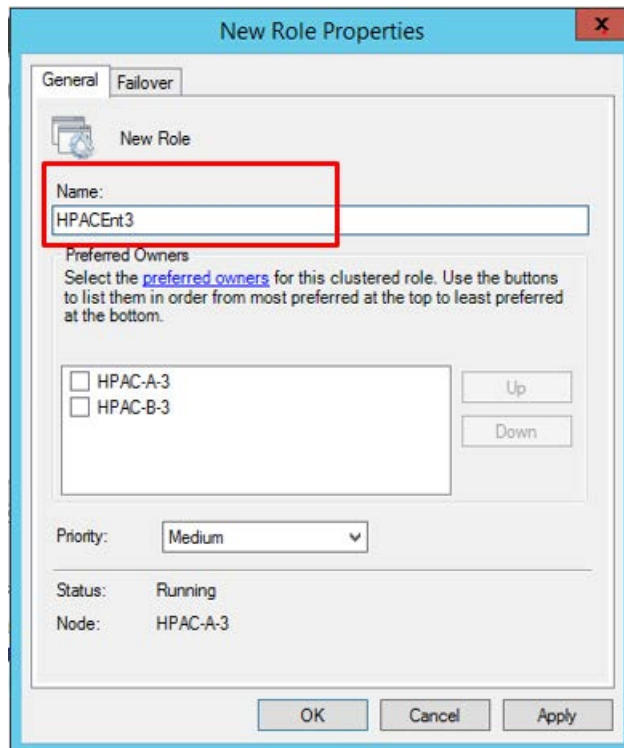
2. Under the Action pane, click **Create Empty Role**.



3. Right-click the New Role and click **Properties**.



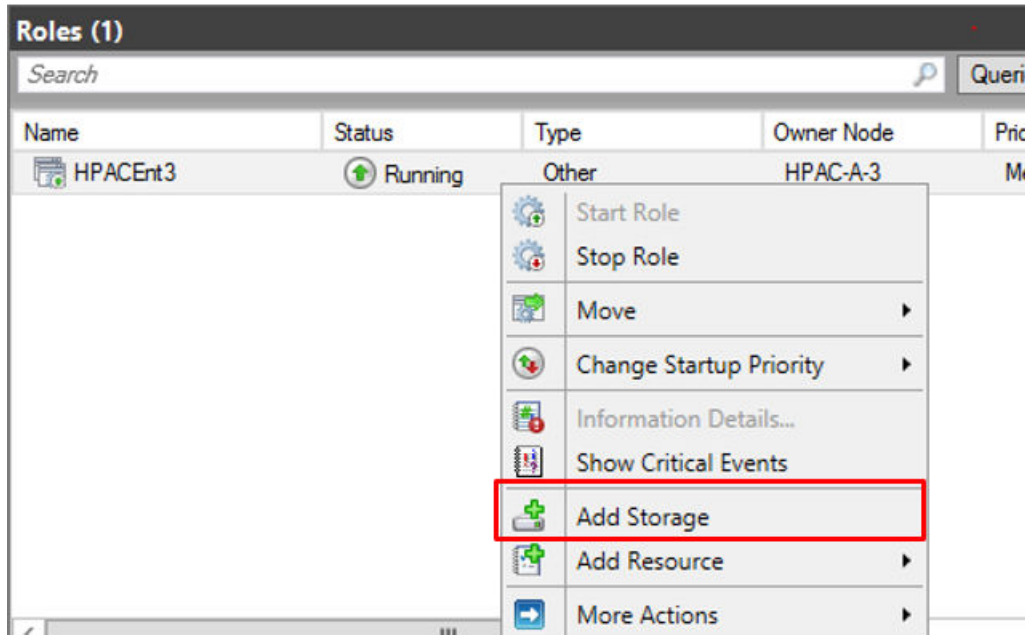
4. Name the Role, click **Apply** and **OK**.



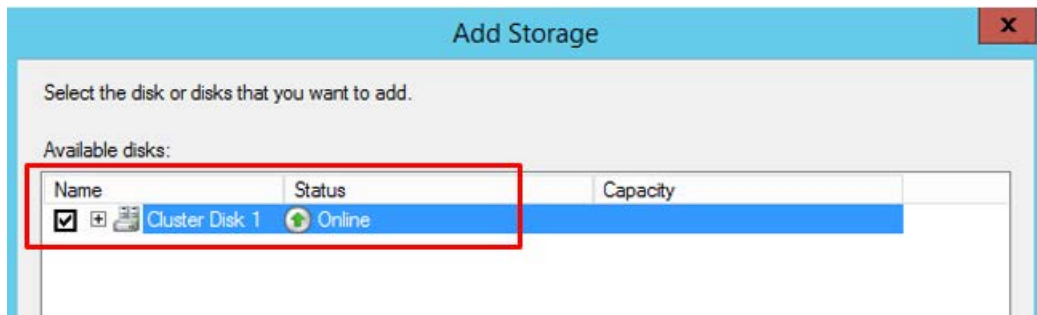
Add Storage

The storage is the location where the HP AC pull print jobs and printer definitions are stored and must be visible from both nodes.

1. Right-click the newly created role and click **Add Storage**.

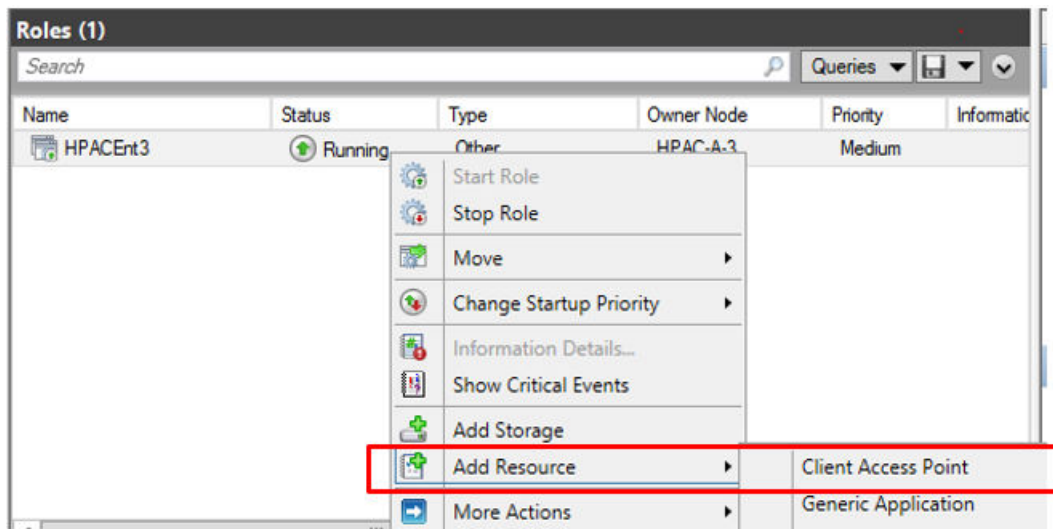


2. Select the physical disk and click **OK**.

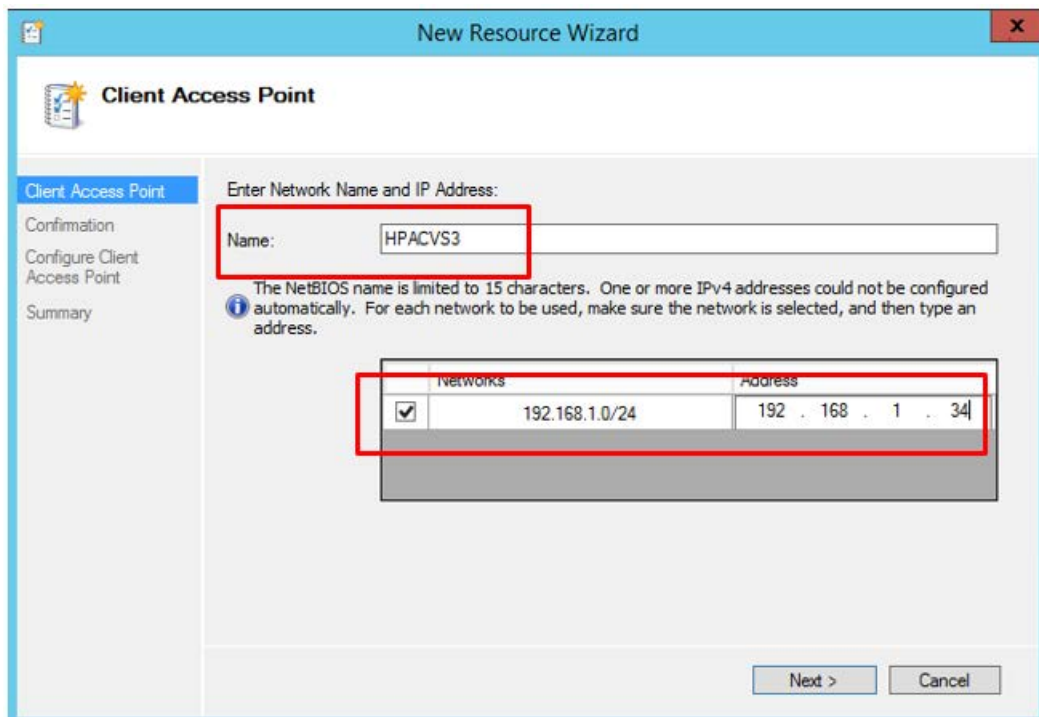


Add Client Access Point

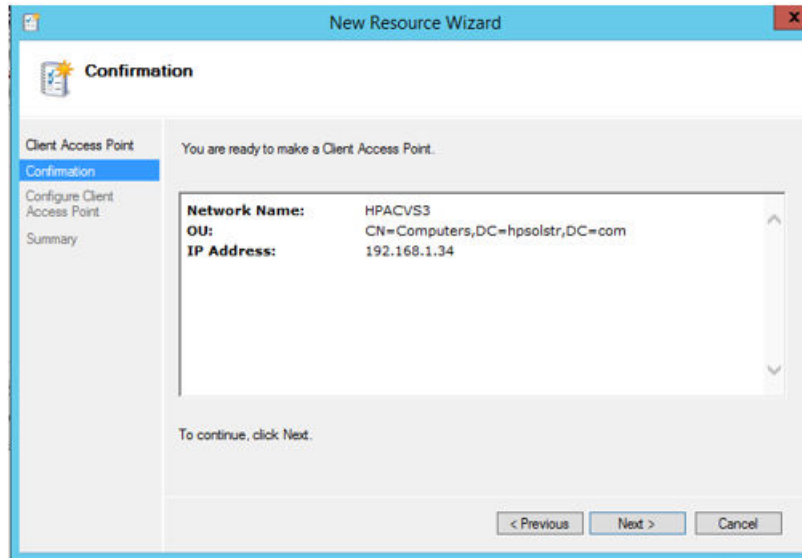
1. To assign it a virtual IP, right-click the role and choose **Add a Resource > Client Access Point**.



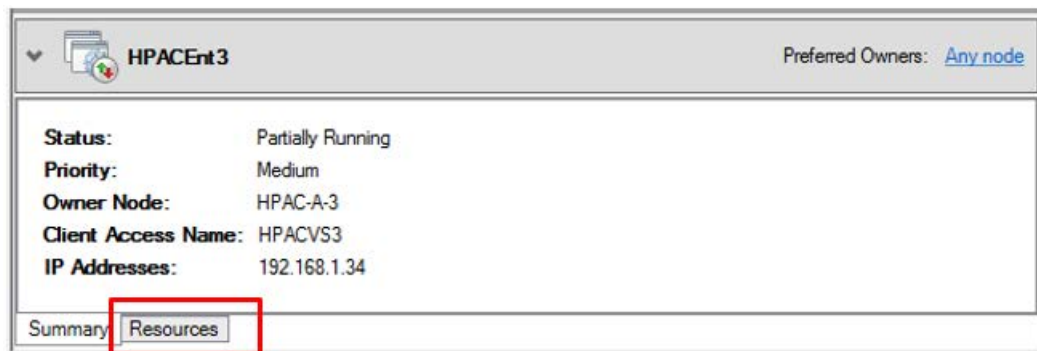
2. Enter Network Name and IP Address. Click **Next**.



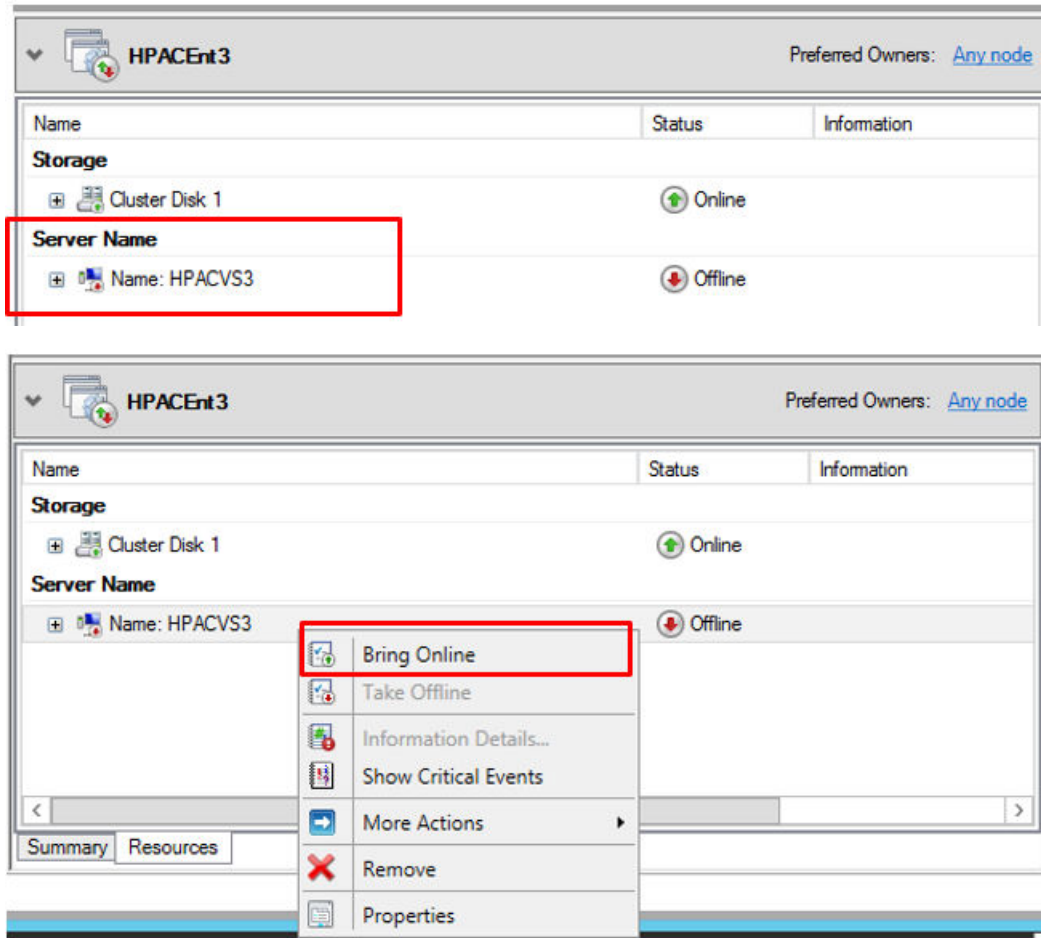
3. On the Confirmation screen, click **Next**.




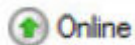
4. At the bottom of the screen, click **Resources** tab.



5. Select the Server Name. Right-click and select **Bring Online**.



 **IMPORTANT:** Wait until the server is **Online** before proceeding



Wait until the server is **Online** before proceeding.

7.2.2 Step 1: Install HP AC on both Nodes

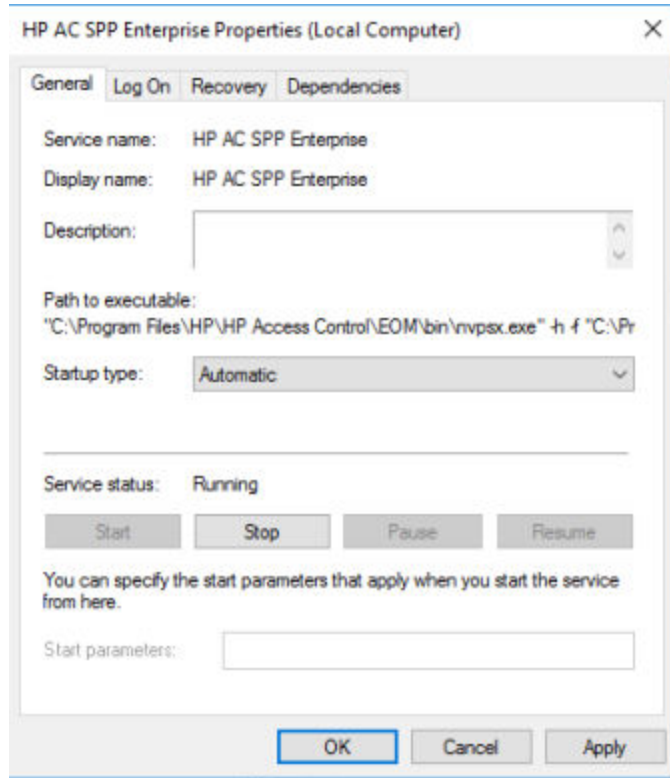
Install HP AC on both nodes and test to see if it is functioning properly. Then stop all HP AC services on both nodes (HP AC SPP Enterprise, HP AC ServerX, HP AC NetX).

7.2.3 Step 2: Prepare HP AC for Clustering

On both nodes:

1. Change each of the three Windows service definitions startup type for HP AC to **Manual** from Automatic:
 - This step is performed using *Computer Management > Services and Applications > Services*.
2. Modify the executable path for each of the three HP AC services to reference the new location of their start-up configuration files.

- Each of the services reference a start-up file (vpsstart.ini for HP AC SPP Enterprise, Intstart.ini for HP AC NetX, and vsvstart.ini for HP AC ServerX). The start-up files will be moved later in the setup process to the shared cluster drive.
- If you go to the 'services.msc' dialog and locate HP AC SPP Enterprise and double-click, it will show the current "Path to executable" which includes the -f argument that is used to specify the location and name of the start-up initialization file.




You **cannot** modify the value using this dialog, but it can be updated using the "sc" command from a command prompt.


Here are examples of the command used to configure all three services (HP AC SPP Enterprise, HP AC ServerX, HP AC NetX):

- `sc config "HP AC SPP Enterprise" binPath= "C:\Program Files\HP\HP Access Control\EOM\Bin\nvpsx.exe -h E:\HPAC\spoolroot\vpsstart.ini"`
 - `sc config "HP AC NETX" binPath= "C:\Program Files\HP\HP Access Control\EOM\Bin\nIntx.exe -h E:\HPAC\netxroot\Intstart.ini"`
 - `sc config "HP AC SERVERX" binPath= "C:\Program Files\HP\HP Access Control\EOM\Bin\nsvsx.exe -h E:\HPAC\svsxroot\vsvstart.ini"`
3. Using Notepad, modify the three HP AC startup configuration files to define their runtime directories on the cluster shared drive.
- Modify C:\Program Files\HP\HP Access Control\bin\vpsstart.ini
 - **From:** SERVROOT = C:\Program Files\HP\HP Access Control\spoolroot
 - **To:** SERVROOT = E:\HPAC\spoolroot
 - Modify C:\Program Files\HP\HP Access Control\bin\vsvstart.ini

- **From:** SERVROOT = C:\Program Files\HP\HP Access Control\vsxroot
- **To:** SERVROOT = E:\HPAC\vsxroot
- Modify C:\Program Files\HP\HP Access Control\bin\Intstart.ini
 - **From:** SERVROOT = C:\Program Files\HP\HP Access Control\netxroot
 - **To:** SERVROOT = E:\HPAC\netxroot

 **NOTE:** These values can also be modified in the registry for each node. They are located in `HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/services`. Each service contains a String Value called "ImagePath" where the startup parameter can be updated.

4. Add the **TCPHOST** system keyword to the HP AC **vpsstart.ini** (by editing the file, or going to the HP AC admin console > Settings > Spooler > Configure > Advanced > Access Point field) and specify the cluster host name (**TCPHOST = CLUSTER**).

 **NOTE:** This name is the new Failover Service name that will be defined later. You will have to decide on this name at this point.

5. Repeat steps 1 - 3 on the second node.

Any future configuration changes to the startup configuration files made on the live node **MUST** be propagated to the standby node. These files are stored locally on each node and are **not** on the shared drive common to both nodes.

7.2.4 Step 3: Modify each Node for Clustering

On the first node:

1. Bring the shared drive online.
2. Using Windows Explorer:
 - Copy the **spoolroot**, **vsxroot**, and **netxroot** folders from the C:\ drive to the shared drive (E:\HPAC folder).
 - Delete the folders on the C:\ drive.
3. HP AC by default runs under a local system account which has no authority on the domain. If you want to be able to access domain resources then you will need to change the HP AC service definition and provide a domain user ID / password so that it can run with a domain user ID's authority.
4. Test that all three HP AC services start:
 - HP AC ServerX Service
 - HP AC SPP Enterprise Service
 - HP AC NetX Service
5. **Stop** all three VPSX services.
6. Put the shared drive offline.

On the second node:

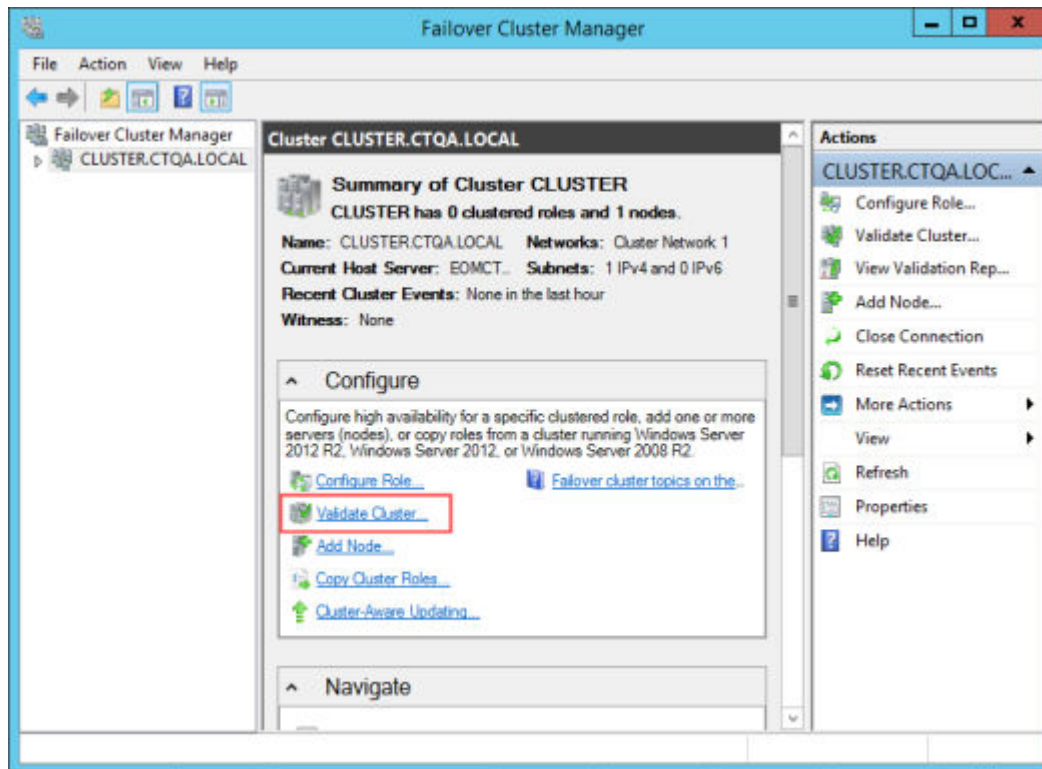
1. Bring the shared drive online.
2. Using Windows Explorer: Delete the **spoolroot**, **vsxroot**, and **netxroot** folders from the C:\ drive.
3. Test that all three HP AC services start:

- HP AC ServerX Service
 - HP AC SPP Enterprise Service
 - HP AC NetX Service
4. **Stop** all three HP AC services.
 5. Put the shared drive offline.

7.2.5 Step 4: Create the Cluster Application

Assumptions and Conventions


To verify that the cluster and required resources are available, eligible, and configured properly, we recommend running the Failover Cluster Manager Cluster Validation Wizard.



Additional Requirements


To complete the installation of HP AC in a clustered failover environment, the following will also be needed.

- A shared storage that is of the appropriate size for the spoolroot, vsvxroot, and netxroot folders.

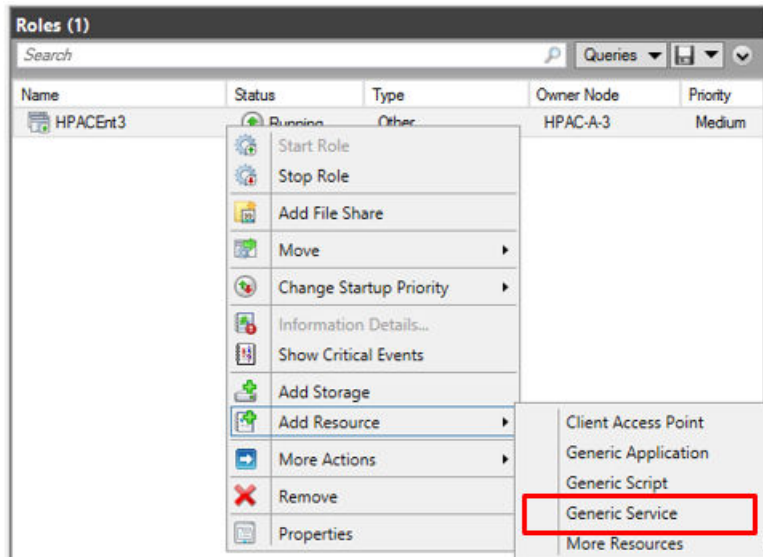
 **NOTE:** Sizing considerations for the folders need to be taken into account at this time. Sufficient storage should be allotted for the system files and the estimated aggregate size of documents retained after printing in the spool.

- Available IP address for HP AC.
- A network host name for the HP AC clustered application. This name will become the DNS addressable by which HP AC will be referenced for printing and administration.

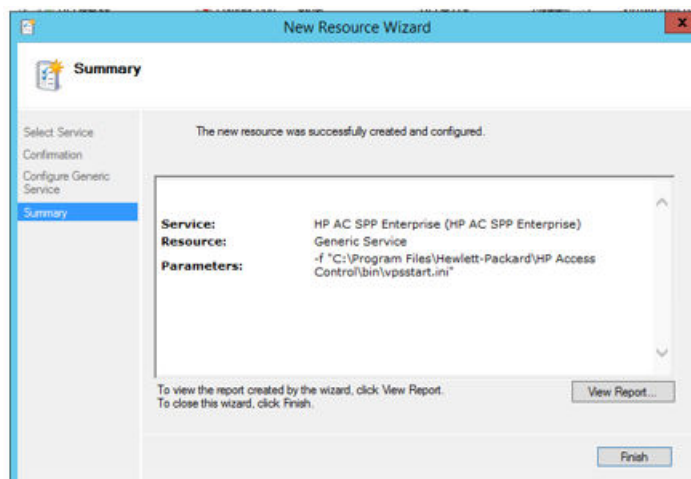
Complete the following steps to add the SPP Enterprise service as a role and configure the dependencies for the role: physical disk, virtual IP, and virtual network name.

 **IMPORTANT:** Creating dependencies ensures that the resources required are monitored by the cluster service and if a resource fails the cluster service will first attempt to restart the service or if unsuccessful will move the group to another node.

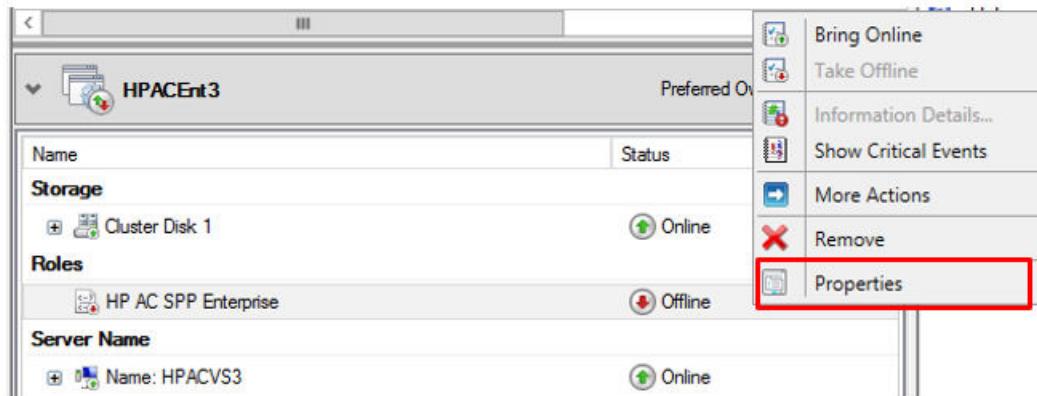
1. Right-click the Role and select **Add Resource > Generic Service**.



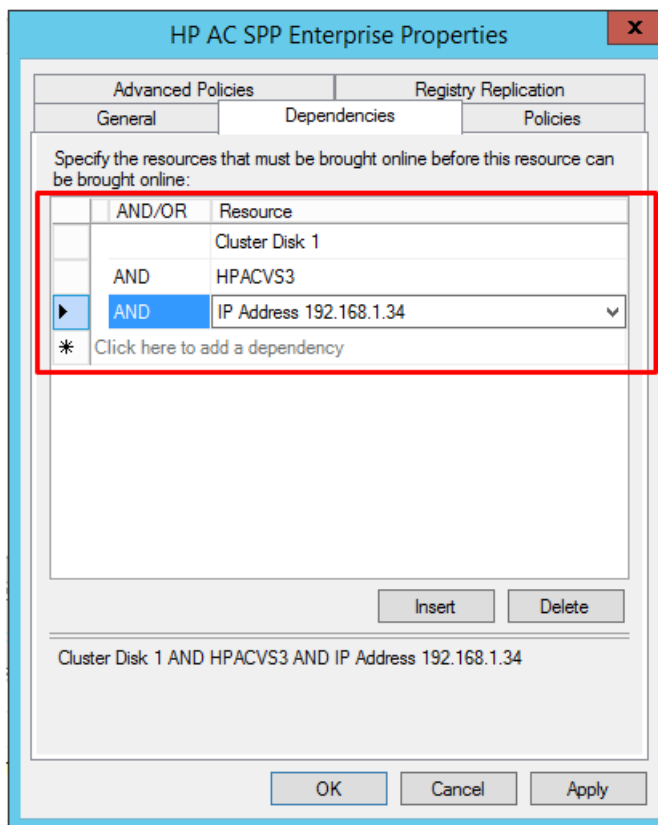
2. Select **HP AC SPP Enterprise** and click **Next**.
3. Click **Next** and **Finish** once complete.



4. In the bottom pane on the Resources tab, right-click **HP AC SPP Enterprise** and go to **Properties**.

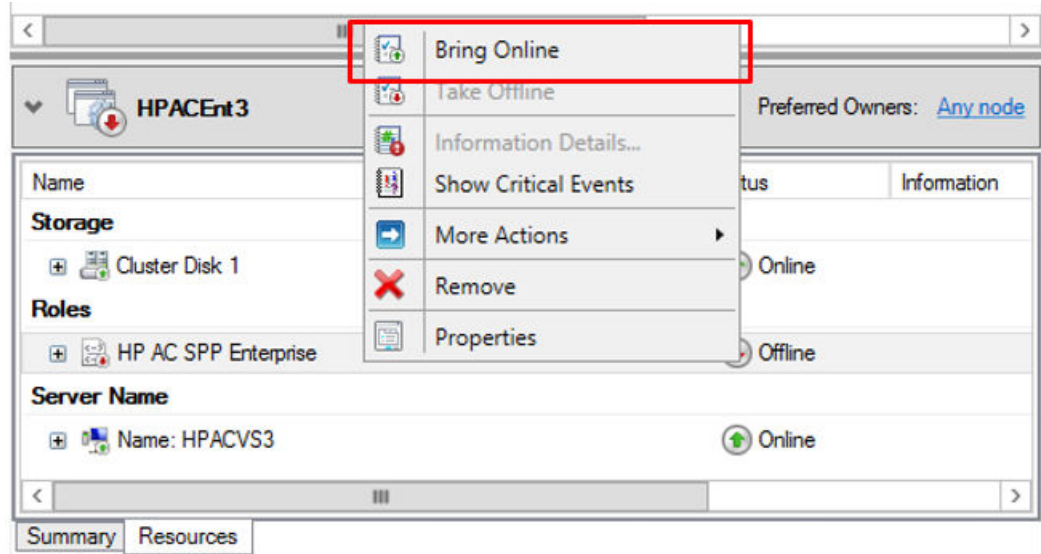


5. On the Dependencies tab click **Insert**. Add **Cluster Disk**, and **AC ServerX** as dependencies.



6. Click **Apply** and **OK**.

7. Right-click **HP AC SPP Enterprise** again and select **Bring Online**. Wait until it is online before proceeding.



8. Repeat steps 1-7, adding the **HP AC ServerX** service. Add the shared cluster disk as a dependency.
9. Repeat steps 1-7, adding the **HP AC NetX** service. Add **HP AC SPP Enterprise**, **HP AC ServerX**, and the shared cluster disk as a dependency.
10. Optionally, add the following services:
 - **HP AC SPP Mail**: Used for printing emails and attachments.
 - **HP AC Purge**: Deletes expired jobs. Monitoring the HP AC SPP Purge service will ensure that if this service is down for an extended period, the disk will not become full.

 **NOTE:** Now that the HP AC Enterprise Spooler is a clustered service (monitored), we need to use **Failover Cluster Manager** to stop and start the service.

7.2.6 Testing

One method to test the cluster application failover is to move the newly clustered application to another node using the Failover Cluster Manager.

First, submit a print job using HP AC using the Failover Application name as the target HP AC host name.

Right click on the application and select "Move this service or application to another node" and select a target node. Once the application has moved, the "Current Owner" label will change to the target node name.

After a successful failover, resubmit the test print job as before.

Move the application back to its primary server after the test.

8 Configuring Clients

8.1 Creating Pull Print Queues

 **NOTE:** If encryption, rules based printing or delegate group printing is required then LPR must be used.

HP Access Control Enterprise integrates seamlessly in the environment. The HP AC Enterprise spooling system can use either local queues or Windows shared queues, depending infrastructure and requirements.

Local queues are recommended for support of the following features:

- Enterprise scalability with the Enterprise Spooler
- Delegate / Group printing
- Local job storage with client-based pull printing
- Encryption from the client to the HP AC server
- Multi-domain support when there are duplicate usernames across domains or no common global catalog that can check all users through a single entry point.

Shared queues are recommended when parsing of the job header for user and job names (non-windows printing).

Print queues can use either Internet Print Protocol (IPP) or Line Printer Remote (LPR) protocol to connect to pull print queues defined on the server.

- It is recommended to pre-configure the driver prior to installation to enable the subset of features in your environment (e.g. color print devices, multiple trays, etc.) using the Driver Configuration Utility contained in the HP Printer Administrator Resource Kit (download from www.hp.com/go/upd).
- For HP devices, ensure that mopier mode is enabled in the driver and that the driver is configured to support a storage device.

8.1.1 Adding a printer when using Client-based pull printing with local job storage

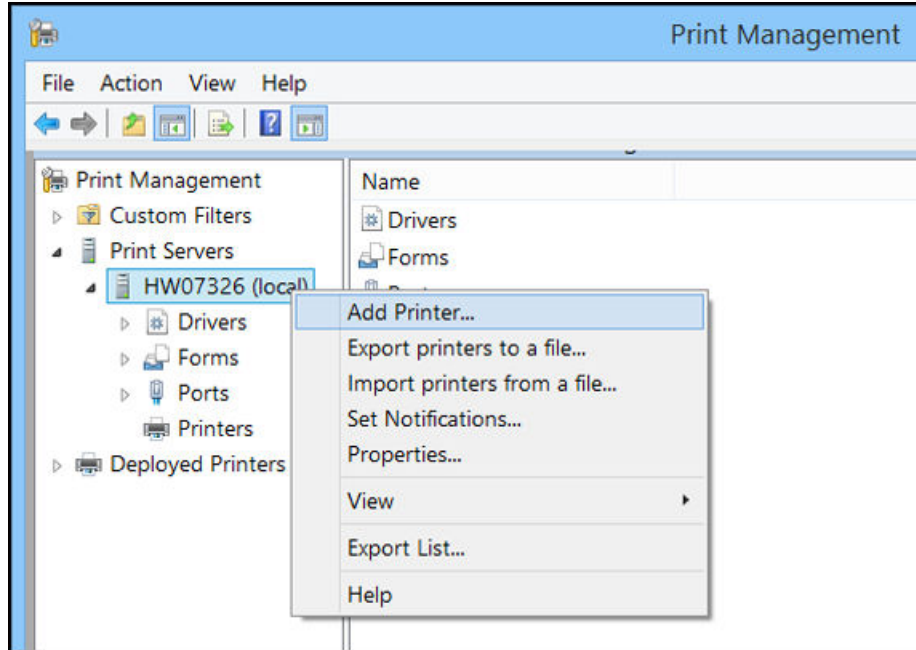
Prerequisites

- HP AC Enterprise Print Client installed and configured for local job storage.
- Queue defined within the HP AC configuration utility in the Devices tile > Admin > Add > PersonalQ.

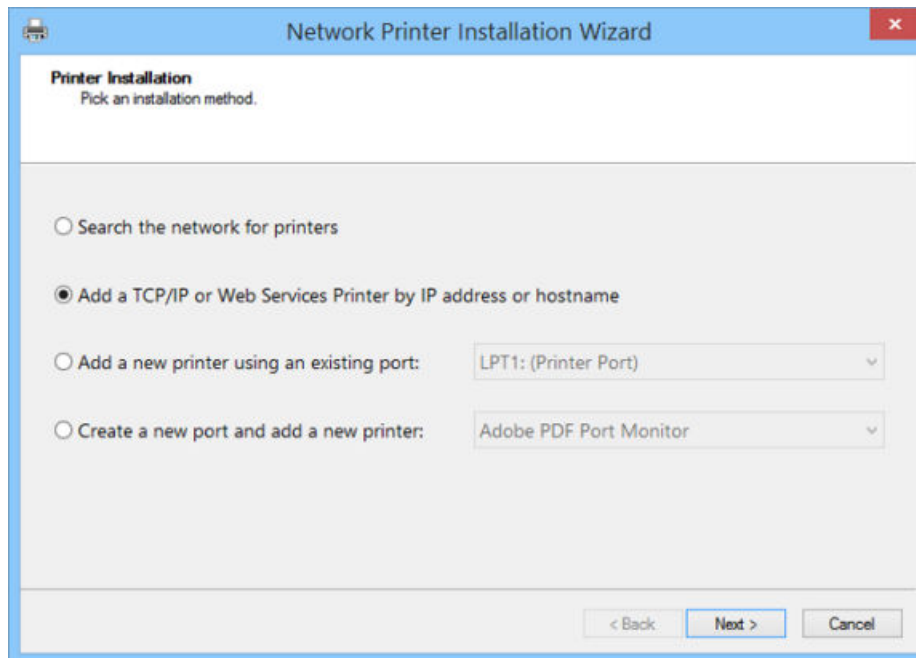
When **Local Job Storage** is installed on the client workstation, a port with the name of the Enterprise pull print queue that was created in the HP AC configuration utility > Devices tile > Admin > Add > PersonalQ section is automatically installed. After the Enterprise Client with Local Job Storage is installed on a user workstation, complete the following steps to add a physical printer and then assign the installed pull print queue port to the physical printer.

1. Add a direct IP print queue
 - a. Open Print Manager: select **Start** and type **Print Management** in the **Search program and files** box.

- b. Expand **Print Servers**, right-click the local server and click **Add Printer**.



- c. Select **Add a TCP/IP or Web Service Printer by IP address or hostname** then select **Next**.



- d. Select **TCP/IP Device** from the drop down.

Network Printer Installation Wizard

Printer Address
You can type the printer's network name or IP address.

Type of Device: TCP/IP Device

Host name or IP address: 10.96.140.70

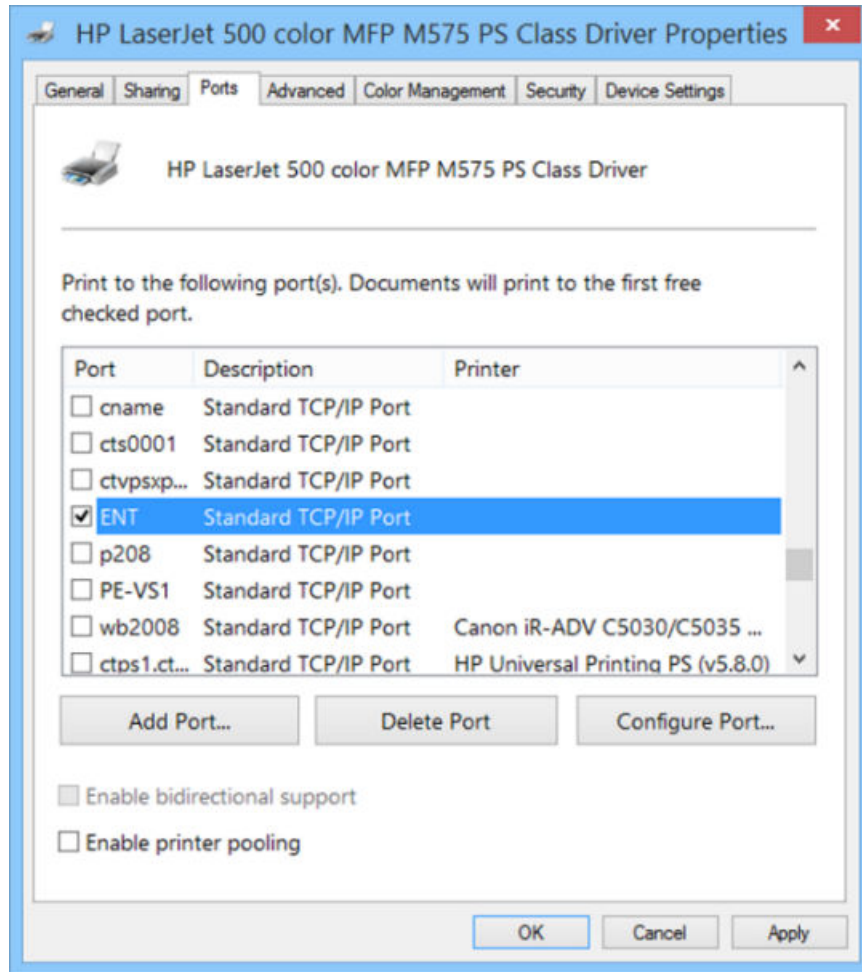
Port name: 10.96.140.70

Auto detect the printer driver to use.


< Back Next > Cancel

- e. Type the IP address of a LaserJet device.
- f. Create a name for the port to reflect an HP AC Pull Print port.
- g. Uncheck **Auto detect the printer driver to use**.
- h. Click **Next**
- i. Select one of the driver options and click **Next**.
- j. Locate your Universal Print Driver and complete the installation.
- k. Be sure to share this printer with a name that reflects an HP AC Pull Print Queue.
2. Assign the Enterprise port to the Pull Print queue. Now that the port is created, it needs to be assigned to the print queue.
- a. In the TCP/IP printer properties window, select the Ports tab.

- b. Place a check mark next to the Enterprise port named after the pull print queue then click OK.




- c. Select the **General** tab and print a test page.
- d. Verify the test page has printed by navigating to the Program Files\HP\HP Access Control Print Client \bin\pullsvc\spool folder on the client workstation. The spool folder is a hidden folder, so make sure to change the folder settings to view hidden folders. Also make sure the jobs display in the PersonalQ Enterprise tile in the HPAC admin console on the server.

 **NOTE:** If Local Job Storage is installed along with Quota or IPM, after assigning the Enterprise port to the pull print queue, the port will automatically change to have "HPACJA:" at the beginning of the port name. This shows that the pull print queue is also configured to use quota or IPM.

8.1.2 Adding a printer to use Internet Printing Protocol (IPP)

Prerequisites

 **NOTE:** If you will be using double-byte characters in document names, it is recommended to print using the IPP protocol.

- On the client desktop, make sure the Windows Component Internet Printing Client is enabled.
- For use with the enterprise spooler

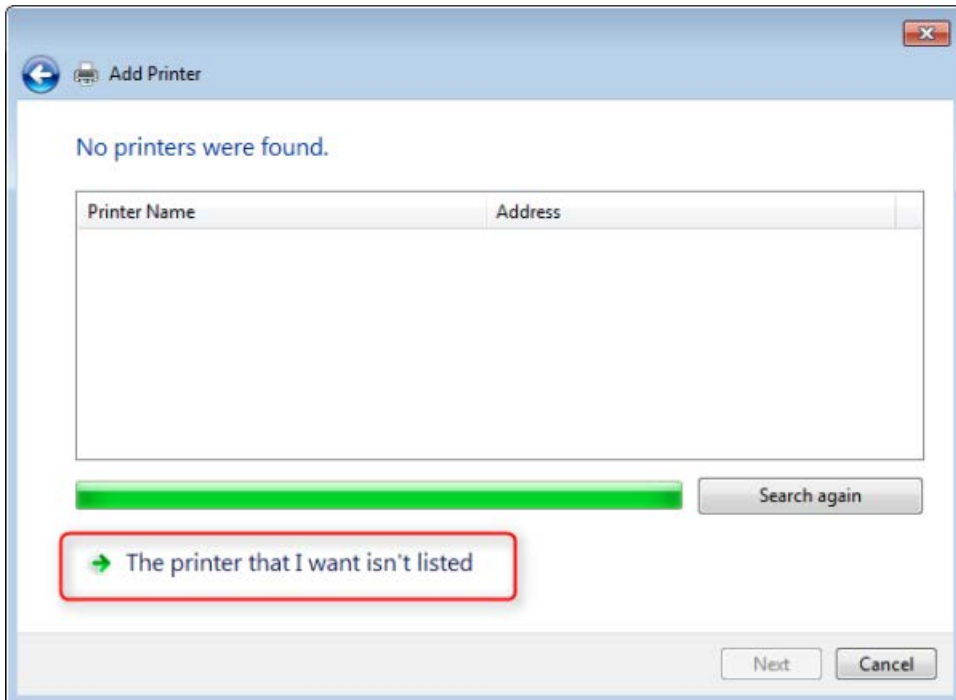
- Ensure a queue has been previously created on the HP Access Control server under the Device tile > Admin > Add>PersonalQ.
- To add a printer, you will have to have local administrator rights.

Complete the following steps:

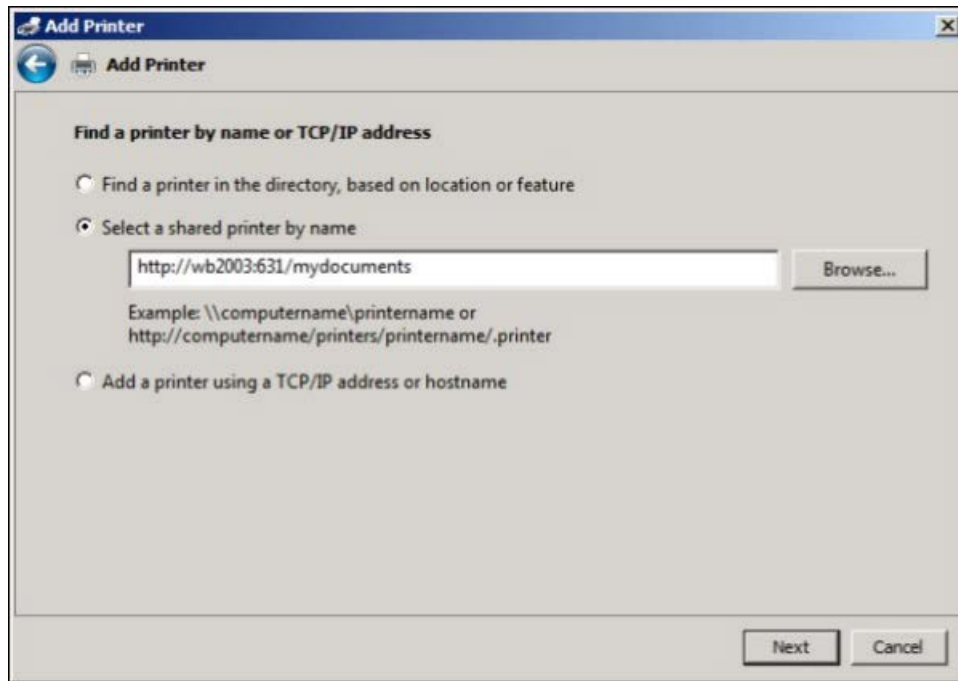
1. Go to **Devices and Printers** and click **Add a printer**.



2. Click **Add a network, wireless or Bluetooth printer**.
3. Select **The printer that I want isn't listed**.



4. In the **Select a shared printer by name** field, enter `http://ServerName:631/QueueName`, where *ServerName* is the name or IP address of the HP Access Control server, 631 is the port used to access the HP Access Control server, and *QueueName* is the name of the pull print queue added through the HP AC configuration utility. By default, the port used is 631 but this can be changed. Click **Next**.



5. Select a printer driver with all features, such as color, duplex, etc., necessary for the printing environment. Click **Next**.
6. After you've successfully added the printer, click **Next**. Then click **Finish**.

8.1.3 Adding a printer to use Line Printer Remote (LPR) protocol

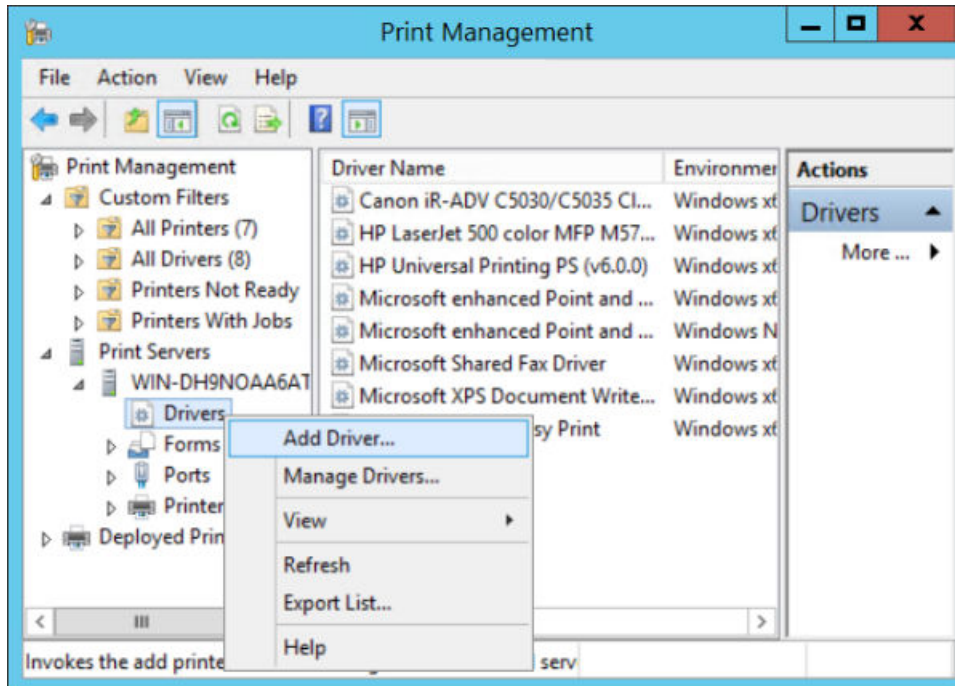
Prerequisites

- To add a printer, you will have to have local administrator rights.
- On the HP Access Control server, make sure the Windows Component Print Server for UNIX, which uses the LPR protocol, is disabled. The HP AC SPP Enterprise service must be the only service to use the LPR protocol. If you still want to use port 515 for regular Windows printing, port 515 can be changed in the SPP Enterprise settings.
- Ensure a queue has been created previously on the HP Access Control server under the PersonalQ tile > Admin > Add.

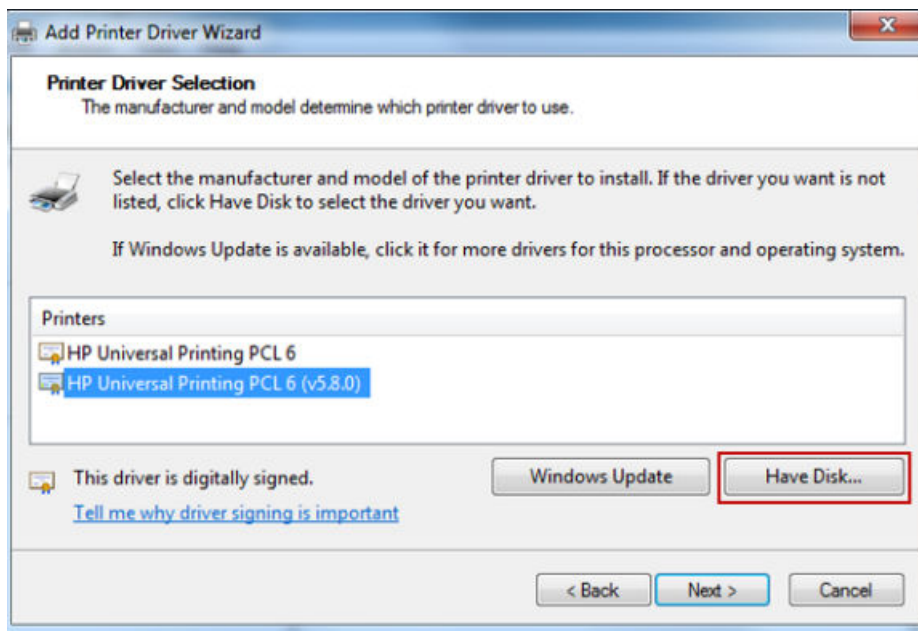
Complete the following steps:

1. Go to Control Panel > Administrative Tools and open **Print Management**.
2. In Print Management, go to Print Servers > local machine.

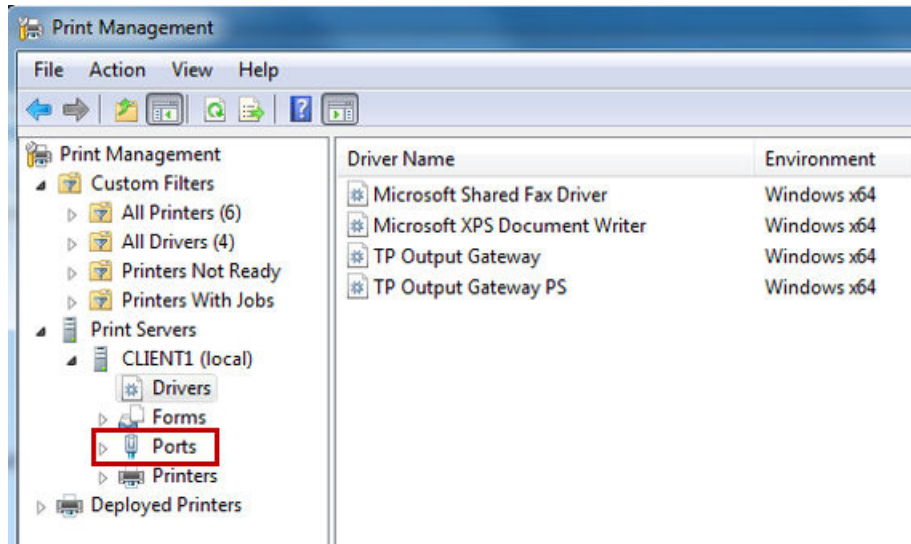
3. Right-click **Drivers** and choose **Add Driver**. The **Add printer driver** wizard starts.



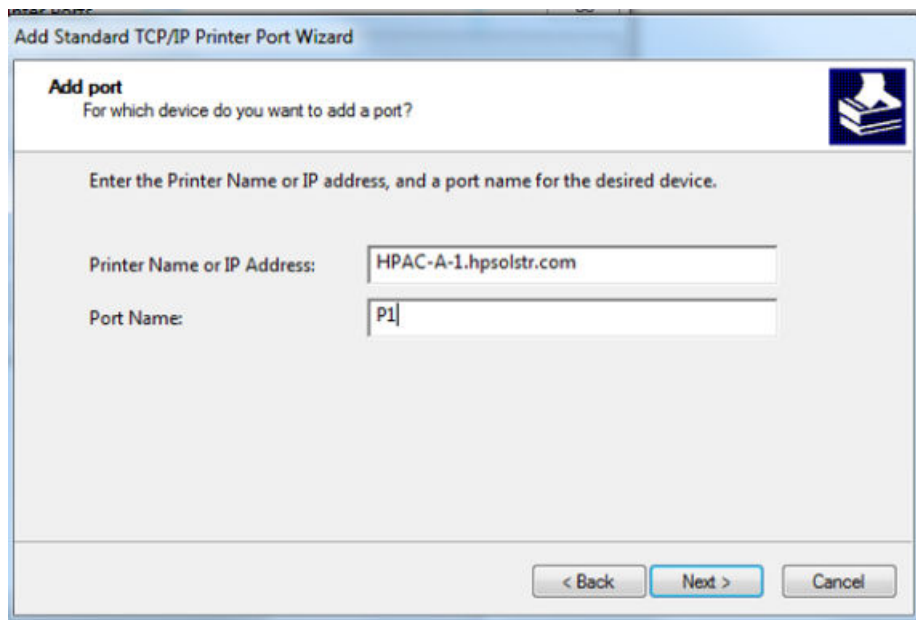
4. Click **Have Disk** and browse to the driver.



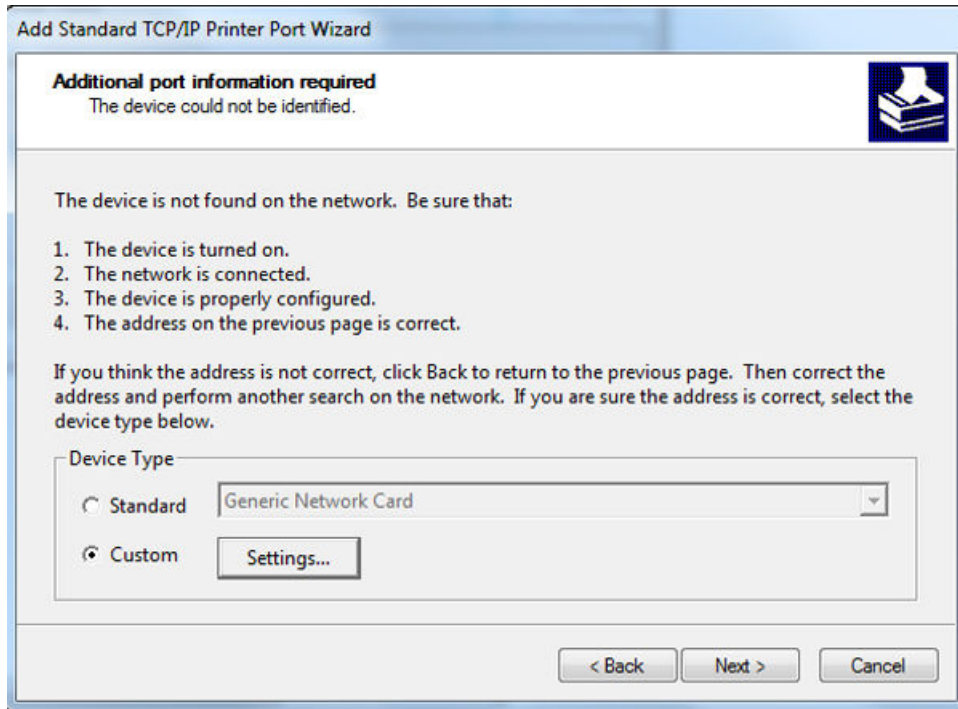
5. Go to the Ports node and right-click **Ports** and then click **Add Port**.



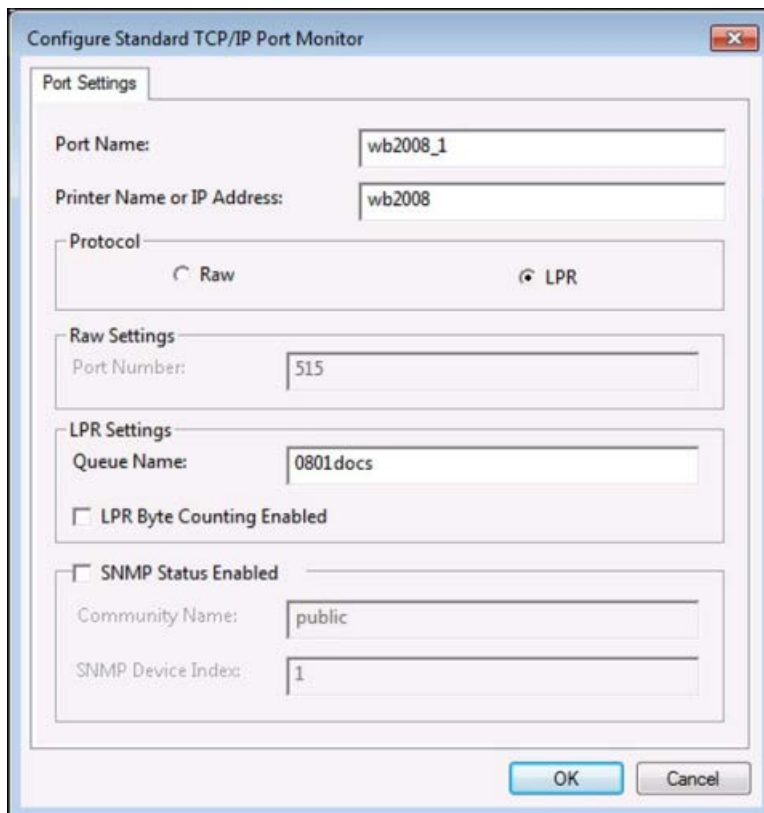
6. Select **Standard TCP/IP Port**, then click **New Port**. Click **Next** to continue with the Add Port wizard.
7. Enter **Printer Name or IP Address**. Enter a name for the **Port**. Click **Next**.



8. In the **Additional port information required** screen, select **Custom**, then click **Settings**

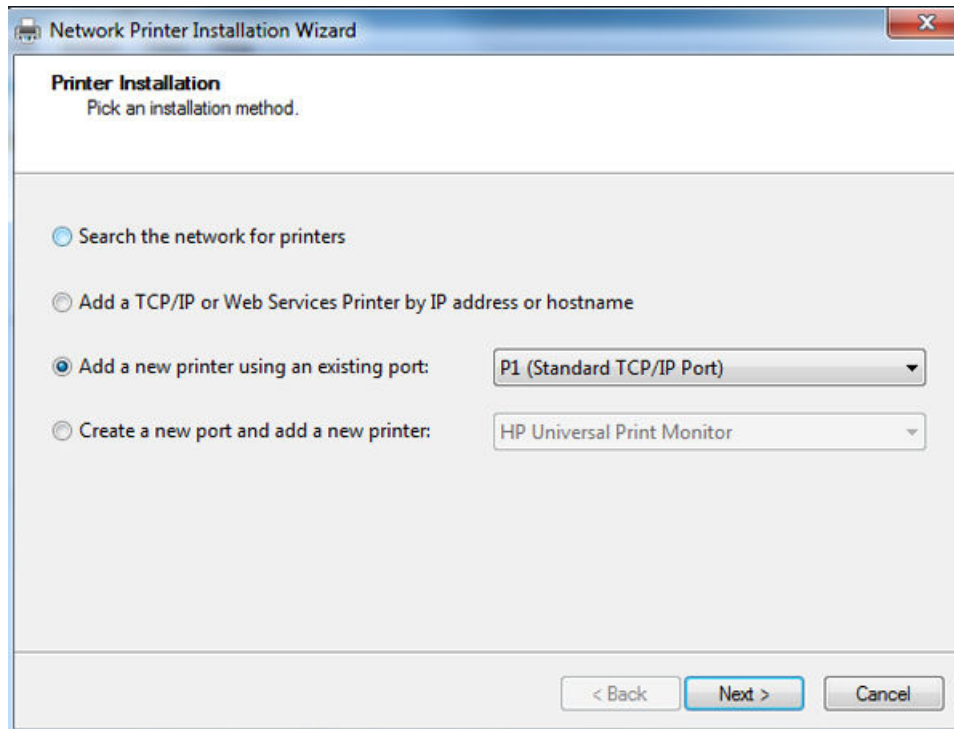


9. Under Raw Settings, select LPR. For Queue Name, enter the name of the pull print queue that was added through the HP AC configuration utility on the server. Click **OK**. Then click **Next**.

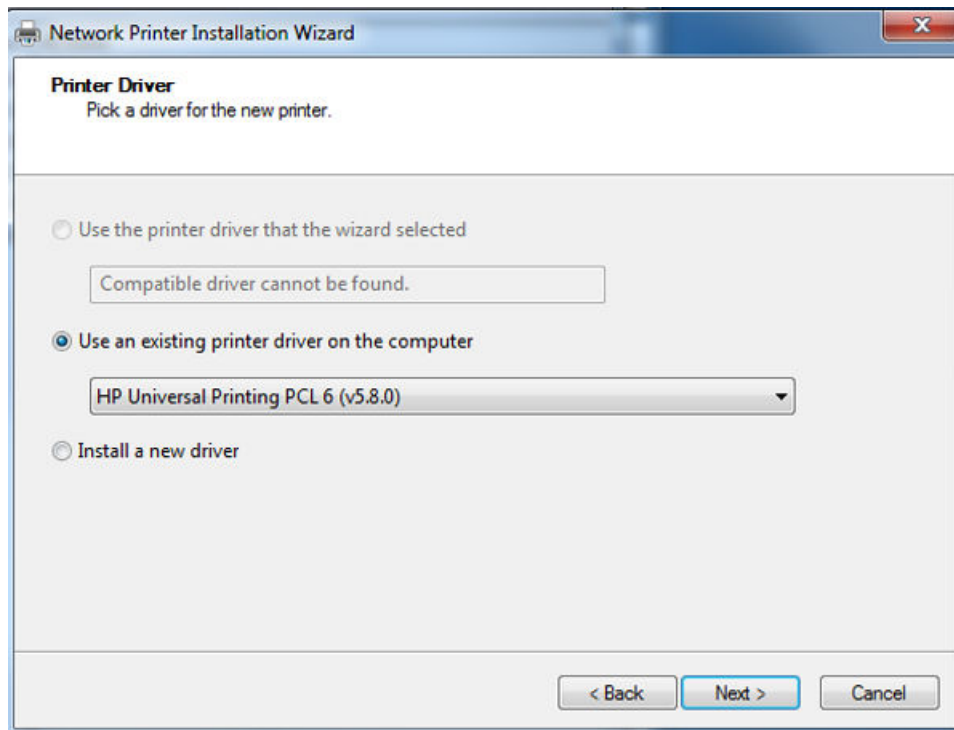


10. Click **Finish**.

11. Go to the Printers node and select **Add a printer**.
12. Choose **Add a new printer using an existing port** and select the port previously created.



13. Choose **Use an existing printer driver on the computer** and click **Next**.




14. After you've successfully added the printer, click **Finish**.

8.1.4 Add a traditional shared printer on the HP AC server

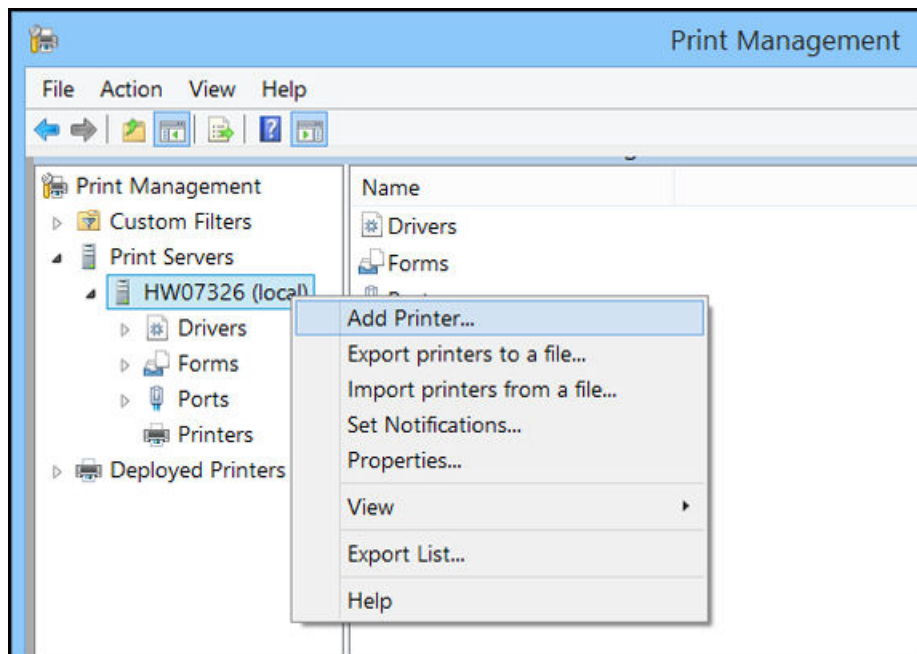
The purpose of this section is to outline the steps to utilize the HP AC Enterprise spooler in a point and print environment. This hybrid configuration is an option for customers who wish to utilize a standard Windows point and print queue vs. the Enterprise Print Queue. Implementing this method will restrict the number of supported devices to the number of devices supported by the Windows print server.

 **NOTE:** If encryption at rest is required use of the SPP Enterprise Port is required. Please review [Section 8.1.5, Installing a shared printer with the HP AC Secure Pull Print Port](#)

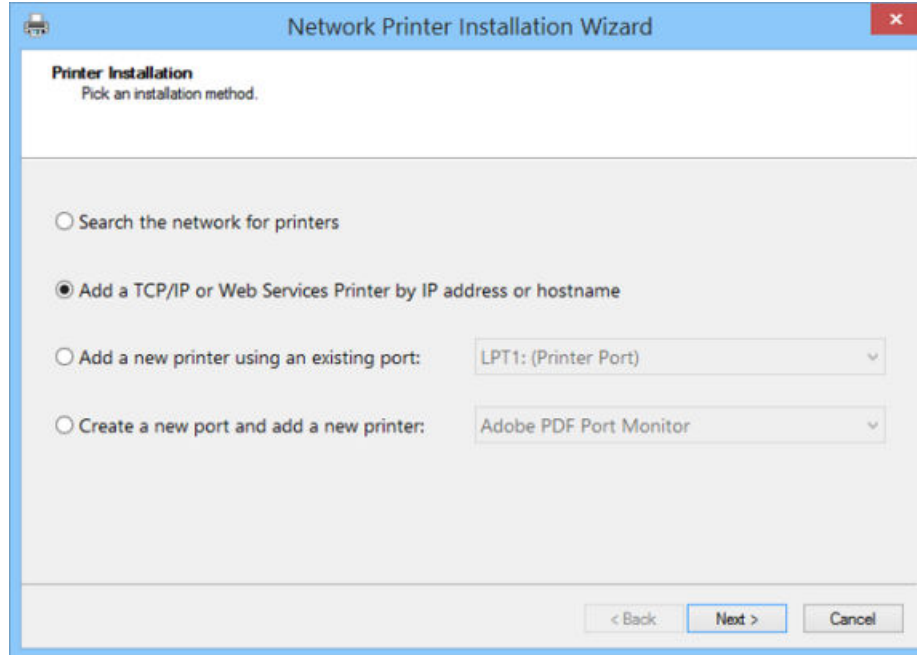
 **NOTE:** If the Windows feature "Internet Printing" is installed on the HP AC server and a local printer is named the same as a website in IIS, the IIS website will be deleted. For example, if a printer is named "PullPrint", then the IIS website "PullPrint" (which is the pull print application on devices) will be deleted. It is recommended to disable the Windows feature "Internet Printing" or rename the printer on the server.

Prerequisites

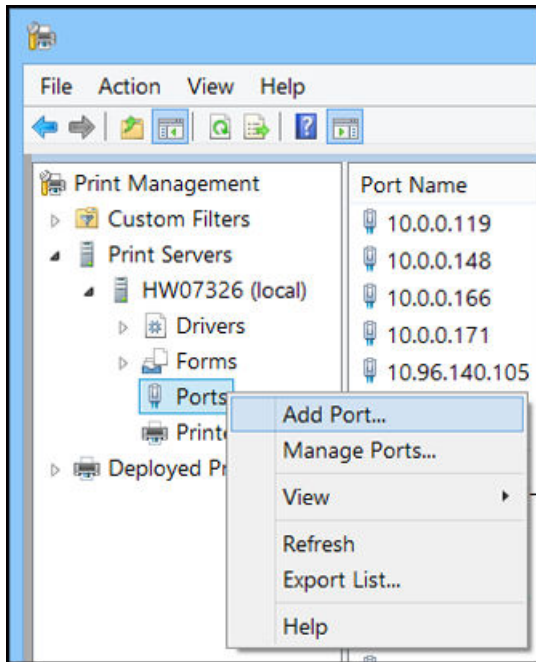
- Queue defined within the HP AC configuration utility in the PersonalQ tile > Admin > Add.
1. Add a direct IP print queue.
 - a. Open Print Manager: select **Start** and type **Print Management** in the **Search program and files** box.
 - b. Expand **Print Servers**, right-click on the local server and click **Add Printer**.



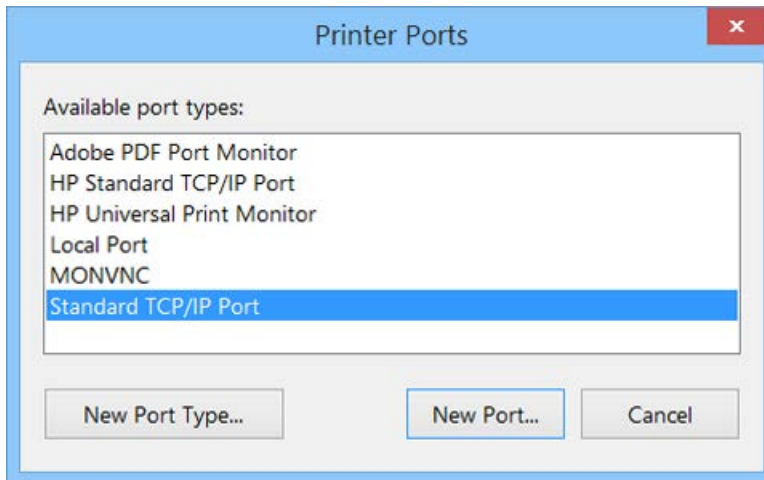
- c. Select **Add a TCP/IP or Web Service Printer by IP address or hostname** then select **Next**.



- d. Select **TCP/IP Device** from the drop down.
- e. Type the IP address of a LaserJet device.
- f. Create a name for the port to reflect an HP AC Pull Print port.
- g. Uncheck **Auto detect the printer driver to use**.
- h. Click **Next**.
- i. Select one of the driver options and click **Next**.
- j. Locate your Universal Print Driver and complete the installation.
- k. Be sure to share this printer with a name that reflects an HP AC Pull Print Queue.
2. Once the installation of the direct IP queue is complete, you will create a new LPR port that points to the HPAC print queue.
- a. In Print Management, right-click on **Ports** and select **Add Port**.



- b. Select a Standard TCP/IP Port and click **New Port**.



- c. Select **Next** on the wizard prompt.

- d. Under **Printer Name or IP address**: type the IP address of the HP AC server.

Add Standard TCP/IP Printer Port Wizard

Add port
For which device do you want to add a port?

Enter the Printer Name or IP address, and a port name for the desired device.

Printer Name or IP Address: 10.96.140.22

Port Name: 10.96.140.22

< Back Next > Cancel

- e. Under Port Name, assign a name that will reflect a pull print port then select **Next**.
- f. Select **Custom-Settings** on the **Additional port information required** window.

Add Standard TCP/IP Printer Port Wizard

Additional port information required
The device could not be identified.

The device is not found on the network. Be sure that:

1. The device is turned on.
2. The network is connected.
3. The device is properly configured.
4. The address on the previous page is correct.

If you think the address is not correct, click Back to return to the previous page. Then correct the address and perform another search on the network. If you are sure the address is correct, select the device type below.

Device Type

Standard Generic Network Card

Custom Settings...

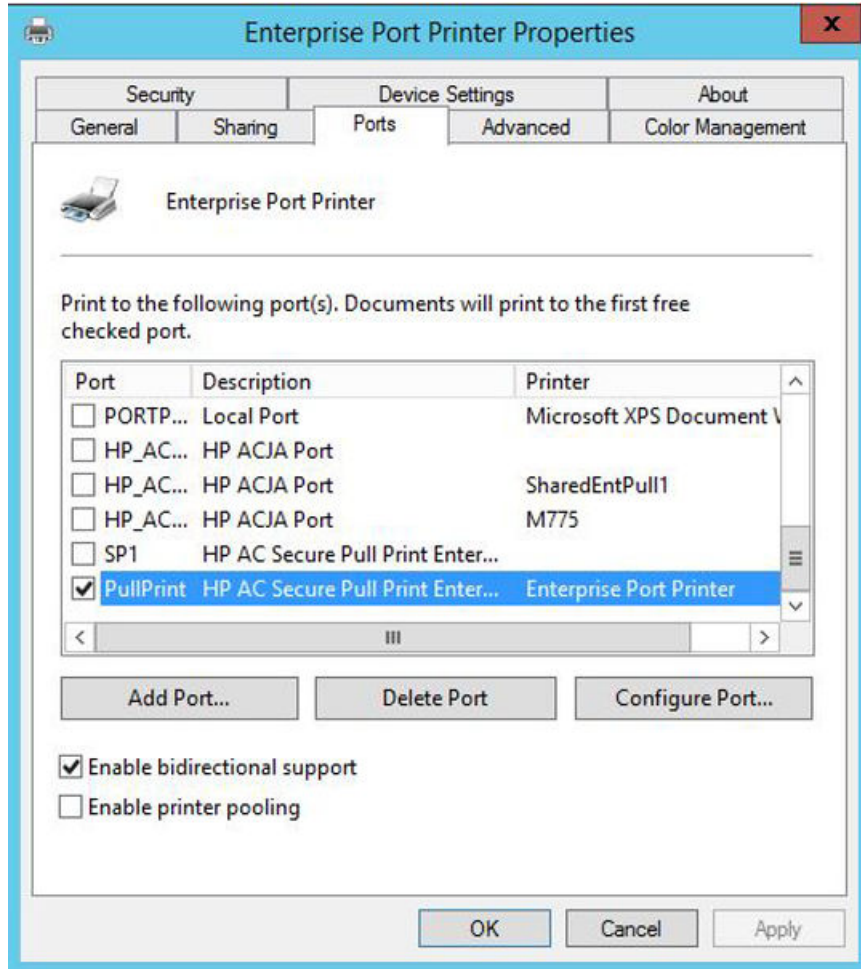
< Back Next > Cancel

- g. On the **Port Settings** tab change the **Raw Settings** port number to 515.

The screenshot shows a dialog box titled "Configure Standard TCP/IP Port Monitor" with a close button (X) in the top right corner. The "Port Settings" tab is selected. The "Port Name" and "Printer Name or IP Address" fields both contain the IP address "10.96.140.22". Under the "Protocol" section, the "LPR" radio button is selected. The "Raw Settings" section has a "Port Number" field containing "515". The "LPR Settings" section has a "Queue Name" field containing "MYDOCUMENTS" and an unchecked checkbox for "LPR Byte Counting Enabled". The "SNMP Status Enabled" section has an unchecked checkbox, a "Community Name" field containing "public", and an "SNMP Device Index" field containing "1". "OK" and "Cancel" buttons are located at the bottom right of the dialog.

- h. Under **Protocol**, change to **LPR**.
- i. Under LPR settings, add the HP AC Enterprise queue name that is created in the HP AC Enterprise server. Select **OK** to complete.
- j. Select **Next** on the **Additional port information required** window.
- k. Select **Finish** and close the printer ports window.
3. Assign the LPR port to the Pull Print queue. Now that the port is created, it needs to be assigned to the print queue.
- a. Right-click on the original TCP/IP printer that was created in the first section of this document and select the **Ports** tab.

- b. Place a check mark next to the LPR port you created in section 2 and then click **OK**.



- c. Select the **General** tab and print a test page.
- d. Verify the test page has printed by navigating to the PersonalQ tile in the HP AC admin console.
- e. Once again, verify that this print queue is shared.

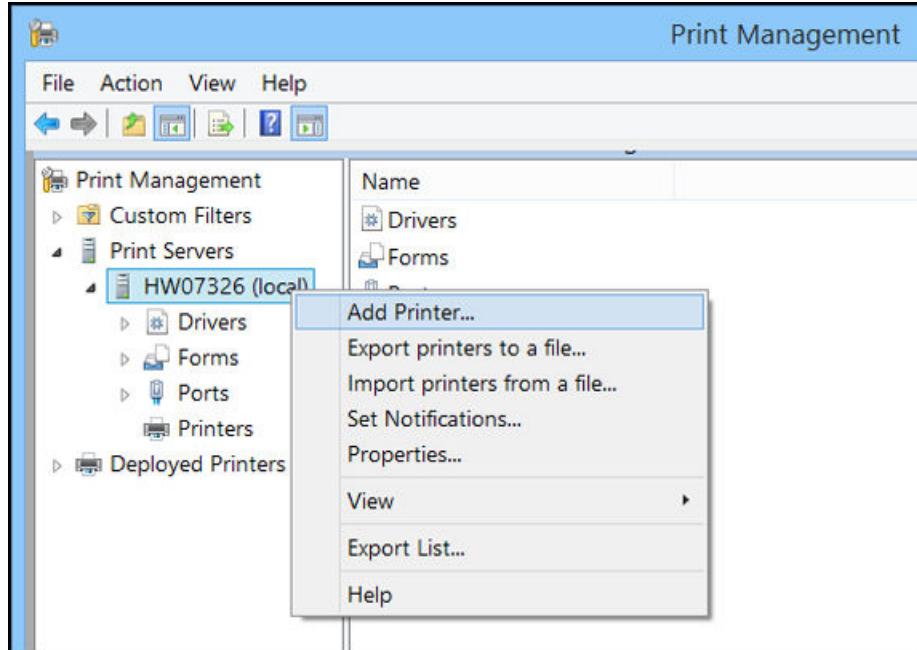
Now the queue is ready for clients to connect to. It will be up to administrators to decide on a particular option for client deployment.

8.1.5 Installing a shared printer with the HP AC Secure Pull Print Port

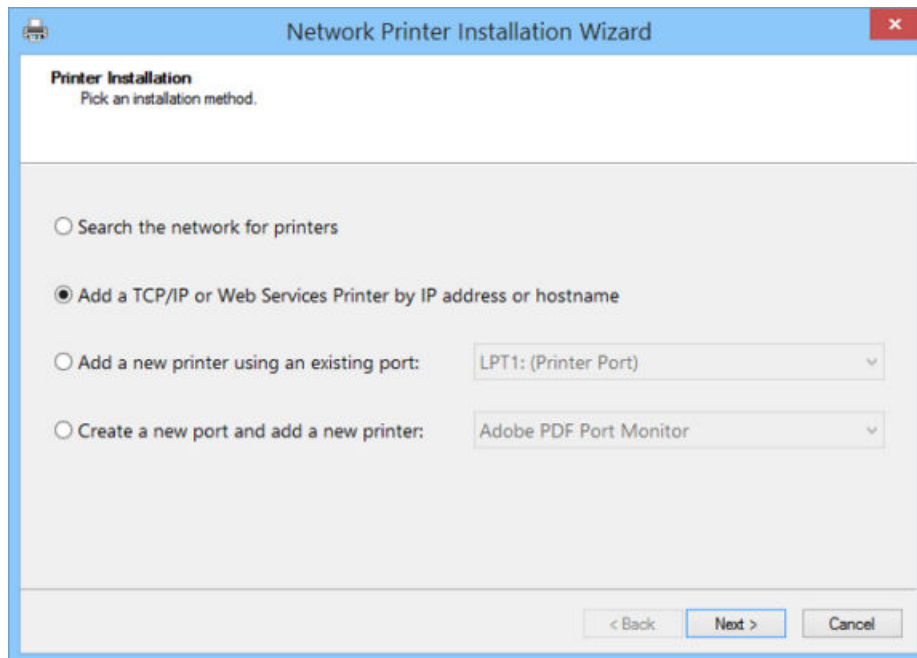
Prerequisites

- Queue defined within the HP AC configuration utility in the PersonalQ tile > Admin > Add.
- 1. Add a direct IP print queue on the HP AC server.
 - a. Open Print Manager: select **Start** and type **Print Management** in the **Search program and files** box.

- b. Expand **Print Servers**, right-click on the local server and click **Add Printer**.



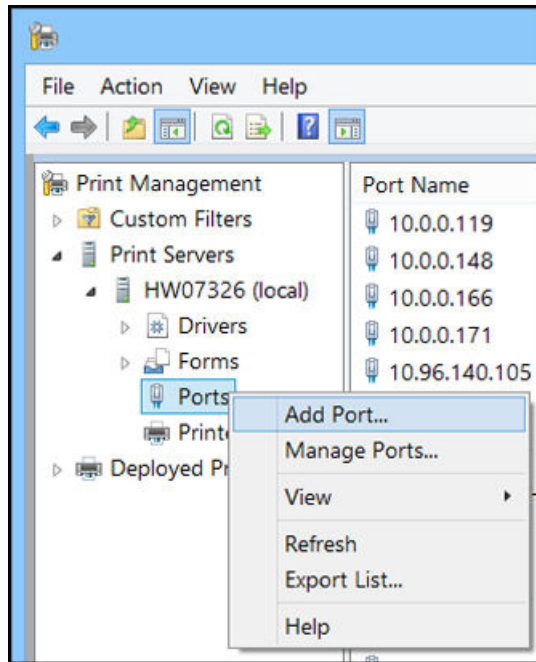
- c. Select **Add a TCP/IP or Web Service Printer by IP address or hostname** then select **Next**.



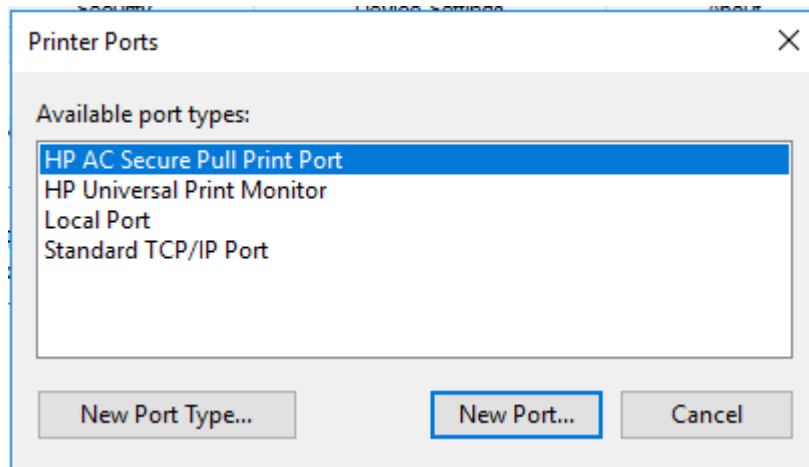
- d. Select **TCP/IP Device** from the drop down.

The screenshot shows the 'Network Printer Installation Wizard' dialog box. The title bar is blue with a red close button. The main area is white with a blue border. The heading 'Printer Address' is in bold, followed by the instruction 'You can type the printer's network name or IP address.' Below this, there are three input fields: 'Type of Device' is a dropdown menu set to 'TCP/IP Device'; 'Host name or IP address' is a text box containing '10.96.140.70'; and 'Port name' is a text box containing '10.96.140.70'. There is a checked checkbox labeled 'Auto detect the printer driver to use.' At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

- e. Type the IP address of a LaserJet device.
- f. Create a name for the port to reflect an HP AC Pull Print port.
- g. Uncheck **Auto detect the printer driver to use**.
- h. Click **Next**.
- i. Select one of the driver options and click **Next**.
- j. Locate your Universal Print Driver and complete the installation.
- k. Be sure to share this printer with a name that reflects an HP AC Pull Print Queue.
2. Create an HP AC Secure Pull Print port. Once the installation of the direct IP queue is complete, you will create a new Pull Print port that points to the HP AC print queue.
- a. In Print Management, right-click on **Ports** and select **Add Port**.

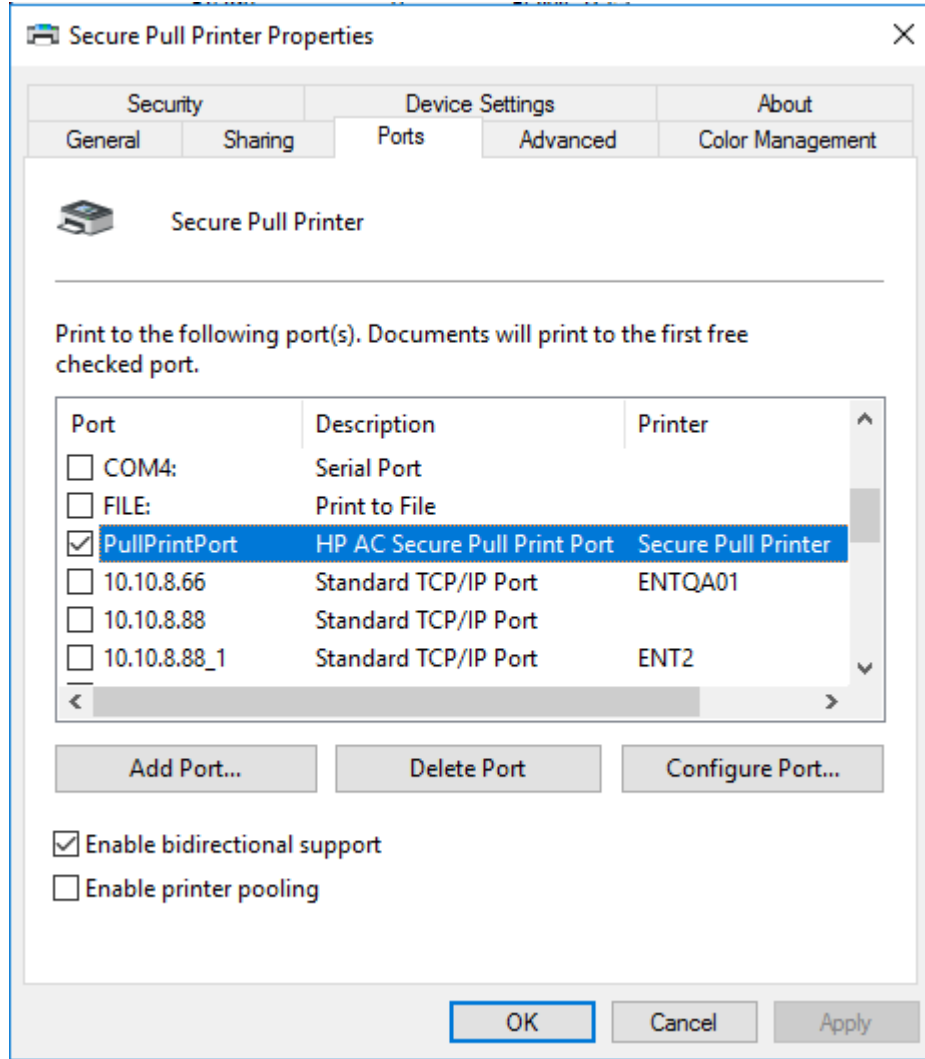


- b. Select **HP AC Secure Pull Print Port** and click **New Port**.



- c. Select **Next** on the wizard prompt.
 - d. Under **Port Name**, assign a name that will reflect a pull print port then select **OK**.
 - e. Close the printer ports window.
3. Assign the Pull Print port to the Pull Print queue. Now that the port is created, it needs to be assigned to the print queue.
 - a. In the Printer Properties window, select the **Ports** tab.

- b. Place a check mark next to the LPR port you previously created, and then Click **OK**.



- c. Select the **General** tab and print a test page.
d. Verify the test page has printed by navigating to the PersonalQ tile in the HP AC admin console.
e. Once again, verify that this print queue is shared.

Now the queue is ready for clients to connect to. It will be up to administrators to decide on a particular option for client deployment.


8.1.6 HP Access Control Express Print Client

Prerequisites

New client to install the following features on end-user client PCs:


- Encryption

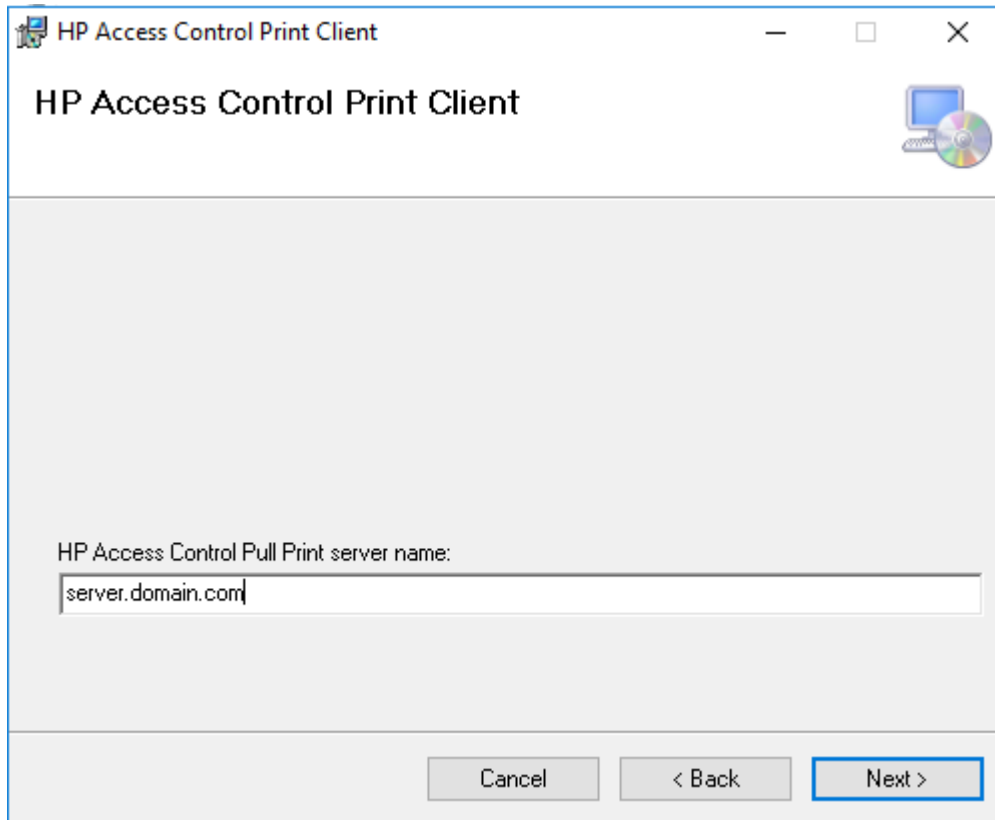
The Express Print Client can be installed on client computers to automatically configure installed printers to use encryption with an Express server. The server requires Pull Printing to be installed. The Print Client applies to all currently installed TCP/IP and LPD printers on the client computer

 **NOTE:** If **Encryption at rest** is enabled on the server, the encryption key will be automatically copied to the client registry upon installation of the Express Print Client.

 **NOTE:** The port will change to an HP_ACJA port in the queue.

1. Copy the HP Access Control Express Print Client (x64 or x86) setup file from the server (located in the HP AC installation zip file in the \clients folder) to the client computer, and then run the file.
2. Follow the instructions in the setup wizard. To use encryption, enter the Pull Print server name. Click **Next**.

 **NOTE:** In the server name fields, it is recommended to use the Fully Qualified Domain Name (FQDN) of the servers. This is recommended to avoid any issues with DNS resolution or if there are identical server names on different domains. If the FQDN is not used and there are communication issues between the client and server, the Express client will need to be reinstalled using the FQDN.



3. After the installation is complete, click **Close**.

 **NOTE:** If the encryption key on the server is changed, the Print Client must be reinstalled and the new encryption key must be entered.

8.1.7 HP Access Control Enterprise Print Client


Prerequisites

New client to install the following features on end-user client PCs:

- Quota
- Intelligent Print Management (IPM) for rules-based printing
- Delegation

- Encryption
- Local job storage for client-based pull printing

The Enterprise Print Client can be installed on client computers to automatically configure installed printers to use IPM rules, quota, delegate printing, local job storage, and encryption with an Enterprise server. The server requires IPM, Job Accounting, and/or Pull Printing to be installed. The Print Client applies to all currently installed TCP/IP and LPD printers on the client computer. With Local Job Storage, jobs are stored locally (in the Program Files\HP\HP Access Control Print Client\bin\pullsvc\spool folder) on client workstations and metadata regarding the job is sent to the server.

 **NOTE:** If **Encryption at rest** is enabled on the server, the encryption key will be automatically copied to the client registry upon installation of the Enterprise Print Client.

 **IMPORTANT:**

- If Local Job Storage will be installed, it is required that an SSL certificate is selected in HTTPS bindings. Go to the HP AC server > IIS Manager > Default Web Site > Bindings > HTTPS.
- If Encryption at Rest is enabled on the server, Client Passcode and Client Encryption Key are entered on the server, and Local Job Storage is installed on the client, the Client Passcode and Client Encryption Key will be used to secure job data, and the Encryption at Rest key will not be used.
- The install will convert all existing Standard TCP/IP ports to be compatible for IPM. Only install the client after the ports required to be monitored have been created on the PC clients.
- Ensure that Skip rules if network failure is enabled if you want to allow printing in the event that the network fails between the client PC and the server the HP Access Control IPM web service is running (Settings tile > IPM tab > IPM Web Service).

Prerequisites for IPM

- Intelligent Print Management must be installed on a HP Access Control Server.
- The client will convert Standard TCP/IP ports (LPR). IPP is not supported.

Prerequisites for Quota

- HP Access Control server configured for quota.
- The client will convert Standard TCP/IP ports (LPR). IPP is not supported.
- For quotas to be tracked, devices must be enabled for Tracking.
- Quota for print is enabled on the HP AC Job Accounting Server
- Device is configured for authentication to use quota limits for glass activities (copy and scan)
- Print driver installed as a traditional printer object. If using the HP Universal Print Driver, Dynamic mode is not supported as the print client cannot configure the print port for quota and will not know where jobs as sent as users choose the output device "on the fly"



NOTE:

- Ensure that messages are configured in the Settings tile>Agent tab. The message field will display the message on the front panel of the device when a user reaches their quota limit. The error message field will display on the front panel of the device when there is a communication error with the IRM quota webservice.
- The port will change to an HP_ACJA port in the queue.
- Ensure Skip Quota Control if network failure is enabled (Settings Tile>Print Server>Print Server Quota Web Service), otherwise users will not be able to print if communication between the device and the HP Access Control server is unavailable.
- Quota is checked at the beginning of a print job and not at every page and only updates after the printer has sent the job accounting information for the job to the HP Access Control Job Accounting server for processing. This means that users may at some point reach a negative quota status, for example when the amount of pages in a print job is bigger than the amount of pages in the remaining quota.
- When a user's quota is exceeded it will require manual intervention to reset if it happens before the quota period is reached.



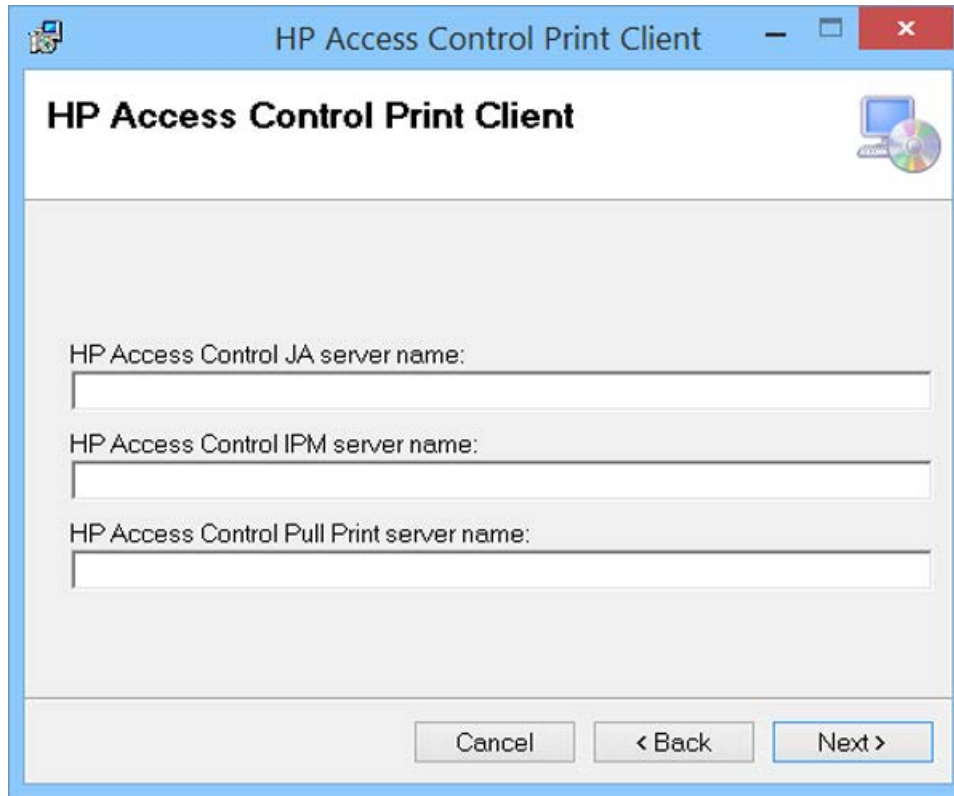
IMPORTANT: If you want to use delegate printing, SQL Server must be used for the IRM database. SQL Compact Edition is not supported with delegate printing. To create an IRM database in SQL Server, see [Section 5.4, Database storage](#). Also, in order to add delegate users, the users must be in the IRM database.

1. Copy the HP Access Control Print Client (x64 or x86) setup file from the server (located in the HP AC installation zip file in the \clients folder) to the client computer, then run the file.
2. Follow the instructions in the setup wizard. Enter the name(s) of the server(s) in the appropriate field. To use quota, enter the Job Accounting server name. To use IPM rules, enter the IPM server name. To use delegate printing, enter the Pull Print server name. Click **Next**.



NOTE:


- JA Server name: used for Quota | IPM Server name: used for IPM (rules) | Pull Print Server name: used for delegate printing.
 - In the server name fields, it is recommended to use the Fully Qualified Domain Name (FQDN) of the servers. This is recommended to avoid any issues with DNS resolution or if there are identical server names on different domains. If the FQDN is not used and there are communication issues between the client and server, the Enterprise client will need to be reinstalled using the FQDN.
-



3. On the Configuration screen, select which components you want to configure on installed printers. Click **Next**.
4. After the installation is complete, click **Close**.

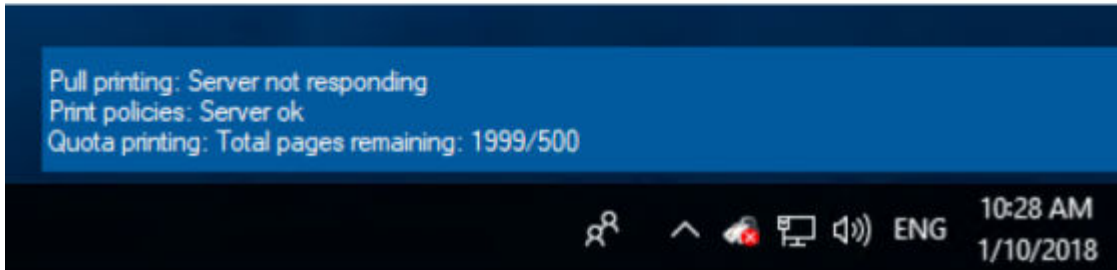
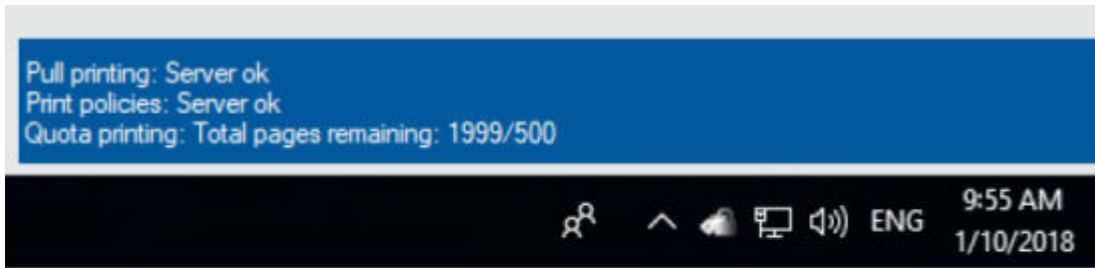
 **NOTE:**

- Delegate applies to all currently installed LPR printers on the client workstation. Before installing delegate on client workstations, make sure LPR pull print queues are installed.
- If you want to add or remove features in the Print Client later, the Print Client must be reinstalled.
- If the encryption key on the server is changed, the Print Client must be reinstalled and the new encryption key must be entered.
- The Print Client will automatically install the Microsoft .NET Framework on the client workstation.
- If Delegate is selected and installed on client workstations, users will have to log off and then log back on in order for the Delegate popup to work.

 **TIP:** The error message that displays on the delegate web page when a user is not registered in the database can be edited. On the pull printing server, go to the Program Files\HP\HP Access Control\DelegateWS folder and open the web.config file to edit. On the key="UserError" line, change the value to your preferred message.

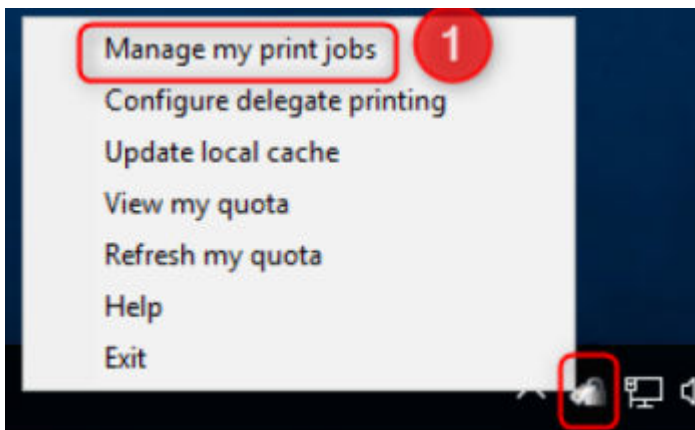
8.1.7.1 Check Status

To view the current status of the connection to servers you can left-click the lock icon in the Systray to view.



8.1.7.2 Manage my print jobs

1. Right-click the lock icon in the Systray and select **Manage my print jobs**. Only the documents for the user who is logged-in will display.



2. Enter the destination IP address for the device.
3. Select documents to print/delete.
4. Select an option:

- **Print:** The document will print.

 **NOTE:** If the Delete checkbox is unselected, the document will be retained.

- **Delete:** The document will be deleted.
- **Refresh:** The document list will be refreshed.

Number of documents:2

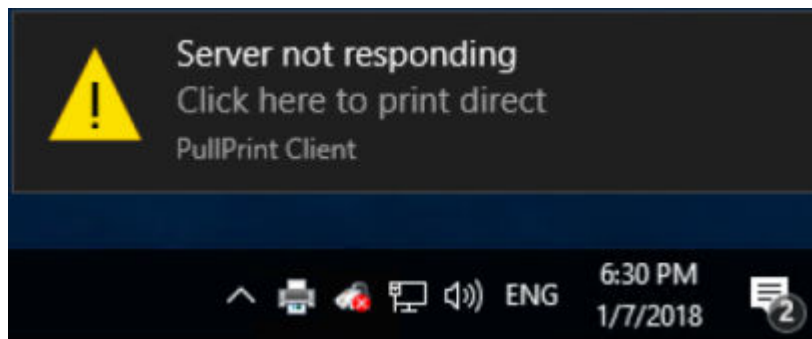
	Document name	Application	Pages	Size	Date
3	<input type="checkbox"/> Test Page	PULLSVC PULLPRINT	1	45	1/4/2018 8:32:03 PM
	<input type="checkbox"/> Test Page	PULLSVC PULLPRINT	1	45	1/4/2018 8:32:05 PM

2 Delete Print Delete Refresh

4

8.1.7.3 Direct Print Failover

1. When the connection to the server is lost, the Systray icon will show with an error. Click the Systray pop-up message, or right-click the lock icon and click **Manage my print jobs**.




2. Select any previous printers that you have submitted a job to.

 **NOTE:**

- You can only select a printer if you have printed to it from the workstation, or if you have used it for pull printing.
- The hostname/IP address/Location (if set by administrator) will represent the device.

3. Select the print job to submit.

4. Click **Print**.

 **NOTE:** This is a direct print job and no authentication will be required at the device.

	Document name	Pages	Date
▶	Test Page	1	1/7/2018 5:11 PM
3	Test Page	1	1/7/2018 5:13 PM
	Test Page	1	1/7/2018 5:13 PM
	Test Page	1	1/7/2018 5:22 PM
	Test Page	1	1/7/2018 5:30 PM

LJ525 (192.168.1.11) - Building 1 NW corner
Print

8.1.7.4 Delegate printing / Group printing

With delegate printing, users can print to a specified printer and have all print jobs be released by a different user. You add delegates through the delegate web page, and select who you want to delegate documents to at the time of printing.

8.1.7.4.1 Releasing delegate jobs

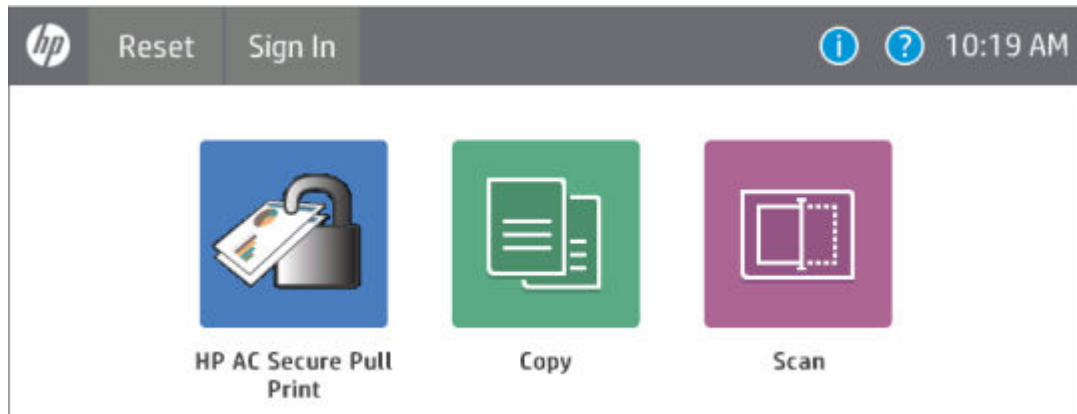
Prerequisites

- The printer is configured for Pull Printing and Authentication.
- A user has delegate pending jobs in the pull print queue.
- In the Settings tile > Pull Print, select your server and click **Configure**. Go to the General tab > Data Storage section; it must be set to SQL Server.

 **NOTE:** The MFP front panel screen may vary, depending on the printer model.

Complete the following steps:

1. At the device front panel, tap the HP AC application.



2. Authenticate at the device using either card, code, or Windows authentication.
3. Select documents from the document list. A delegate job is preceded with a (+) symbol.
4. Tap **Print-Delete** to print and then delete the document from the document list. Tap **Print-Keep** to print and keep the document in the document list.



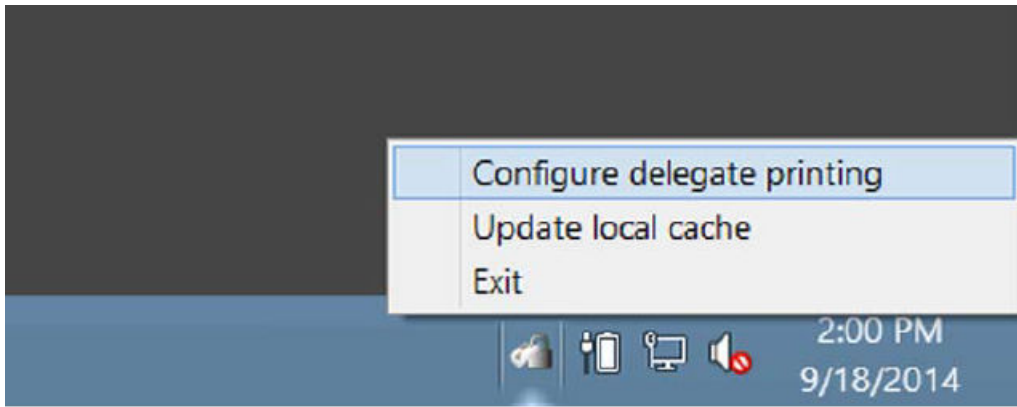
8.1.7.4.2 Configuring the Client for Delegate and Group printing

Prerequisites

- HP AC Print client installed on the client workstation. See [Section 8.1.7, HP Access Control Enterprise Print Client](#).
- The user must have been previously enrolled before they can be designated as a delegate.
- IRM must be set to use Database as the data storage.

Complete the following steps:

1. After the HP AC Print Client is installed on your workstation, the Secure Pull Print icon displays in the task bar. Right-click the icon and select **Configure delegate printing** to go the Delegate web page.



Before you can add a user for delegate printing, a group must be created. Groups allow for distribution to every member of the group, or sharing a copy amongst members of the group - which means the first user who deletes the document makes it no longer available to other members of the group.

2. Follow the steps below to create a group and assign users. In the **Group** field, type a name for the group. In the **Description** field, enter a description to identify the group.
 - a. Select the **Distribution** checkbox if you want every member of your group to receive their own copy of your delegated documents.

John Doe

Delegate	Settings
-----------------	-----------------

Groups

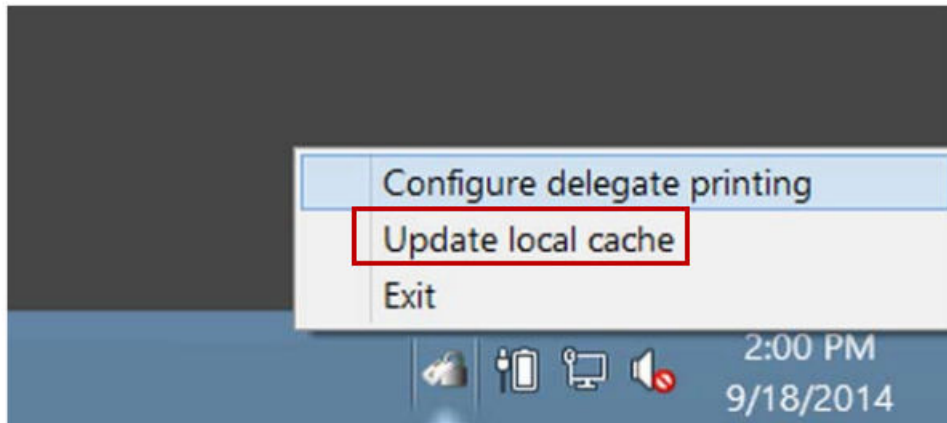
Group	<input type="text" value="Quality"/>	<input type="button" value="Add"/>
Description	<input type="text"/>	
Distribution	<input checked="" type="checkbox"/>	

- b. If **Distribution** is not selected, all members of the group will share your delegated documents. For example, if it's not selected and you delegate a document to the group, as soon as one user deletes the document, the document is no longer available to the rest of the members. Click **Add**.

Group	Description	Distribution
Quality		<input checked="" type="checkbox"/>

Login	Name	Domain	Email
williamb	William Bla	tech.com	williamb@tech.com

3. After a group is created, the Users section displays. In the **User / Email** field, enter the name or email address of the user you want to add to the group. Click **Test** to verify the user exists in the database. Click **Add** to add the user to the selected group.
4. Right-click the Secure Pull Print icon (in the taskbar), and click **Update Local cache**.

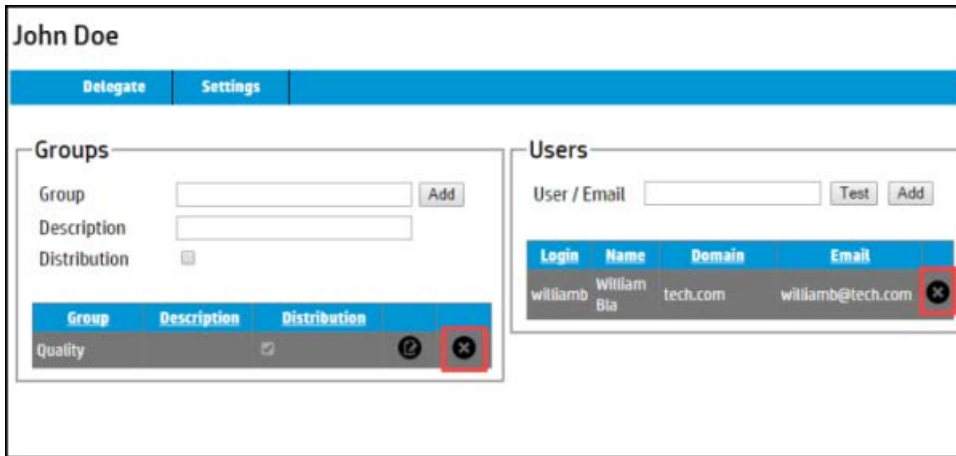


NOTE: Group information can be changed at any time. Click the Edit icon next to the group to edit the group name, description, and/or distribution setting. Right-click the Secure Pull Print icon in the taskbar, then click **Update local cache**.

8.1.7.4.3 Deleting a delegate user or group

To delete a user or group, complete the following steps:

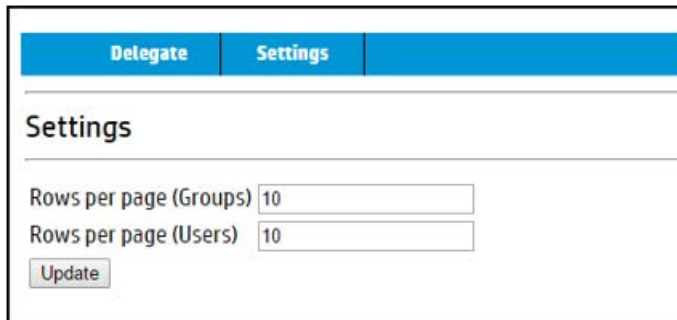
1. Select the user or group you want to delete and select the delete icon.



2. Right-click the Secure Pull Print icon in the task bar and click **Update local cache**.

8.1.7.4.4 Managing the Display of the delegate web page

1. Click **Settings** to manage the display settings on the delegate web page. The **Rows per page (Groups)** field determines the number of group names you want to display per page. The **Rows per page (Users)** field determines the number of user names you want to display per page.
2. Click **Update**.

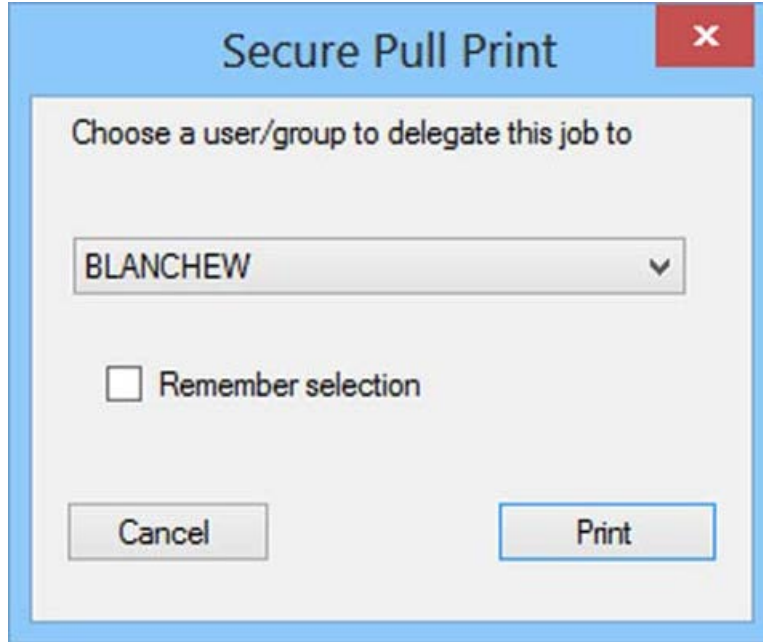


8.1.7.4.5 Delegating documents

Once you have assigned users, it is easy to delegate documents:

1. Click **Print** to print your document.
2. Select a printer recommended by your administrator.
3. Click **OK**.

4. In the delegate printing dialog prompt, select a user or group to delegate to and then click **Print**.



5. The user or group you selected can now collect your document at the printer.

 **NOTE:** When the **Cancel** button is selected, the job will be cancelled and will not print.

 **NOTE:** If a user does not have a delegate group, the popup will not display.

 **TIP:**

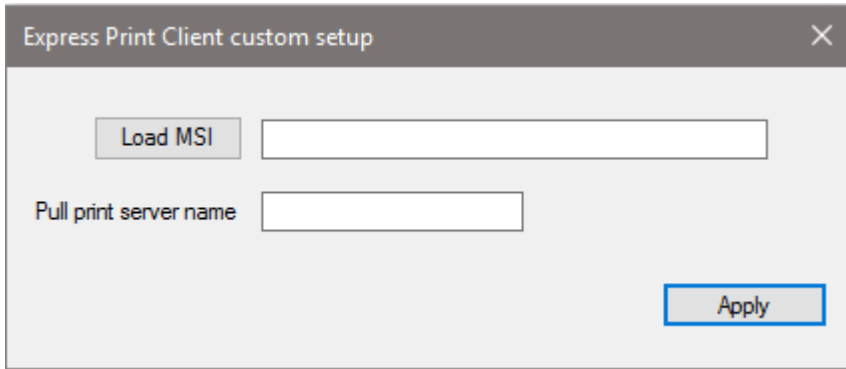
- Enable the **Remember selection** option if you want the dialog to appear with the last selected user or group the next time you print.
- When pull printing with SPP Enterprise, if a user has a mix of pull print jobs and shared delegated jobs, not all jobs will release at once if Print All is selected at the device. The user must select Print All to print all pull print jobs and then select Print All again to print all shared delegated jobs.

8.1.8 Silent installation of the HP AC Express Print Client

To install HP AC Print Client in silent mode, use the Express Pull Print Custom Setup application in the HP AC installation zip file in the \clients folder.

Complete the following steps:

1. Open the Express Print Client Custom Setup application.



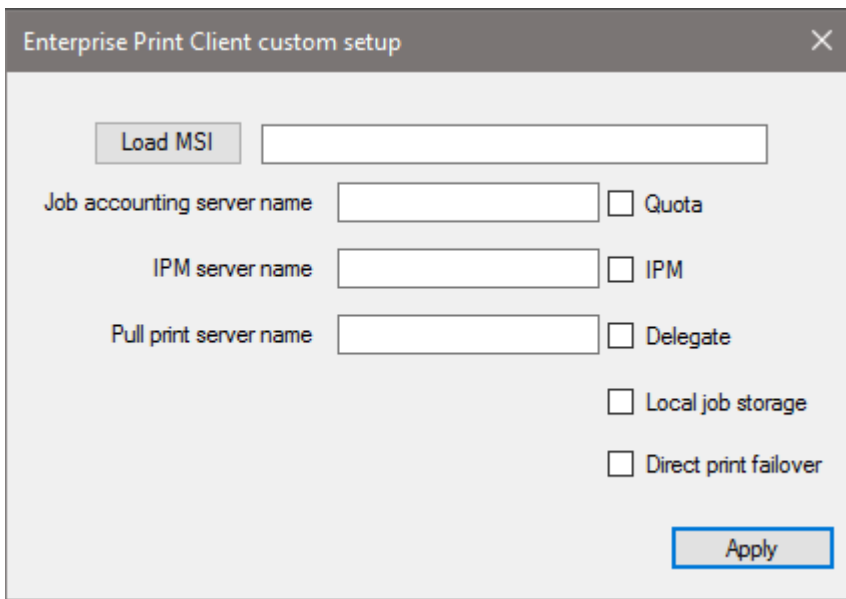
2. Click the **Load MSI** button to locate the HP AC Express Print Client.msi file. Click **Open**.
3. To encrypt print jobs, enter the Pull Print server FQDN in the **Pull Print Server Name** field.
4. Click **Apply**. The HP AC Express Print Client.msi file can now be deployed to client computers with the fields pre-filled with server information.

8.1.9 Silent installation of the HP AC Enterprise Print client

To install HP AC Print Client in silent mode, use the Enterprise Pull Print Custom Setup application in the HP AC installation zip file in the \clients folder.

Complete the following steps:

1. Open the Enterprise Print Client Custom Setup application.



2. Click **Load MSI** button to locate the HP AC Print Client.msi file. Click **Open**.
3. To use quota, enter the Job Accounting server name and select the **Quota** box. To use IPM rules, enter the IPM server name and select the **IPM** box. To use delegate printing, enter the Pull Print server name and select the **Delegate** box. To store jobs locally on the client workstation, select the **Local job storage** box. And, to use the Direct Print Failover feature, select the **Direct Print Failover** box.

4. Click **Apply**. The HP AC Print Client.msi file can now be deployed to client computers with the fields pre-filled with server information.
5. To test the notification on the HP AC server > Settings tile > IPM tab under desktop notification client enter the title for the test rule and enter the FQDN or IP address of the client you want to send a notification too. Click **Apply** and Test.

8.1.10 Quota Notification

Notification for end users on their quota status is either through the Quota Client or the MyQuota website. The quota client will display a printer icon on the system tray on the client PC to show the quota limit for the currently logged in user. The MyQuota website will show remaining quota for the user.

8.1.11 Quota Notification with Quota Client

Prerequisites

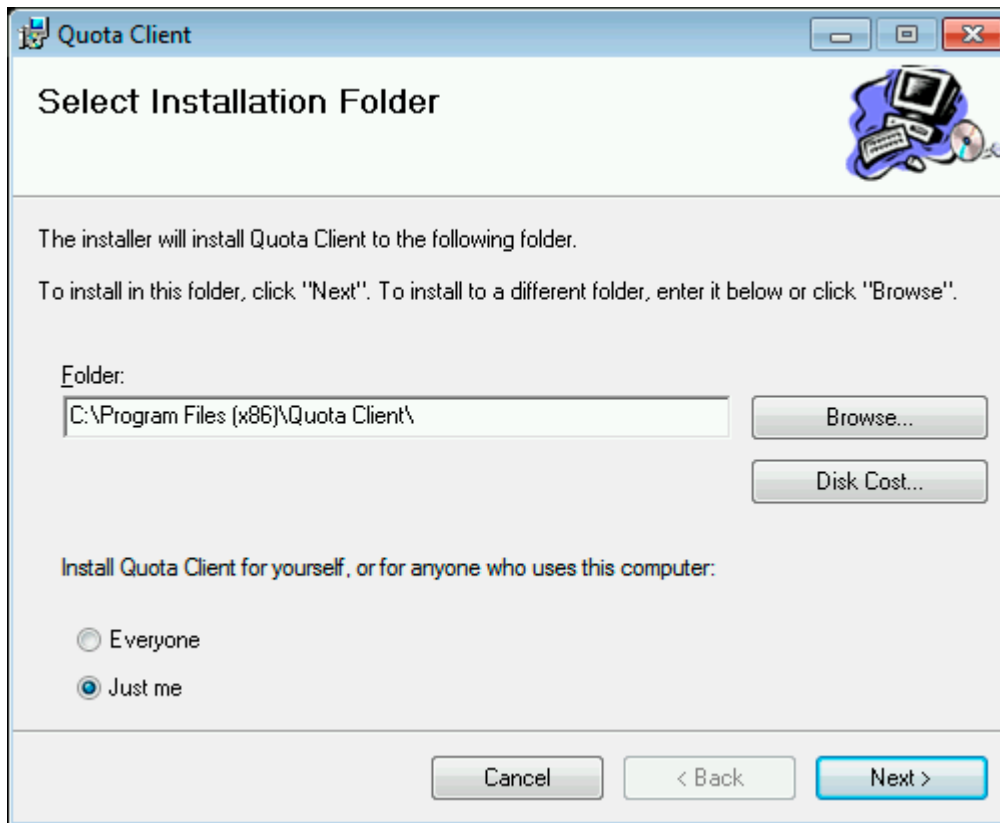
- HP Access Control server configured for quota, see [Section 4.2.9.4, Quota management](#)
- Printers configured for quota on the server

Complete the following steps:

1. Install the HP AC JA Quota Client (located in the HP AC installation zip file in the \clients folder) with administrator privileges.



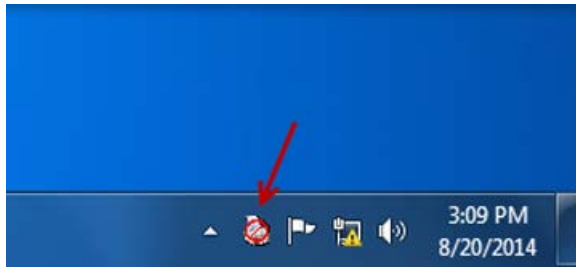
2. Select the installation folder and if the client is for use for everyone, or just the currently logged in user. Click **Next**.



3. Enter the server name or IP address where the HP Access Control Job Accounting Quota web service is installed. Click **Next**.



4. Click **Close**.
5. When a user exceeds quota for print the system tray icon will change to show that there are no remaining pages, and the user will not be able to print.



8.1.12 MyQuota

Prerequisites

- HP Access Control server configured for quota
- **HP AC Enterprise only:** HP Access Control Print client installed and configured for Quota

Users can check their remaining quota limits by accessing the server where the HP Access Control Job Accounting quota web service is running – <http://<servername>/myquota>

Quota

	Print	Copy
User name ue1		
Total pages remaining	0	4
Color pages remaining	0	2

8.2 Macintosh Clients

8.2.1 Adding a printer using LPR protocol

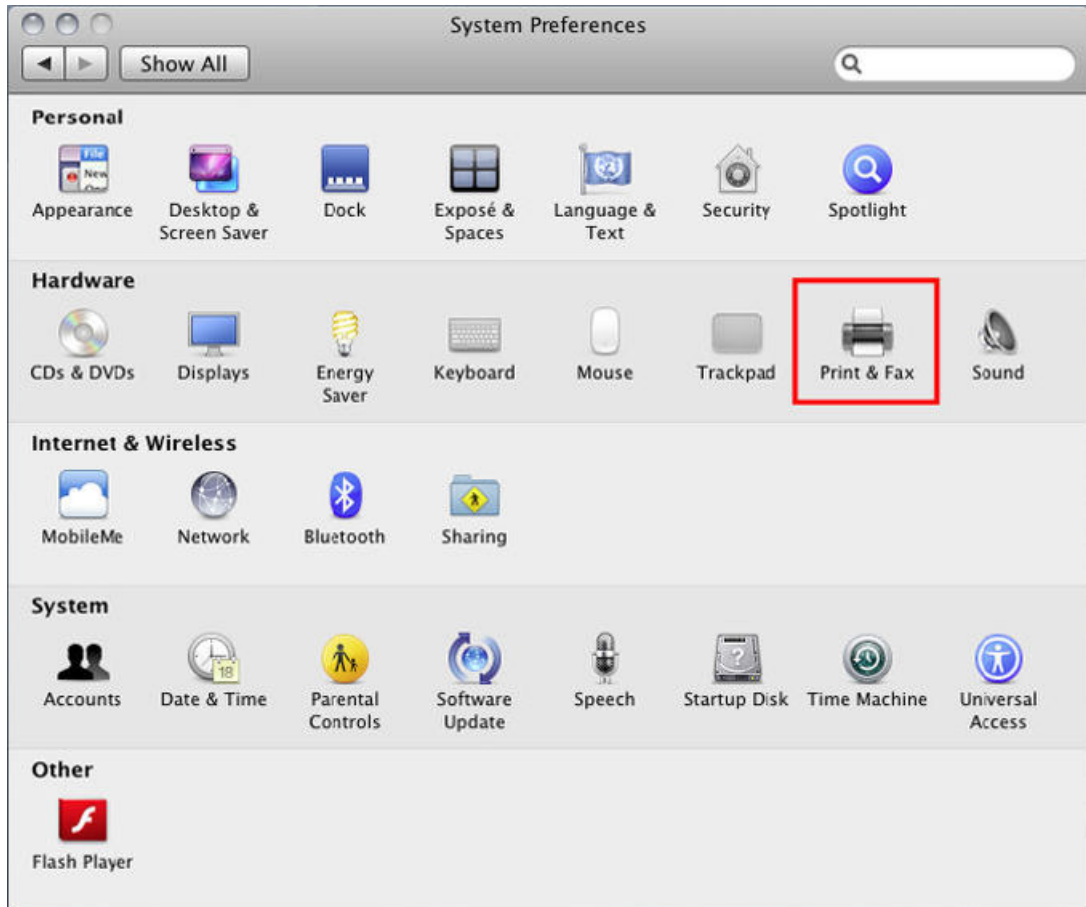
Prerequisites

- Make sure a pull print queue is created in the HPAC admin console > Device tile > Admin > Add > PersonalQ.

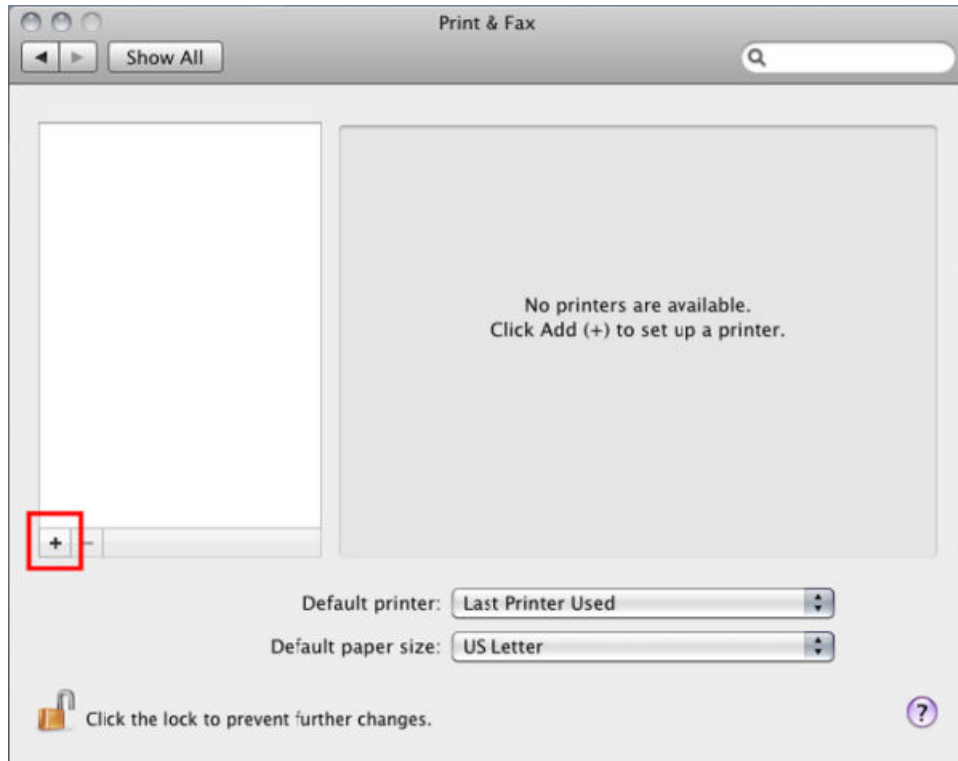
Local queues for pull printing is supported with HP AC SPP Enterprise only. Complete the following steps:

1. On the Mac computer, choose **System Preferences** from the Apple menu.

2. Choose **Print & Fax** from the View menu.



3. Click the + button to add a printer.



4. Click the IP tab at the top.

The image shows a window titled "Add" with three tabs: "Default", "IP", and "Windows". The "IP" tab is selected. At the top right of the window is a search bar with a magnifying glass icon and the text "Search". Below the tabs, there are three main sections of input fields:

- Address:** A text input field with the placeholder text "Enter host name or IP address."
- Protocol:** A dropdown menu currently showing "Line Printer Daemon - LPD".
- Queue:** A text input field with the placeholder text "Leave blank for default queue."

Below these fields are three more input fields:

- Name:** A text input field.
- Location:** A text input field.
- Use:** A dropdown menu.

An "Add" button is located at the bottom right of the window.

5. In the Protocol field, select **Line Printer Daemon - LPD** from the drop-down menu. In the Address field, type the name or IP address of the HP AC server. In the Queue field, type the name of the pull print queue.

The screenshot shows the 'Add' printer configuration window in macOS. The window has a title bar with 'Add' and a search bar. Below the title bar are three tabs: 'Default', 'IP', and 'Windows'. The 'IP' tab is selected. The main area contains two sections of form fields. The first section has 'Address: QA006' with a note 'Valid and complete host name or address.', 'Protocol: Line Printer Daemon - LPD' in a dropdown menu, and 'Queue: MYDOCS' in a text field with a note 'Leave blank for default queue.'. The second section has 'Name: QA006', 'Location:' (empty), and 'Use: Generic PostScript Printer' in a dropdown menu. An 'Add' button is at the bottom right.

6. Click **Add**. A window of installable options for the printer may display. Check these as appropriate for the printer.

8.2.2 Adding a shared pull print queue

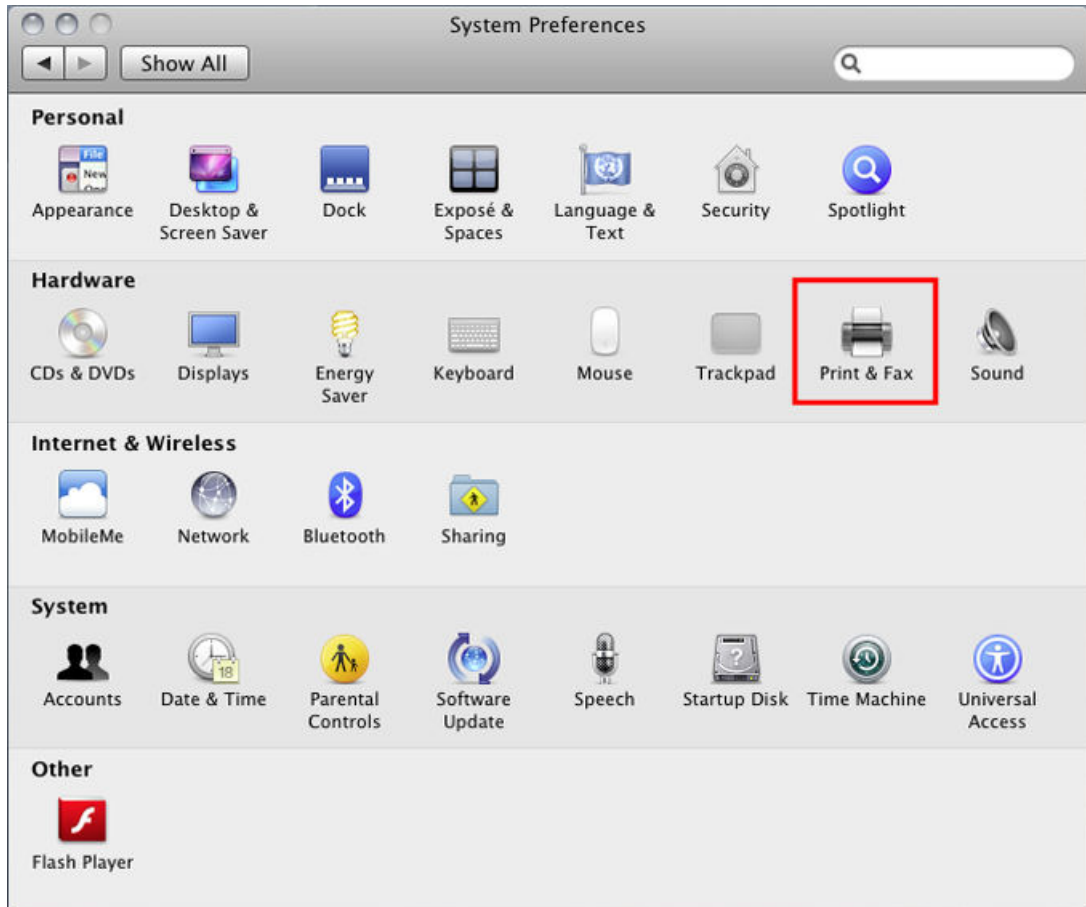
Prerequisites

- Mac OS 10.6.5 or newer.
- From the HP AC server, make sure the printer is configured for Add tracking PJI attributes in the HP AC Print Server tile.
- On the HP AC server, go to the Printer Properties window > Advanced tab and make sure **Start printing after last page is spooled** is selected.
- Use a printer driver that most closely matches the printer's capabilities. It is recommended to conduct tests before deployment to make sure job information is tracked correctly.

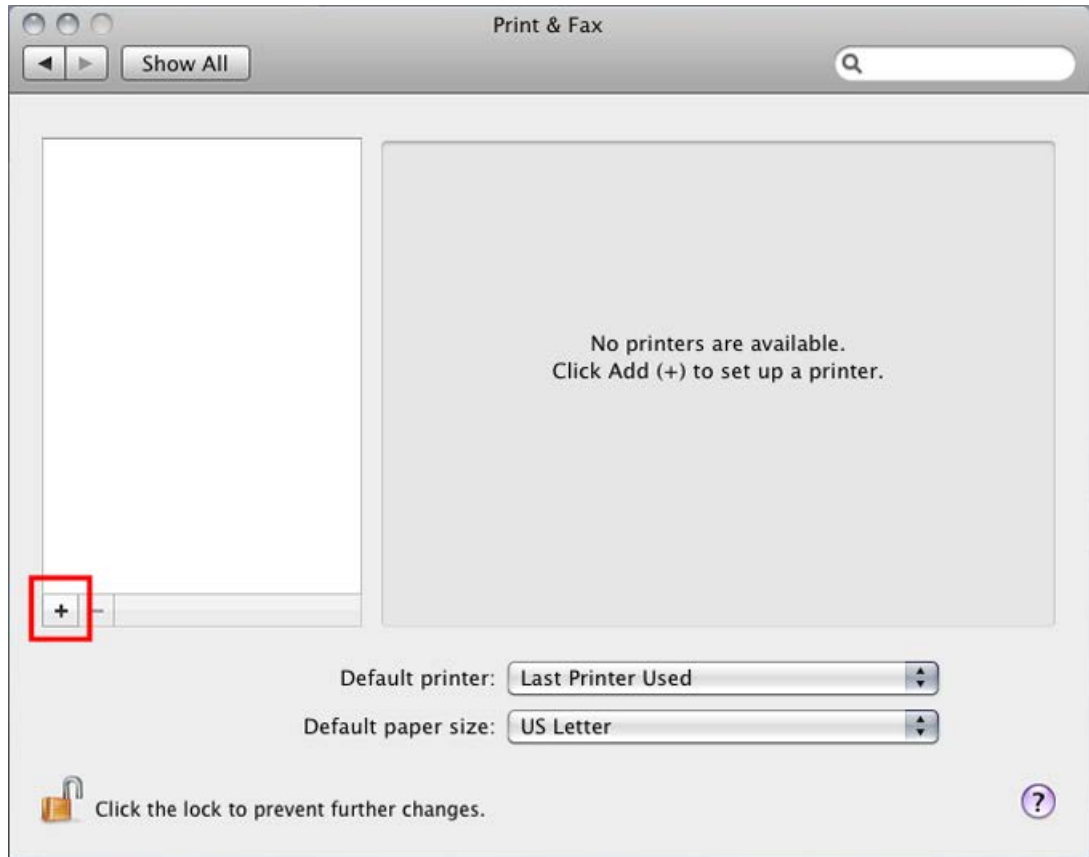
Complete the following steps:

1. On the HP AC server, do one of the following, depending on the pull print method:
 - Secure Pull Print: Add a printer on the server according to [Section 6.1.4, Adding pull print queues on the server](#). Make sure the printer is shared.
2. On the Mac computer, choose **System Preferences** from the **Apple** menu.

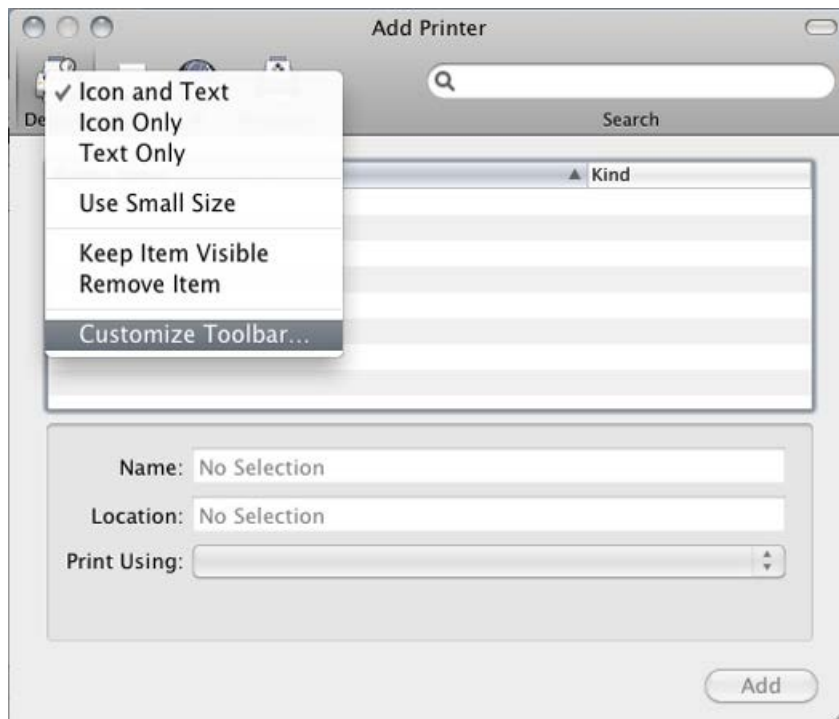
3. Choose **Print & Fax** from the **View** menu.



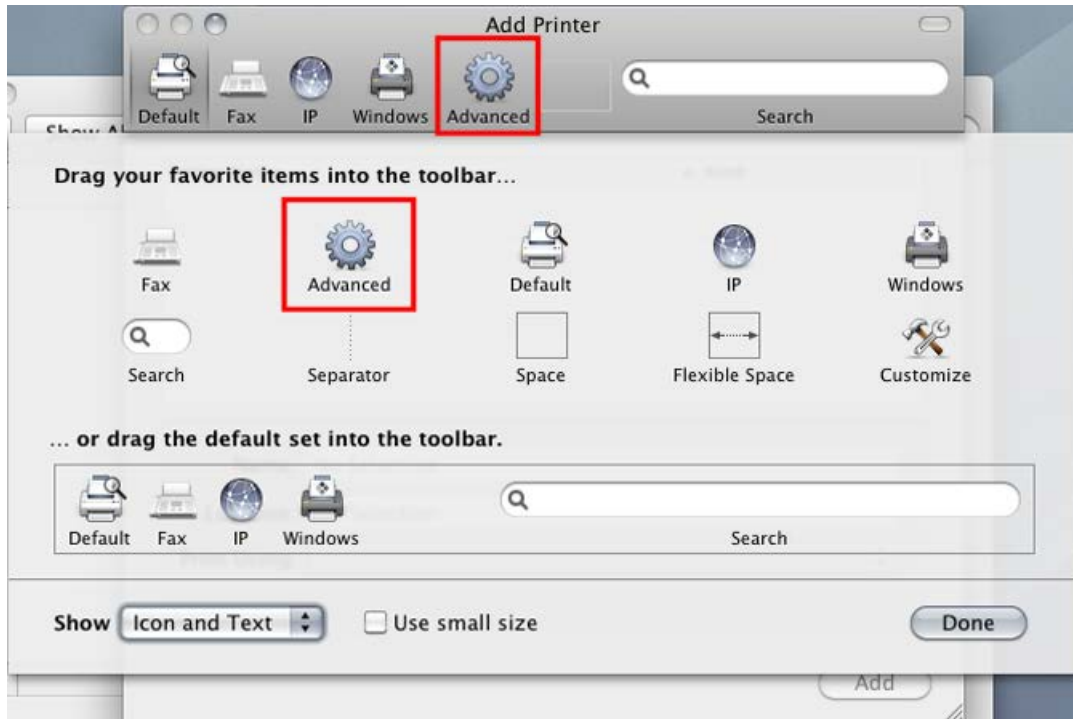
4. Click the + button to add a printer.



5. Press the Control key while clicking the "Default" icon (or any other icon on the toolbar), then choose **Customize Toolbar** from the contextual menu that appears.




6. Drag the Advanced (gear) icon to the toolbar.

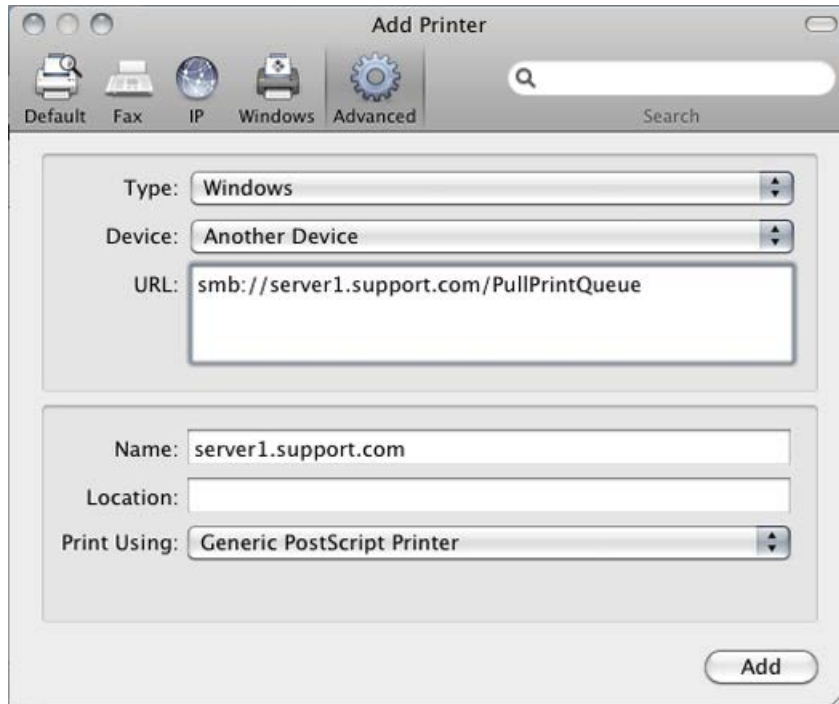


7. Click **Done**.
8. Click the **Advanced** icon that was added to the toolbar.
9. Choose **Windows** from the Type pop-up menu.

10. In the URL field, type the printer's address in one of the following formats:

smb://server/sharename

 **NOTE:** "server" is the name of the server sharing the printer (or its IP address). "sharename" is the shared printer's share name. If the share name contains spaces, replace each space with "%20" (without quotation marks).



11. In the Name field, type the name you would like to use for this printer in Mac OS X.
12. Choose the appropriate PPD or printer driver from the "Print Using" pop-up menu.
13. Click **Add**.

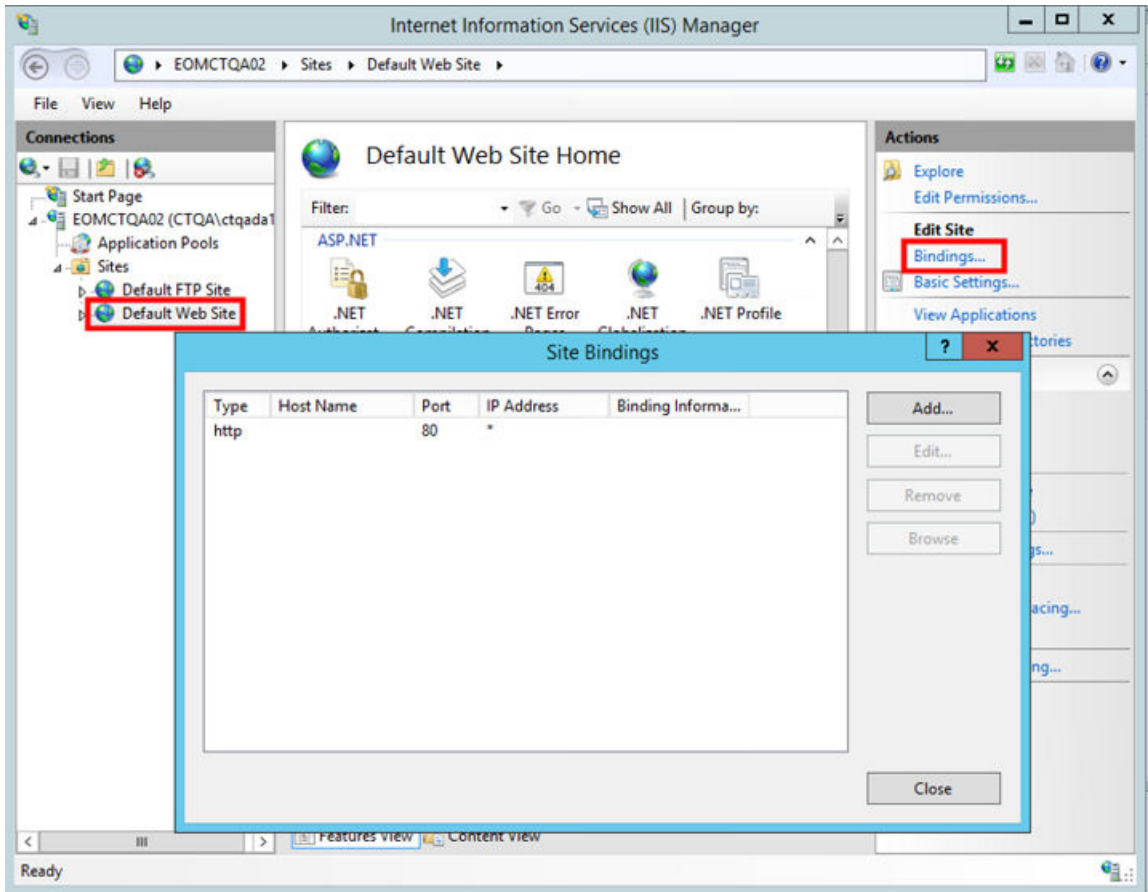
8.2.3 Mac encryption

Prerequisites:


- 1 HPAC server with IIS that is used for the normal Pull Print environment
- 1 HPAC pull printing only server with HTTPS disabled in IIS that will receive print jobs from Mac computers. This is because printing from a Mac computer requires the use of port 443. Therefore, IIS cannot also use port 443.
- The Mac machine has the certificate installed into the system Keychain.

Mac computers will print to the HPAC pull print only server and then will be redirected to another HP AC server (running IIS) to be stored in a pull print queue on that server.

1. On the pull print only server, open IIS manager and for the default web site, disable HTTPS.



2. Go to the \Program Files\HP\HP Access Control\spoolroot\prtr folder and create a new text file. The file name will be the name of the encryption queue on the pull print only server, and you will use this when creating the print queues on the Mac workstations.

 **NOTE:** Remove the .txt file extension.

3. Open the new file in Notepad and add the following text:

COMMTYPE = TCPIP/LRSQ

TCPHOST = server.domain.com

TCPPRTR = PullPrintQueue

TCRPORT = 5500

VPSX2VPSX = YES

ENCRYPT = YES

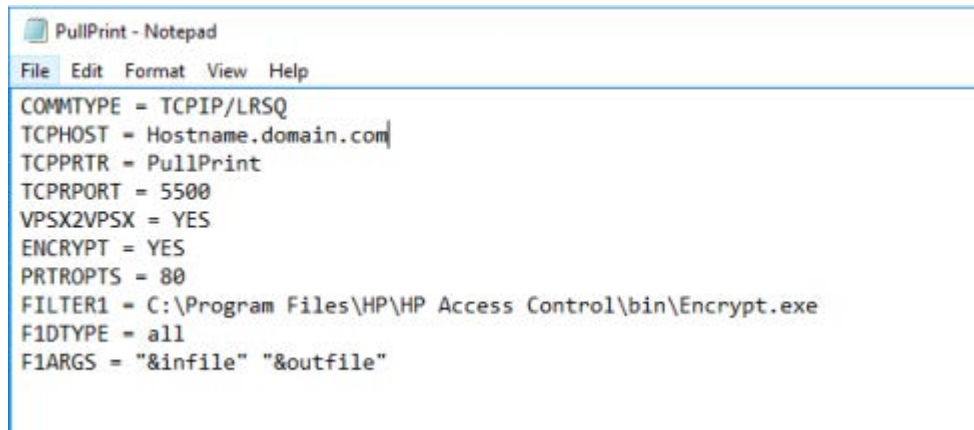
PRTROPTS = 80

FILTER1 = C:\Program Files\HP\HP Access Control\bin\Encrypt.exe

F1DTYPE = all

F1ARGS = "&infile" "&outfile"

 **NOTE:** TCPHOST is the name of the main HP AC server, TCPPRTR is the name of the pull print queue on the HP AC server, and FILTER1 is the path of the encryption filter.



```
COMMTYPE = TCPIP/LRSQ
TCPHOST = Hostname.domain.com
TCPPRTR = PullPrint
TCRPORT = 5500
VPSX2VPSX = YES
ENCRYPT = YES
PRTROPTS = 80
FILTER1 = C:\Program Files\HP\HP Access Control\bin\Encrypt.exe
F1DTYPE = all
F1ARGS = "&infile" "&outfile"
```

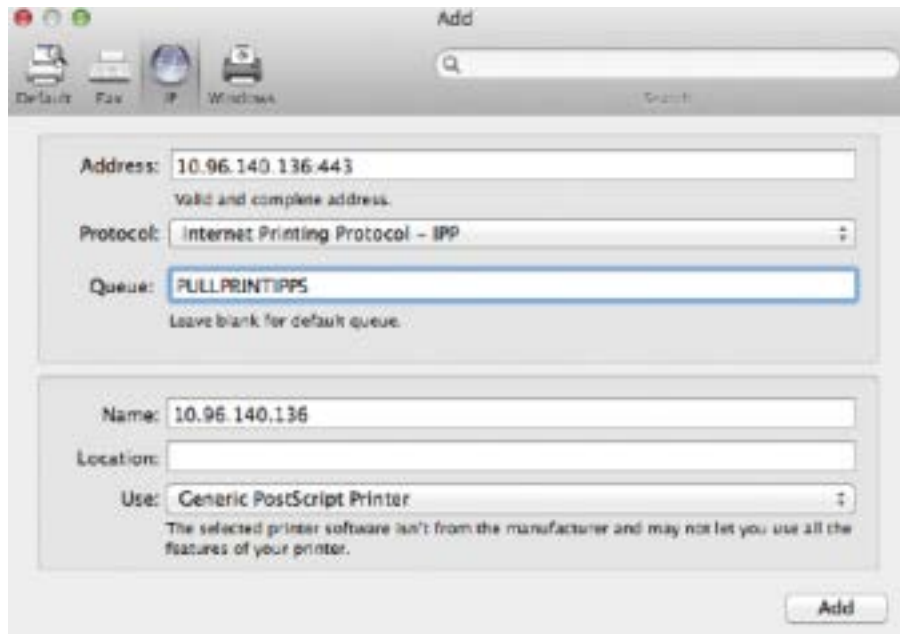
4. Go to the Settings tile > Spooler tab > Configure > General tab > in the "TCP/IP IPPS Port" field, enter "443". Click **Update**.

The screenshot shows the configuration interface for the Spooler. At the top, there are tabs for "Pull Print Enterprise", "Spooler", "Database", "IIS", and "User". Below these are "Update" and "Cancel" buttons. A note states: "* - Indicates Restart Required for Field Change". The "Server Name" is "EOM114" and the "Description" is "HP AC Print Server". There are tabs for "General", "SNMP", "Directories", "Servers", and "Advanced". The "General Parameters" section includes: "TCP/IP API Port" (5501), "TCP/IP LPD Port" (515), "TCP/IP LRSQ Port" (5500), "Expire Interval" (10 minutes), "TCP/IP IPP Port" (631), "TCP/IP IPPS Port" (443), and "Snap Expiration" (48 hours).

5. Go to the Settings tile > Pull Print > Configure > Advanced tab > Pull Printing Options section > enable "Encryption at rest" and enter an Encryption key.

The screenshot shows the "Pull Printing options" section. It includes a "CommType" dropdown set to "TCPIP/IPPS", "Job expires after" set to "24 Hours", and several checkboxes: "Retain 'Print-Keep' jobs beyond expiration" (unchecked), "Enable tracking of purged jobs" (checked), "Enable tracking of printed jobs" (unchecked), "Display all jobs" (unchecked), "QR Code" (unchecked), "PJI Parsing" (unchecked), and "Encryption at rest" (checked). The "Encryption key" field is highlighted with a red box and contains a series of dots.

6. On the Mac computer, add an IPPS printer to connect to the HPAC pull print only server via port 443 and enter the previously created queue name (e.g. PullPrintIPPS).



7. When the user prints from the Mac computer, the job will be sent to the PULLPRINTIPPS queue (as shown in this example), and the filter in the printer definition file will route the job to the HPAC server and be stored in the pull print queue, where users can retrieve the job and release at a printer.

8.3 HP Access Control Card Enrollment application

Prerequisites

- See [Section 2.8, Card Masking utility requirements.](#)

Install the Card Enrollment application to allow users to enroll their cards from a client PC.

Complete the following steps:

1. Copy the Card Enrollment installation file, located in the HP AC installation zip file in the \clients folder, to the client PC.
2. Run the Card Enrollment.msi file from the client PC.

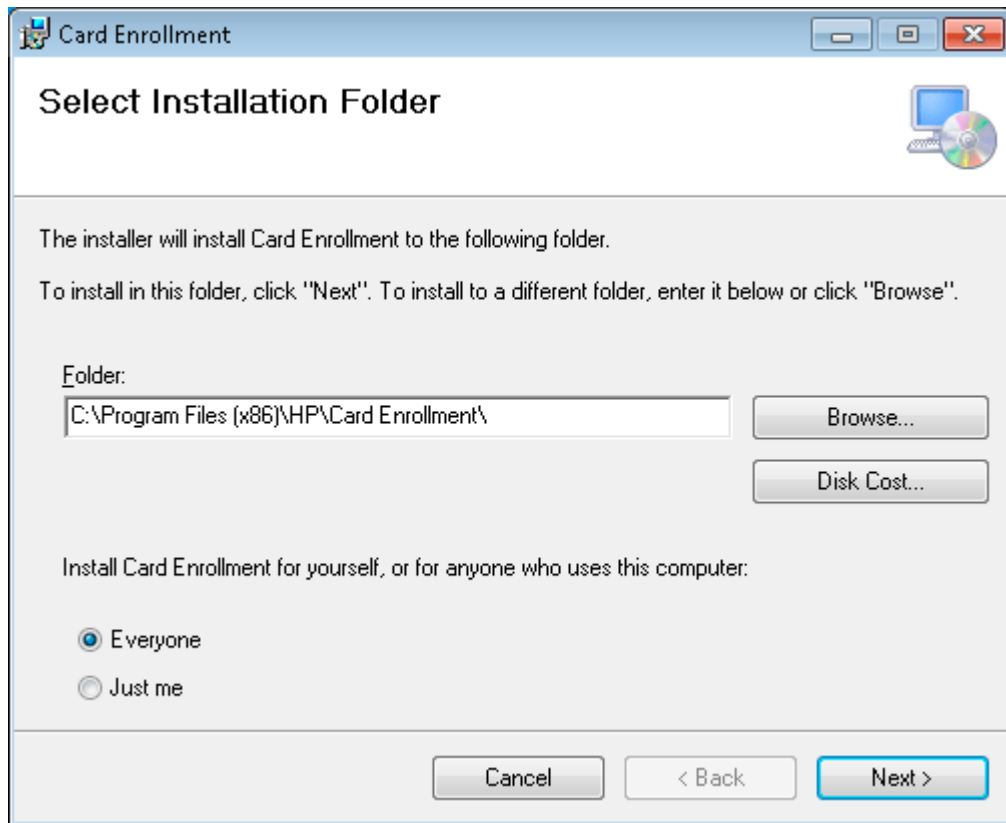
3. On the welcome screen, click **Next**.



4. On the Card Enrollment setup screen, enter the FQDN or IP address of the server that has IRM installed and click next.

 **NOTE:** Connecting to an IRM server is required to save user card data.

5. On the Select Installation Folder screen, verify the information is correct and select **Everyone** to allow all users to access the card enrollment application. Click **Next**.



6. When complete, click **Close**.

8.4 EcoReporting Client

The EcoReporting Client is a client application that provides a pop-up message to notify users to check their printing activity. In the pop-up message, a link to SQL Reporting Services can be included for users to click and quickly view their printing activity.

The pop-up message can be configured to occur on specific days of the week, at the first print of the day or at a fixed time on certain days.

 **IMPORTANT:** See the [Section 12.19.9, JA reports in SQL Server Reporting Services](#) section in this admin guide for instructions to upload the EcoReport to SQL Server Reporting Services.

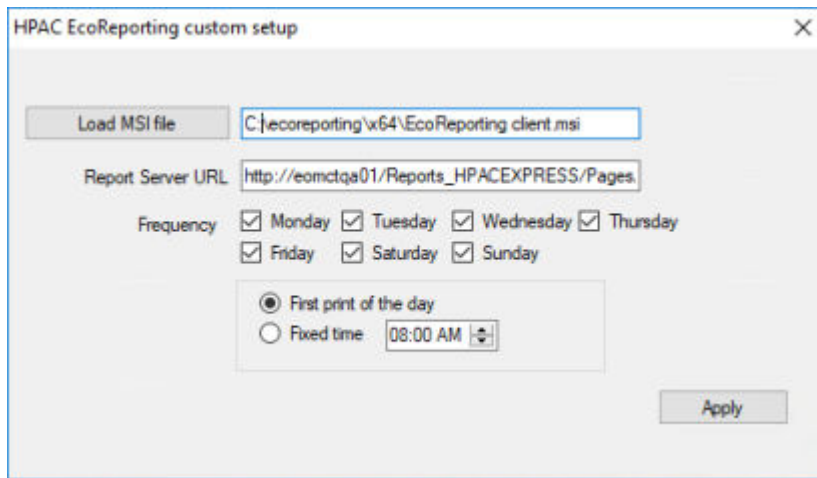
 **NOTE:** EcoReporting Client is not supported on terminal servers (such as Citrix).

8.4.1 Configure the EcoReporting Client


The "EcoReporting Custom Setup" tool modifies the "EcoReporting Client.msi" file so that you can customize the link in the pop-up message and specify when you want the pop-up to occur for users.

1. Open "EcoReporting Custom Setup.exe."

2. Click the **Load MSI file** button, locate the "EcoReporting client.msi" file (x86 or x64 version, depending on the workstations you want to install the client on), then click **Open**.




3. In the "Report Server URL" field, enter the URL of the User EcoReport in SQL Reporting Services. This is the URL that will open when users click the pop-up.
4. In the "Frequency" section, select the days of the week that you want the pop-up to occur.
5. Select one of the following:
 - **First print of the day** if you want the pop-up to display after the user prints for the first time on specific days.
 - **Fixed time** if you want the pop-up to display at a specified time on specific days. Enter the time you want the pop-up to occur.
6. Click **Apply**. This modifies the "EcoReporting Client.msi" file you specified.

 **IMPORTANT:** For "First print of the day," the local user must have read permission to the C:\Windows\System32\spool\PRINTERS folder.

8.4.2 Install the EcoReporting Client

The modified "EcoReporting Client.msi" file can be pushed silently to user workstations or can be installed manually. Follow the steps below to install the client manually:

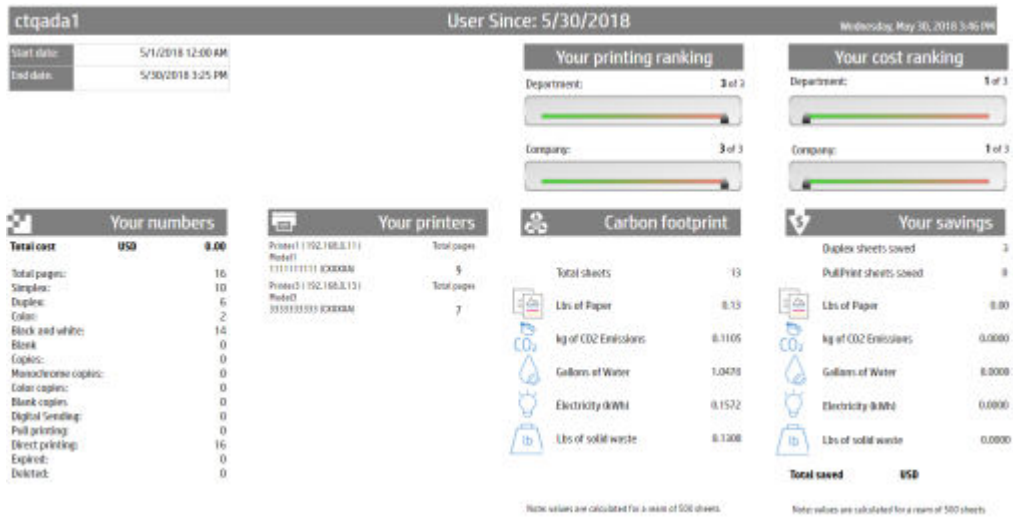
1. Copy the modified "EcoReporting Client.msi" file to a user workstation.
2. Run the "EcoReporting Client.msi" file and follow the steps in the installation wizard.
3. After installation is complete, the EcoReporting icon displays in the system tray.

 **NOTE:** To customize the pop-up message, URL, and frequency after installation: Close the EcoReporting Client in the system tray, then go to \Program Files (x86)\EcoReporting client\ folder. Open the "EcoReporting.exe.config" file in Notepad. Modify the messaging, URL, or frequency. Then run the "EcoReporting Client.msi" file.

8.4.3 Use the EcoReporting Client

When a user prints for the first time or at a specified time, the default message "Click here to see the environmental impact for your printing behavior" pops up.

- ▲ Click the message to open the SQL Reporting Services URL in a web browser.



 **NOTE:** To manually open the SQL Reporting Services URL, right-click the EcoReporting client, and then click **HPAC EcoReporting**.

9 Manage users and jobs

9.1 Managing access to the Admin console

The Login tab allows you to control access to the HP AC admin console. With this feature enabled, user credentials will be required at the time of starting the HP AC admin console

Users belong to groups, and the groups define the permissions that determine what features are available to that group.





NOTE:

- The Power User can view the same settings as the Admin user, but does not have the same permissions to make changes.
- By default, the Settings section does not appear under the Admin account to prevent being locked out of the console completely.

Permission	Admin	Power User	User
PersonalQ	✓	✓	
Admin	✓	✓	
Delete Job	✓	✓	
View Job	✓	✓	
Intelligent Print Management (IPM)	✓	✓	
Device Analysis	✓	✓	
Job Accounting	✓	✓	✓
Device	✓	✓	
Pull Printing (View)	✓	✓	
Admin (View)	✓	✓	
Authentication Agent (View)	✓	✓	
Settings	✓	✓	
Database (View/Apply)	✓	✓	
Device (View/Apply)	✓	✓	
Email (View/Apply)	✓	✓	
IIS (View/Apply)	✓	✓	
Pull Print (View/Apply)	✓	✓	
User (View/Apply)	✓	✓	
Agent (View/Apply)	✓	✓	
Print Server (View/Apply)	✓	✓	
IPM (View/Apply)	✓	✓	
Login (View/Apply)	✓	✓	

License (View/Apply)	✓	✓
DB User Editor (View/Apply)	✓	✓
AD Group Manager (View/Apply)	✓	✓
User List Editor (View/Apply)	✓	✓
Spooler (View/Apply)	✓	✓
Print Server	✓	✓
Configure	✓	✓
Server Information	✓	✓
License	✓	✓
Key Update (Apply)	✓	✓

 **NOTE:** When "Authentication Agent" is disabled, and a user goes to the Devices tile > Deploy Workflow screen, the Authentication selection does not display. This prevents users from deploying the agent and configuring authentication at devices.

 **NOTE:** After a new HP AC installation, Application Login is enabled by default. The default username is "Admin" and the default password is "Admin".

1. Click the Settings tile and go to the **Login** tab. Select **Application login** to enable. In the "Session expiration" field, set the expiration time for the admin console session. If the admin console is not used for the set period of time, the current user will be automatically logged off. The time resets after any activity within the admin console. If set to "0," the session will never expire.

Pull Print Spooler IIS User Agent **Login** Lic

Application login

Application login

Session expiration (minutes)

Number of tries before locking the account

Automatically unlock after (minutes)

Disable Admin account

2. In the "Number of tries before locking the account" field, enter the number of failed login attempts allowed for users. After the number of failed attempts is met, the user account will be locked. After a user account is locked, it can be automatically unlocked after the time specified in the "Automatically unlock after" field. This is to prevent a scenario where all users are locked out indefinitely.
3. Click the **Disable Admin account** checkbox if you want to disable the default Admin account for increased security. For security purposes, the default admin account can only be disabled if another admin account is already created. This is to prevent a scenario where no admin accounts are available.
4. Click the Audit check box to enable the Audit Logging feature, which logs activity in the admin console or web console, such as when settings are changed and what user applied the settings. The default location for the Audit log file, HPACaudit.txt, is \HP Access Control\AuditLog.

Application login

Application login

Session expiration (minutes)

Number of tries before locking the account

Automatically unlock after (minutes)

Disable Admin account

Audit


Audit file location

The Audit log file consists of 5 columns:

- Column 1: Data/time of the change
- Column 2: The HP AC server name
- Column 3: The server or client where the change was executed
- Column 4: The admin console user that made the change
- Column 5: Description of the change

Below is a sample Audit log showing the 5 columns:

11 Oct 2018 16:16:52	EOMCTQA01	EOMCTQA01	Admin	Application audit enabled
11 Oct 2018 16:16:53	EOMCTQA01	EOMCTQA01	Admin	Application login settings changed
11 Oct 2018 16:16:57	EOMCTQA01	EOMCTQA01	Admin	Logoff
11 Oct 2018 16:17:02	EOMCTQA01	EOMCTQA01	Guest	Login attempt by user Admin
11 Oct 2018 16:17:03	EOMCTQA01	EOMCTQA01	Admin	Login successful


 **NOTE:** The Audit log displays only in English and is not localized.

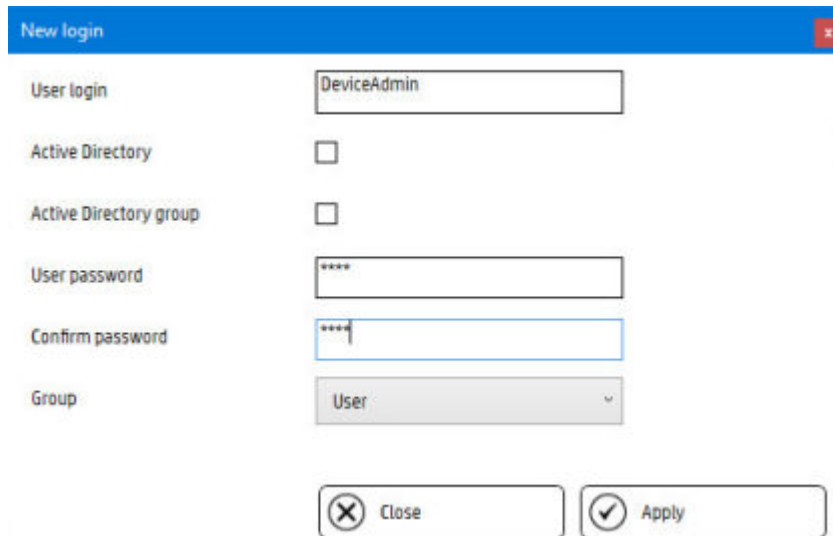
5. The Login box will display showing the default user Admin (password Admin).

Login

Admin (Admin)

6. Enter information for the **New User**. You can create a new user, or use an existing user from Active Directory.

 **NOTE:** To create a user within HP Access control, enter a User login and password and assign the group it will belong to.

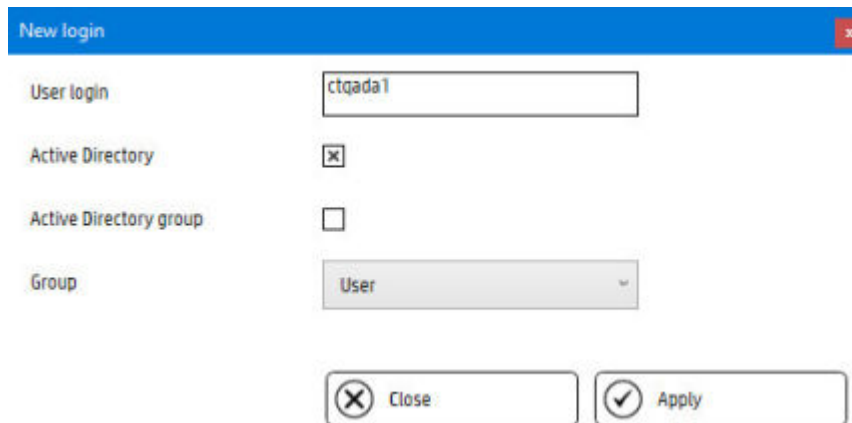


The screenshot shows a 'New login' dialog box with the following fields and options:

- User login:** DeviceAdmin
- Active Directory:**
- Active Directory group:**
- User password:** ****
- Confirm password:** ****
- Group:** User

Buttons: Close (with an X icon), Apply (with a checkmark icon).


 **NOTE:** To add a user from Active Directory, enter User login (sAMAccountName) and select **Active Directory**.

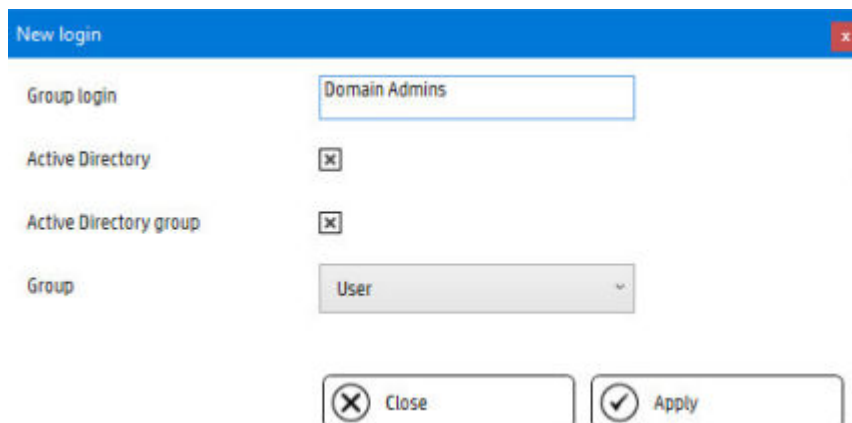


The screenshot shows a 'New login' dialog box with the following fields and options:

- User login:** ctqada1
- Active Directory:**
- Active Directory group:**
- Group:** User

Buttons: Close (with an X icon), Apply (with a checkmark icon).

 **NOTE:** To add an Active Directory group, select **Active Directory Group**, then enter the name of the AD Group. This allows all users within the specified AD group to have the same admin console permissions. Nested AD Groups are also supported.

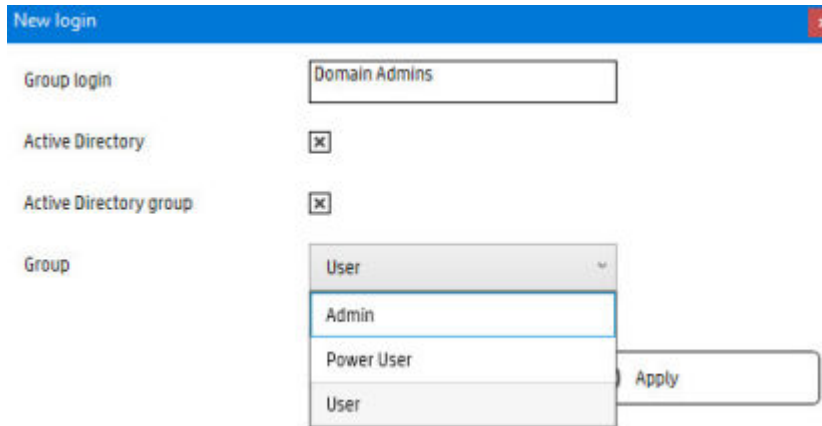



The screenshot shows a 'New login' dialog box with the following fields and options:

- Group login:** Domain Admins
- Active Directory:**
- Active Directory group:**
- Group:** User

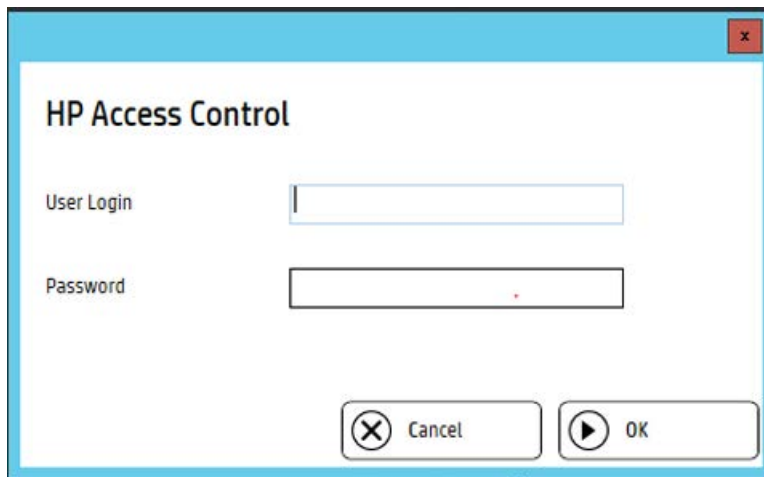
Buttons: Close (with an X icon), Apply (with a checkmark icon).

7. Select the Group the user will belong to. The default groups are Admin, Power User, and User.



 **NOTE:** The Admin group has full access to view and change all features within the HP AC admin console. The Power User group has limited access to the HP AC admin console features.

8. Click **Apply**.
9. When the HP Access Control admin console is launched it will prompt for a user name and password. Enter your User Login and Password and click **OK**.



9.2 Managing users

Go to the Settings tile > Users tab tile to view user information, such as users' cards or codes.

USERNAME ▼ u00001

Save Add alias Email code Reset

USERNAME	NAME
U00001	U00001
ALIASES	
USER01 ✕	
CODE	
123456	
DOMAIN	EMAIL
CTQA	u00001@company.com
HOME FOLDER	GROUP
	TestDepartment

 **NOTE:** Click the Reset button to reset the selected user's code/card details, alias, and rights.

9.2.1 Alias

For users printing from non-Windows printing, alias printing allows print jobs submitted from the non-Windows system to be linked to your user name in Windows.

Prerequisites

- Data storage must be set to use SQL Server as the data storage.
- The user must have been previously enrolled in the system.

Complete the following steps:

1. Open the HP Access Control Configuration Utility and select the Settings tile.
2. Select **User** on the top menu.
3. Search for your user name (i.e. User1) in the search field and click the **Alias** button.
4. Add the new alias (i.e. unixN). The alias name must be unique to other user aliases and logons. Any number of aliases can be entered.
5. Jobs submitted by either User1 or unixN will grouped under the same user name in the user's spool folder.

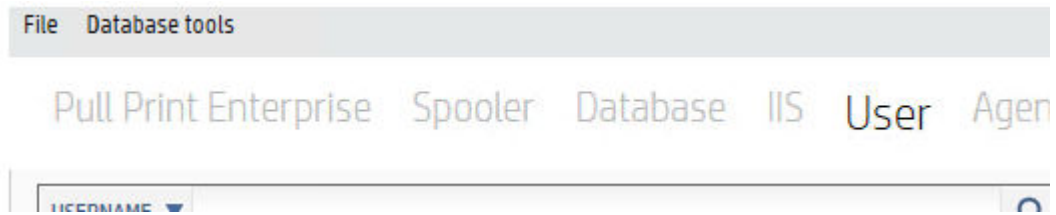
9.2.2 Deleting users

The User tab is not intended as a replacement or substitute for the standard AD user management tools. As such, it works only with users that already exist in the domain. Also, it cannot delete users from the domain. Use the standard Microsoft tools to add and delete users in the domain. After a user exists, Agent PIC and feature rights can be assigned as described in the following sections.

9.2.3 Look up a user


Complete the following steps to find a user:

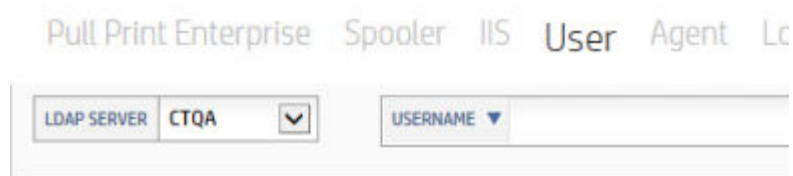
1. Go to the Settings tile > User tab.



2. Select **Username**, **Email**, or **Code** from the drop-down list, and click **Find**.

The upper portion of the screen displays information for the user specified, or an error message displays if the user cannot be found.

 **NOTE:** If multiple domains were entered in Settings > Pull Print > Configure > General tab > LDAP Server section, an "LDAP Server" drop-down list displays in order to search for users in multiple domains. To search for a user when using multiple domains, type only the user's name in the USERNAME field (do not type in the "domain \username" format).



9.2.4 Auto purge inactive users

In order to delete inactive users in the IRM database, run the following SQL script in SQL Management Studio:

```
USE [IRM] --Change the value [IRM] to match your database IRM name
GO
IF EXISTS (SELECT 1 FROM sysobjects WHERE type='P' AND name
='P_DeleteInactiveIRMUser')
BEGIN
DROP PROC P_DeleteInactiveIRMUser
END
GO
CREATE PROCEDURE [dbo].[P_DeleteInactiveIRMUser] (@InactiveDate datetime)
AS
BEGIN
delete from ALIAS where UserId in (select UserId from IRM where ADate <
@InactiveDate)
delete from IRM where ADate < @InactiveDate
END
```

GO


After the script is executed, a new P_DeleteInactiveIRMUser procedure is created in the IRM database that can be called with one line. For example:

```
Exec P_DeleteInactiveIRMUser '2016-11-17'
```

If SQL Server Standard or Enterprise edition is used, you can create an SQL Agent job calling this line in the job steps, specifying the date. You can specify a fixed date and change it every once in a while manually, or you can use the DATEADD function for the parameter to have a dynamic date value. For example:


```
DECLARE @Date date = dateadd(month,-1,getdate())
```

```
Exec P_DeleteInactiveIRMUser @Date
```

 **NOTE:** The line `dateadd(month,-1,getdate())` is taking the current date and decreasing 1 month. So, if you want to delete inactive users in the last 3 months, just change the value to be -3.

9.3 User Tab

Use the HP Access Control **User** tab to review or change user PIC, card, and device feature rights.


 **NOTE:** The **User** tab is not intended to replace or substitute the standard AD user management tools. As such, it works only with users that already exist in the domain. Also, it cannot delete users from the domain. Use standard Microsoft tools to add and delete users in the domain. After a user exists, Agent PIC and feature rights can be assigned as described in the following sections.

9.3.1 Change User Card or Code Parameters

To change a Card or Code parameter, complete the steps provided here.

Prerequisites

- To email users new code information, SMTP must be configured
1. Go to the Settings tile > User tab.
 2. Enter the username, email, or code and click the Find icon.
 3. Click the **Add Card** button or enter data into the Card or Code fields to change the attribute.
 4. Click **Update** to save. To email the user of the new code (if applicable), click the **Email Code** button.

 **NOTE:** If the code is in use by another user, a message will display.

9.3.2 Change a user's device feature rights

Complete the following steps to change a user's device feature rights:

1. Check the box to the left of a named device feature to enable or disable a user's right to use that feature.
2. Click **Update** when all features are specified correctly.
3. Click **Deselect All** or **Select All** to clear or set all function rights at once.

9.3.3 Email a user's PIC and rights information

Click **Email code** to email PIC and device feature rights to a user. The email is sent to the user's address stored in AD and displayed in the Email box.



NOTE: Only information stored in AD can be emailed.

9.4 AD Group Manager

The HP AC Active Directory Group Manager performs operations on an entire group of users. It can be used to set PIC and device feature rights for an entire group of users. The members of each group are selected by an LDAP query.

Figure 9-1 Group Manager

The screenshot shows the HP AC Active Directory Group Manager interface. It features a 'Filter' dropdown menu currently set to 'Activated Users'. Below this, there are two main sections: 'Actions' and a list of checkboxes for various operations. In the 'Actions' section, 'Modify all users (use with caution!)' is selected with a radio button. Underneath it, 'Don't change codes' and 'Set permissions' are also selected with radio buttons, while 'Assign new codes', 'Migrate to encrypted codes', 'Migrate to decrypted codes', and 'Send emails' are not. In the right-hand column, several checkboxes are present, including 'Copy', 'Color Copy', 'Send to E-mail', 'Send Fax', 'Send to Folder', 'Job Storage', 'Create Stored Job', 'Digital Sending Service (DSS) Secondary E-mail', and 'Digital Sending Service (DSS) Workflow'. At the bottom of the interface, there are three buttons: 'Apply Actions', 'All Clear', and 'All Set'.

The following group operations are available:

- Assign new random PICs to a group of users.
- Assign the same device function rights to a group of users.
- Email a group of users their PIC and device function rights information.
- Download a CSV file containing the AD-Authenticator information for a group of users.
- Encrypt PICs stored in AD for a group of users.
- Decrypt PICs stored in AD for a group of users.



CAUTION: The **Group Manager** is powerful; it can alter the PIC and device function rights of all users. The Group Manager can be configured so it is available only to a select group of highly qualified personnel.

Group filters are defined by selecting **Filters** on the HP Access Control AD-Configurator web page (<http://localhost/AD-Authenticator/AD-Configurator.aspx>) and editing the **Expression** field. The groups are generally defined upon installation of the AD-Authenticator and do not need to be changed again. Two groups, **ActivatedUserList** and **CandidateUserList** are defined by default.

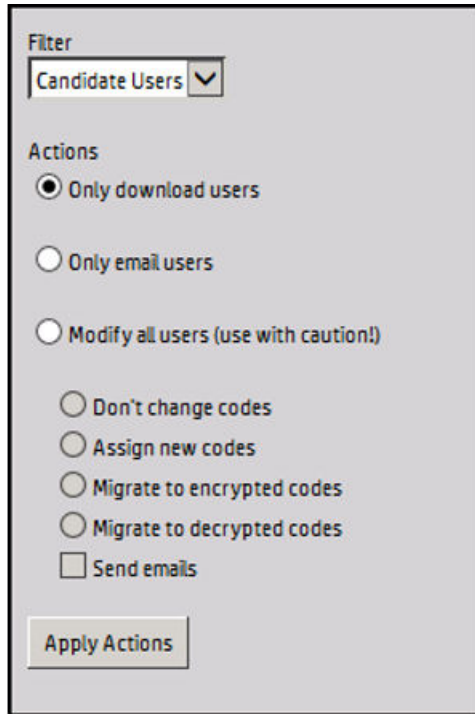
- The **ActivatedUserList** group filter selects only those users who have been assigned a PIC and device function rights.
- The **CandidateUserList** selects those users who have not yet been assigned a PIC or device function rights.

9.4.1 Download User AD-Authenticator information

The Group Manager automatically downloads a CSV file containing the current information for a Group's users following any operation that modifies that group.

Use the following steps to download the information without modifying the group:

1. Click the group name in the **Filter** drop-down box.



The screenshot shows a control panel with a 'Filter' dropdown menu set to 'Candidate Users'. Below it is an 'Actions' section with several radio button options: 'Only download users' (selected), 'Only email users', 'Modify all users (use with caution!)', 'Don't change codes', 'Assign new codes', 'Migrate to encrypted codes', and 'Migrate to decrypted codes'. There is also a checkbox for 'Send emails' and an 'Apply Actions' button at the bottom.

2. Select **Only download users**.
3. Click **Apply Actions**.

9.4.2 Email PIC and device function rights information

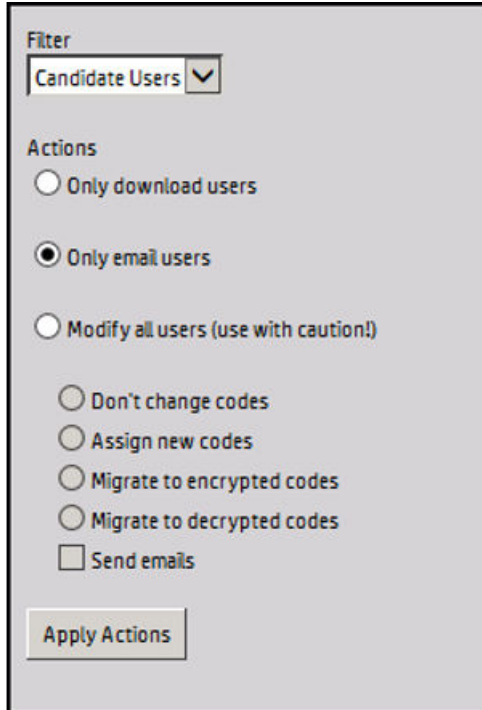
Prerequisites

- See [Section 4.2.2.2, Configuring for email notification](#)

The Group Manager can send all users of a group an email containing their current PIC and device function rights. To email PIC and device function rights, complete the following steps:

1. Click the group name in the **Filter** drop-down box.

2. Select **Only email users**.



The screenshot shows a configuration window with a 'Filter' dropdown menu set to 'Candidate Users'. Below it, the 'Actions' section contains several radio button options: 'Only download users', 'Only email users' (which is selected), 'Modify all users (use with caution!)', 'Don't change codes', 'Assign new codes', 'Migrate to encrypted codes', and 'Migrate to decrypted codes'. At the bottom, there is a checkbox for 'Send emails' and an 'Apply Actions' button.

3. Click **Apply Actions**.

9.4.3 Assign new PIC and device function rights

Prerequisites

- See [Section 4.2.2.2, Configuring for email notification](#).

The Group Manager can assign new random PIC values and/or device function rights to all users in a group. This feature is especially useful for establishing the initial user settings during AD-Authenticator installation. This feature can also be used to assign new PICs on a periodic basis, or if a number of new users have been added to the AD.

Complete the following steps:

1. Select the group name in the Filter drop-down box.

Filter
Candidate Users ▼

Actions

Only download users

Only email users

Modify all users (use with caution!)

Don't change codes

Assign new codes

Migrate to encrypted codes

Migrate to decrypted codes

Send emails

Apply Actions

2. Select **Modify all users**.
To assign new PIC values, select **Assign new codes**.

3. Select **Send emails** to send each user an email containing their new information.

Filter
Activated Users ▼


Actions

- Only download users
- Only email users
- Modify all users (use with caution!)**
 - Don't change codes
 - Assign new codes**
 - Migrate to encrypted codes
 - Migrate to decrypted codes
 - Send emails**

Apply Actions

9.4.4 Encrypt or decrypt user PICs

At installation, **AD-Authenticator** may be configured to use either encrypted or unencrypted PIC values in AD. Use the **Group Manager** to migrate between encrypted and decrypted PIC storage. This can be useful if an external tool was used to generate unencrypted PIC codes and they now need to be encrypted, or if the PIC codes need to be decrypted for use by an external tool. To change the encryption passphrase, decrypt the stored codes and then re-encrypt them using a different passphrase.

 **NOTE:** **Migrate to encrypted codes** and **Migrate to decrypted codes** are available only if the code Passphrase has been set in the AD-Authenticator configuration.

AD-Authenticator stores the PIC values in AD in a way that it can determine whether the code is encrypted or decrypted. When changing between encrypted and decrypted codes, it only changes those codes that are not already in the correct state (for example, it does not re-encrypt already encrypted codes, rendering them indecipherable).

Use the following steps to change between encrypted and decrypted PIC value storage:


1. Click the group name in the Filter drop-down box.
2. Select **Modify all users**.
3. Select **Migrate to encrypted codes** OR **Migrate to decrypted codes**.
4. Click **Apply Actions**.

Filter
Activated Users

Actions

- Only download users
- Only email users
- Modify all users (use with caution!)
 - Don't change codes
 - Assign new codes
 - Migrate to encrypted codes
 - Migrate to decrypted codes
 - Send emails

Apply Actions

 **NOTE:** To change from encrypted code storage to decrypted code storage, immediately clear the code passphrase value from the AD-Authenticator configuration. If the passphrase is not cleared, AD-Authenticator is unable to authenticate against the decrypted codes and all new codes added are stored encrypted. Should this occur, run the **Migrate to decrypted codes** process again and then immediately clear the code passphrase.


9.5 Manage users AD Group Manager

The Active Directory Group Manager performs operations on an entire group of users. It can be used to set PIC and device feature rights for an entire group of users. The members of each group are selected by an LDAP query.

The screenshot shows a software interface for managing user groups. At the top left, there is a 'Filter' dropdown menu currently set to 'Activated Users'. Below this is an 'Actions' section with several radio button options: 'Only download users', 'Only email users', 'Modify all users (use with caution!)', 'Don't change codes', 'Assign new codes', 'Migrate to encrypted codes', 'Migrate to decrypted codes', 'Set permissions' (which is checked), and 'Send emails'. To the right of these actions is a vertical list of checkboxes for additional actions: 'Copy', 'Color Copy', 'Send to E-mail', 'Send Fax', 'Send to Folder', 'Job Storage', 'Create Stored Job', 'Digital Sending Service (DSS) Secondary E-mail', and 'Digital Sending Service (DSS) Workflow'. At the bottom left is an 'Apply Actions' button, and at the bottom right are 'All Clear' and 'All Set' buttons.

The following group operations are available:

- Assign new random PICs to a group of users.
- Assign the same device function rights to a group of users.
- Email a group of users their PIC and device function rights information.
- Download a CSV file containing the AD-Authenticator information for a group of users.
- Encrypt PICs stored in AD for a group of users.
- Decrypt PICs stored in AD for a group of users.


 **IMPORTANT:** The Group Manager is powerful; it can alter the PIC and device function rights of all users. The Group Manager can be configured so it is available only to a select group of highly qualified personnel.

Groups are defined using LDAP filters in the file AD-Authenticator-Configuration.xml. The groups are generally defined upon installation of the AD-Authenticator and do not need to be changed again. Two groups, ActivatedUserList and CandidateUserList are defined by default.

- The ActivatedUserList group filter selects only those users who have been assigned a PIC and device function rights.
- The CandidateUserList selects those users who have not yet been assigned a PIC or device function rights.

9.6 DB User Editor

DB User Editor is used to manage users when the user information is stored in a database.

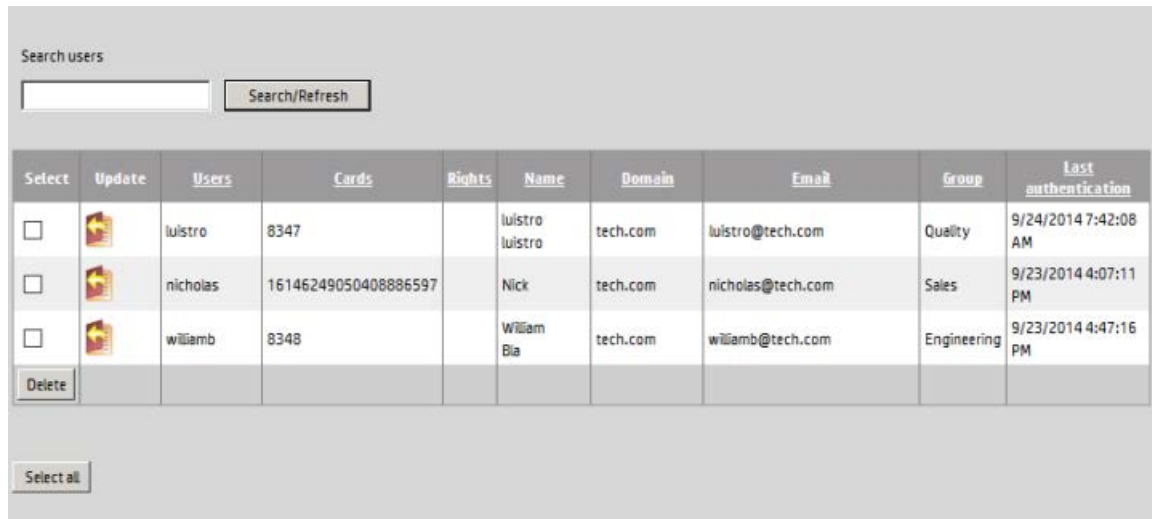
 **NOTE:** When deleting user information, it is recommended to use the Settings > User tab.

Prerequisites




- SQL Server is selected as the data storage location in the Settings tile > Pull Print, select your server and click **Configure**. Go to the General tab > Data Storage section.

The **DB User Editor** tab allows you to edit user card/code numbers and view the last time a user authenticated at a device.

Figure 9-2 DB User Editor



The screenshot shows the DB User Editor interface. At the top, there is a search bar labeled "Search users" with a "Search/Refresh" button. Below the search bar is a table with the following columns: Select, Update, Users, Cards, Rights, Name, Domain, Email, Group, and Last authentication. The table contains three rows of user data. Below the table is a "Delete" button and a "Select all" button.

Select	Update	Users	Cards	Rights	Name	Domain	Email	Group	Last authentication
<input type="checkbox"/>		luistro	8347		luistro luistro	tech.com	luistro@tech.com	Quality	9/24/2014 7:42:08 AM
<input type="checkbox"/>		nicholas	16146249050408886597		Nick	tech.com	nicholas@tech.com	Sales	9/23/2014 4:07:11 PM
<input type="checkbox"/>		williamb	8348		William Bla	tech.com	williamb@tech.com	Engineering	9/23/2014 4:47:16 PM

To change a Card or Code parameter, complete the following steps:

1. Click the **Settings** tile and select the **DB User Editor** tab.
2. Enter the username and click **Search/Refresh**.
3. Click the Edit icon.
4. Enter a new card or code number for the user by selecting the card or code. Click **Update** to update the database with the new user data.

9.7 Review and change User Code and device feature rights with DB User Editor

9.7.1 Add users to the database

Users can be added automatically by authenticating at a device, or they can be added from Active Directory using the AD User Editor.

1. In the AD User Editor tab, find the user you want to add to the database.
2. Enter a new code or card number for the user. Click **Update** to update the database with new user data.
3. In the DB User Editor, click the **Search/Refresh** button. The user data displays.

9.7.2 Modify user codes

1. Click the Edit icon.
2. Under the Codes column, edit the user code.
3. Click the Save icon.

9.7.3 Modify user cards

1. Click the Edit icon.
2. Under the Cards column, edit the user card number.
3. Click the Save icon.

9.7.4 Delete users from the database

1. Under the Select column, click the checkbox on the row of the user(s) you want to delete.
2. Click **Delete**.

9.7.5 Search for users

1. In the Search users field, enter any part of a user's name, card number, or code number.
2. Click **Search/Refresh**.

9.8 Device-based User List management

9.8.1 User List Editor

HP AC can be configured to have user information stored locally on the device, so that querying an SQL or AD server does not happen at the time of user authentication.

Prerequisites

- HP SF or MFP
- In-printer agent installed and configured

Enter user information in the rows and columns of the editor. Each row represents a user and each column represents the information for a specific user. The column definition is as follows.

Table 9-1 User List Editor details

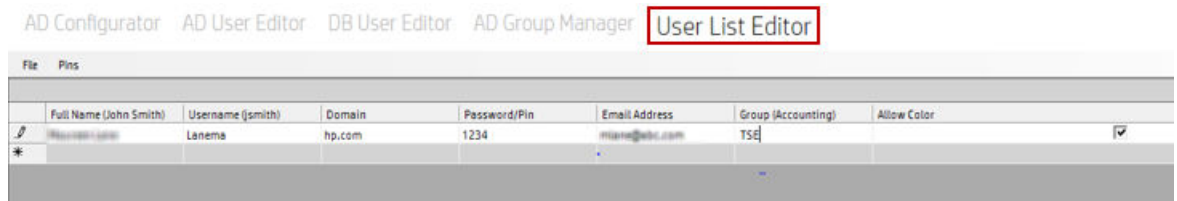
Item	Description
Full Name	User's full name (for example, <i>John Smith</i>). This value is used to associate an entry with a user.
Username	User's login (for example: <i>jsmith</i>). This value may be displayed by HP ACJA in certain reports. This field must be unique and usually matches the user's Windows login ID.
Domain (optional)	User's Windows domain (for example: <i>HP.com</i>). This field may be displayed by HP ACJA in certain reports.
Password/PIN	User's password/PIN. This value is used by the user to authenticate. This field must be unique.
Email	User's email address (for example: <i>jsmith@hp.com</i>). This value is used to set the From address field when HP AC IRM is used to authenticate email use. This field must be in the form of a valid email address.
Group	An arbitrary group that the user may belong to (for example: <i>Account Log</i>). This value may be displayed by HP AC Job Accounting in certain reports.
Allow Color Access	If this box is selected and HP AC IRM Color is correctly configured, users are allowed to make color copies on a HP Color LaserJet MFP.

When information is completed on a line, click the asterisk on the next line to save the information or begin a new line.

9.8.2 Manually enter user information

The User List Editor can be used to manually enter user information. In this mode, the editor operates similar to a spreadsheet program.

1. Go to the **Settings** tile and select the **User List Editor** tab.
2. Click on a row and enter the user's information



3. Click on the empty row below (designated with the asterisk) to save the information and begin a new line.
4. Upload user list to a device. See

9.8.3 Import users from AD

Users can be imported from an existing AD. This allows for rapid creation of user lists. Complete the following steps to import users:

1. Go to the **Settings** tile and select the **User List Editor** tab.
2. Click **File > Import**, and select **Active Directory**.
3. Supply the LDAP Server login information. If the server is authenticated on the domain you are importing from you do not need to enter any information. The logged on user requires the appropriate privileges to read from AD.

Figure 9-3 User List Editor – Import Users

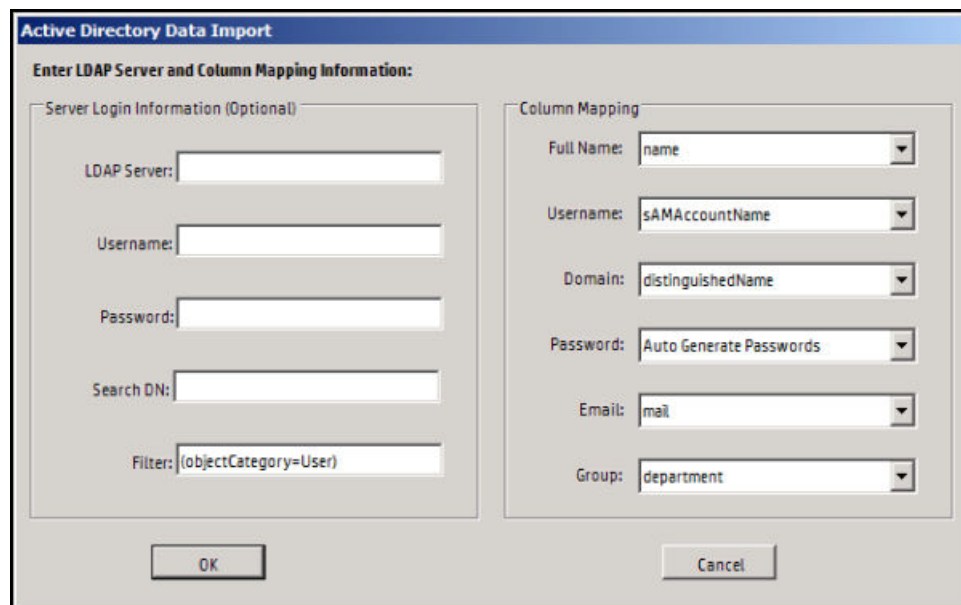
The screenshot shows the 'Active Directory Data Import' dialog box. It is divided into two main sections: 'Enter LDAP Server and Column Mapping Information:' and 'Column Mapping'. The 'Enter LDAP Server and Column Mapping Information:' section includes fields for 'LDAP Server:', 'Username:', 'Password:', 'Search DN:', and 'Filter: (objectCategory=User)'. The 'Column Mapping' section includes dropdown menus for 'Full Name: name', 'Username: sAMAccountName', 'Domain: distinguishedName', 'Password: Auto Generate Passwords', 'Email: mail', and 'Group: department'. There are 'OK' and 'Cancel' buttons at the bottom.

Table 9-2 User List Editor – LDAP Server login information

Item	Description
LDAP Server	Host name or IP address of the AD server

Table 9-2 User List Editor – LDAP Server login information (continued)

Item	Description
Username	The Windows User ID of an account with privileges to read the AD. If logging into a separate domain, the user name takes the form DOMAIN\username (for example: YOURBUSINESS\Administrator).
Password	Password associated with the Username.
Domain	A special field. It will pull the domain value from the users distinguishedName by using the first DC= attribute listed in the value. For example: CN=User, CN=users, DC=americas, DC=hpsolstr, DC=com. It would pull the DC=americas as the domain name.
Filter	Used to restrict users that are imported by the tool. For example, if only users from the support department are imported, a filter (& (objectCategory=User) (department=support)) can be specified. This field follows the standard A String Representation of LDAP Search Filters (RFC2254). TIP: A filter may be so restrictive that it results in no users being imported.

4. Select Column Mapping.

This mapping defines which attribute in the AD maps to which column in the user list. In most cases, the defaults suffice. However, in some cases, a different AD attribute may be appropriate. For example, if the employeeID attribute in AD is to be used for the Password column, this can be selected or entered into the **Password selection** box.

- To have a password (Code) generated for each user, select **Auto Generate Passwords**. Auto Generate Password is a special option that causes passwords to be generated for each of the users. A Password Option page displays after the import succeeds. For more information, see [Section 9.8.5, Generate PINs](#)
- Click **OK** to begin the import.
- See [Section 9.8.7, Upload a list to a device](#) to upload a user list to the device.

File Pins					
Filename - C:\Users\s15\Documents\emea.xml					
Full Name (John Smith)	Username (jsmith)	Domain	Password/Pin	Email Address	Group (Accounting)
Users		EMEA	2427		
User EMEA 96	ue96	EMEA	4714	ue96@emea.hpsolstr.com	IT
User EMEA 352	ue352	EMEA	1907	ue352@emea.hpsolstr.com	Marketing
User EMEA 608	ue608	EMEA	5865	ue608@emea.hpsolstr.com	Corporate
User EMEA 864	ue864	EMEA	3168	ue864@emea.hpsolstr.com	Legal
User EMEA 97	ue97	EMEA	5810	ue97@emea.hpsolstr.com	IT
User EMEA 353	ue353	EMEA	9721	ue353@emea.hpsolstr.com	Marketing
User EMEA 609	ue609	EMEA	7863	ue609@emea.hpsolstr.com	Corporate
User EMEA 865	ue865	EMEA	9327	ue865@emea.hpsolstr.com	Legal
User EMEA 98	ue98	EMEA	4804	ue98@emea.hpsolstr.com	IT
User EMEA 354	ue354	EMEA	3685	ue354@emea.hpsolstr.com	Marketing
User EMEA 610	ue610	EMEA	0238	ue610@emea.hpsolstr.com	Corporate
User EMEA 866	ue866	EMEA	7512	ue866@emea.hpsolstr.com	Legal
User EMEA 99	ue99	EMEA	0801	ue99@emea.hpsolstr.com	IT
User EMEA 355	ue355	EMEA	9321	ue355@emea.hpsolstr.com	Marketing
User EMEA 611	ue611	EMEA	2803	ue611@emea.hpsolstr.com	Corporate
User EMEA 867	ue867	EMEA	6909	ue867@emea.hpsolstr.com	Legal
User EMEA 100	ue100	EMEA	8497	ue100@emea.hpsolstr.com	Finance
User EMEA 356	ue356	EMEA	0397	ue356@emea.hpsolstr.com	Marketing
User EMEA 612	ue612	EMEA	9354	ue612@emea.hpsolstr.com	Corporate
User EMEA 868	ue868	EMEA	5093	ue868@emea.hpsolstr.com	Legal
User EMEA 101	ue101	EMEA	1012	ue101@emea.hpsolstr.com	Finance
User EMEA 357	ue357	EMEA	1010	ue357@emea.hpsolstr.com	Marketing
User EMEA 613	ue613	EMEA	9471	ue613@emea.hpsolstr.com	Corporate

9.8.4 Import users from a CSV file

Users can be imported from a CSV file, allowing for rapid creation of user lists.

1. Go to the **Settings** tile and select the **User List Editor** tab.
2. Click **File** and then click **Import**. Click **File (.xml | .csv)** and select an existing CSV file.
3. The CSV file should have the following column definition:

```
pwd-enc,username,password,domain,alias,email,group,allow-  
color,jsmith,012345,YOURBUSINESS,John  
Smith,support@yourbusiness.com,group1,True,admin,01234,YOURBUSINESS,adm  
in,admin@yourbusiness.com,group2,False
```

4. Upload user list to a device. See [Section 9.8.7, Upload a list to a device](#) to upload a user list to the device

9.8.5 Generate PINs

The **User List Editor** can generate a unique password/PIN for each user in the list. Use the following steps to generate PINs. Click **PINs**, and then click **Generate** to access the Generation Options dialog.

9.8.5.1 Alphanumeric Password

This option allows the selection of the types of characters to include in a password. If **Alphanumeric Password** is deselected, only [0–9] passwords are generated. If **Alphanumeric Password** is selected, both lower-case [a–z] (Include, upper Case Letters) characters can be chosen.

9.8.5.2 Password length

This option defines the length (number of characters) of the passwords to be generated.

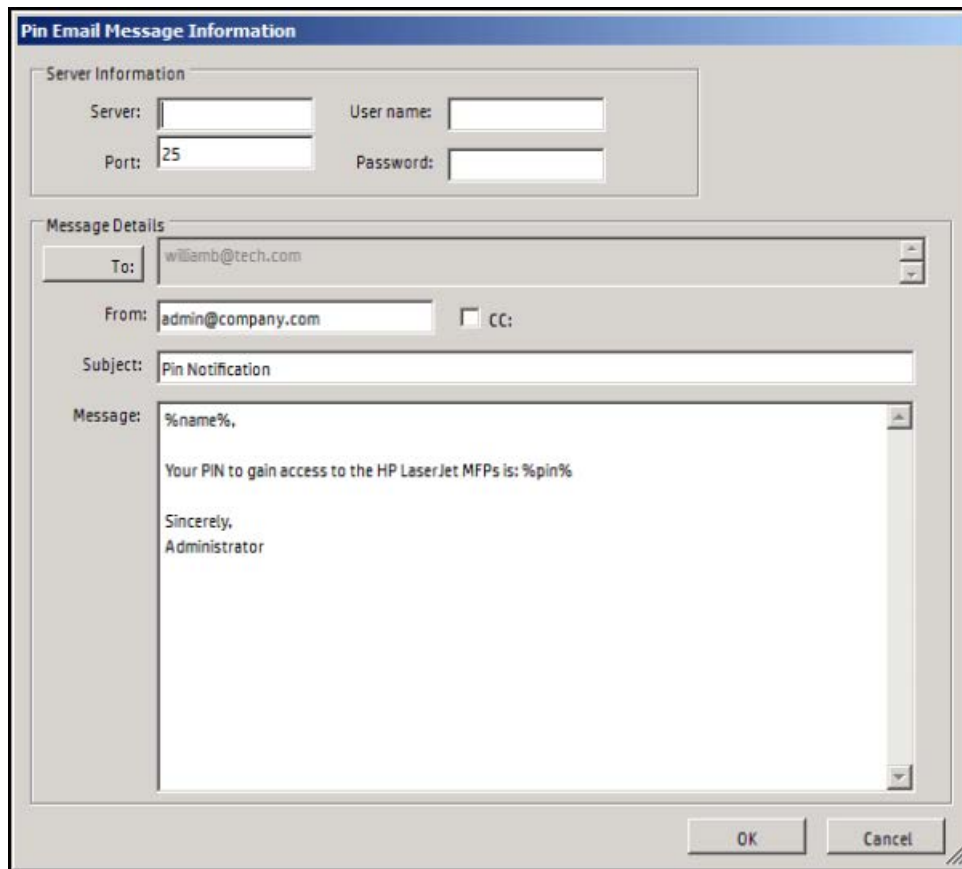
 **NOTE:** The maximum password length is 32 alpha-numeric characters.

9.8.5.3 Reset All

Select this option to reset and regenerate all passwords.

9.8.6 Email PINs

The User List Editor can email generated PINs to users in the list with valid email addresses.



Use the following steps to email the PINs to each user.

1. Click **PINs**, and then click **Email**.

 **NOTE:** Only users with a valid email address are added to the **To:** list.

2. Supply the SMTP Server login information. This information is optional if the PC running the editor has been configured with an email server (click **Control Panel > Mail**). Otherwise, the server information must be supplied.

Table 9-3 User List Editor — SMTP Server login information

Item	Description
Server	Host name or IP address of the SMTP server.
Username	The Windows User ID of an account with privileges to log in to the SMTP server. This field is required only if the SMTP server is protected with a username and password.
Password	Password associated with the username. This field is required only if the SMTP server is protected with a username and password.
Port	Port number for the SMTP protocol associated with the server.

3. Supply the message details. This allows the details of each email message to be customized.

Table 9-4 User List Editor — Message details

Item	Description
To	A list of user email addresses that will have their PIN emailed to them. To delete or view users in the list, click To .

Table 9-4 User List Editor — Message details (continued)

From	Email address displayed in the From: address of each email.
CC	If CC is selected, the email address defined in the From: field receives a convenience copy of all emails sent. For example, if there are ten users, ten convenience copies are sent to the email address defined in the From: field.
Subject	The subject of the email sent to the users.
Message	This is the message body of the email being sent to the users. There are two special fields: %pin% and %name% . The user PIN is substituted in the %pin% field. The user's full name is substituted in the %name% field. These two fields can be used, along with other text, to customize the message.

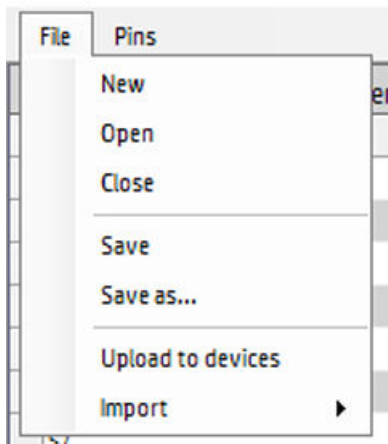
9.8.7 Upload a list to a device

Prerequisites

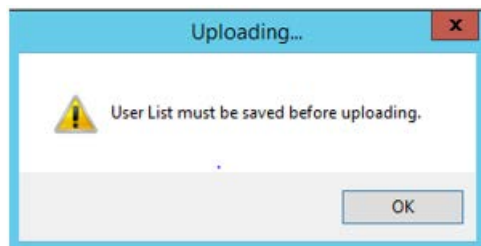
- HP AC Job Accounting In-Printer Agent must be installed.
- HP MFP or HP SF devices
- Must have either [Section 9.8.2, Manually enter user information](#), [Section 9.8.3, Import users from AD](#), or [Section 9.8.4, Import users from a CSV file](#).

After the user list is created, it must be uploaded to the device(s).

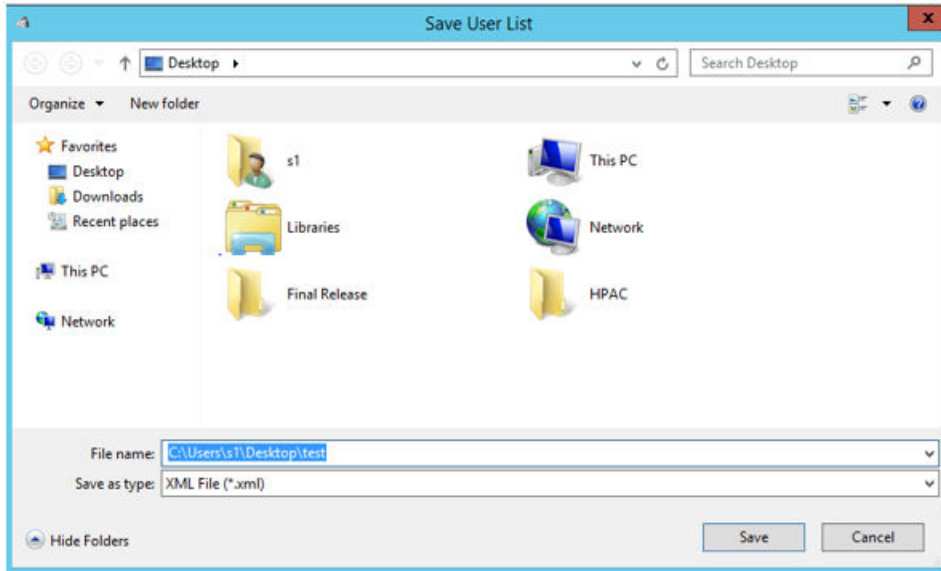
1. Go to the **Settings** tile and select **User List Editor** tab.
2. Click **File > Import** and select **Upload to devices**.



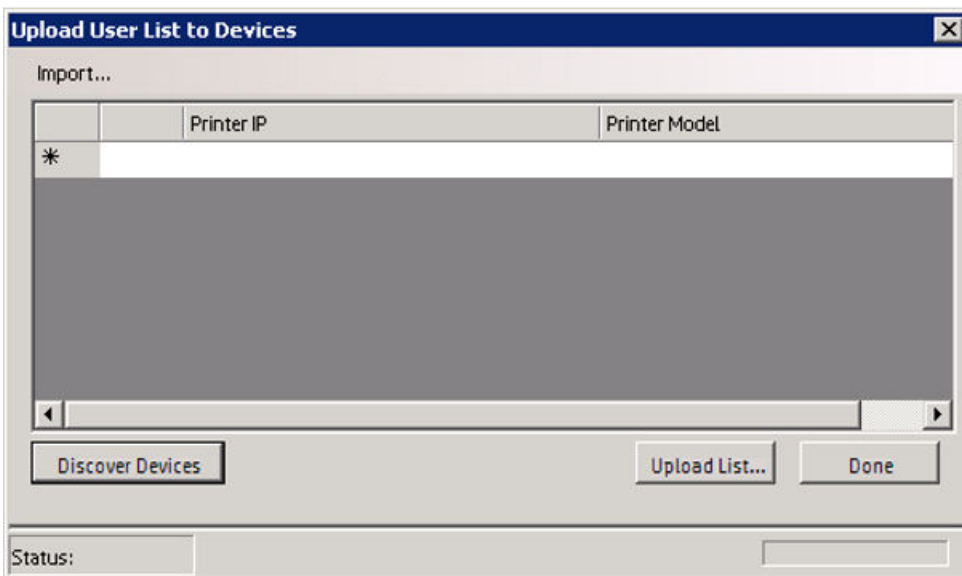
3. You will be prompted to save the user list. Click **OK** if not already saved.



4. Browse to the location to save the file and click **Save**.



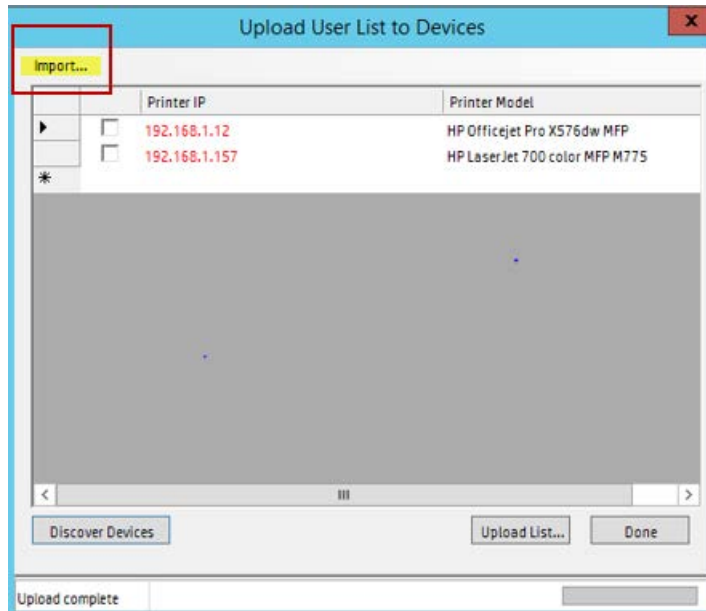
5. The **Upload User List to Devices** window displays.



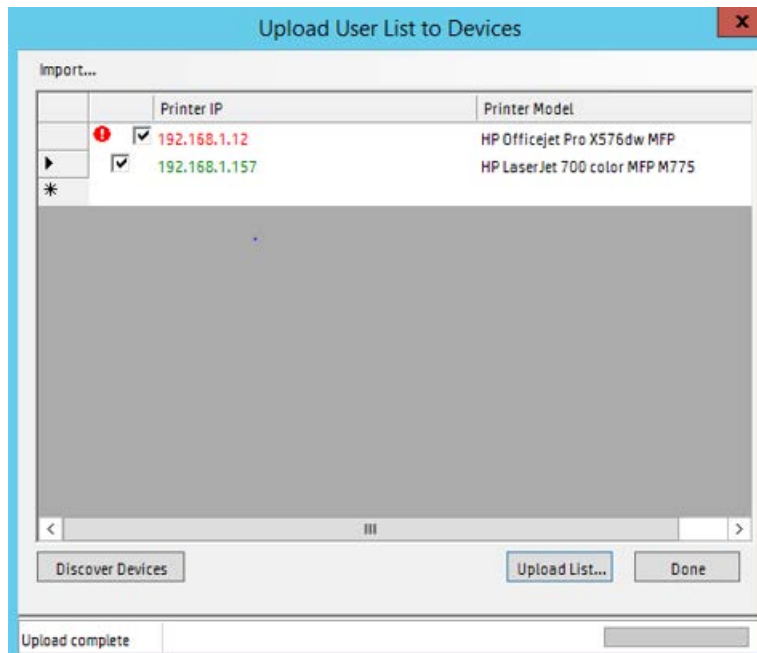
Use any of the following methods to add printers to the list:

- **Discover Devices:** Uses SNMP discovery on the network. All devices discovered on the network are automatically populated into the list.
- **Manually enter devices.**
- **Import devices from Web Jetadmin export file:** Click **Import** and select Web Jetadmin file.
- **Import devices from text file:** Devices can be imported from a text file. Click **Import** and click **Text File**. The editor reads a single IP address from each line (delimited by <cr><lf> or <lf> of the file.

- After printers are added to the list, select to upload by checking the box in front of the IP address.



- Click **Upload List** to initiate upload to device. If device is password-protected, enter the device credentials. These credentials must match the administrator password of the device. The status at the bottom will change to “uploading.”
- After upload completes, the status of each device displays. If the IP address is green, the upload succeeded. If there is an error icon in front of the IP address the upload failed. Retrieve a description of the error by hovering over the error icon.



- Click **Done**.

**NOTE:**

- To remove a list from a device, perform a partial clean on the device.
- The user list can also be uploaded through the device's EWS by navigating to the Security tab > HP Access Control (IRM) and under Configuration, browse to the list and click **Upload**.

Once the upload completes, perform the following steps:

1. Go to the devices tile and configure the device for authentication.
2. Go to the device's EWS and under the Security tab > HP Access Control (IRM) under Authentications select **HPAC-Local List** and click **Update**.



NOTE: Under the Configuration section you will see the userlist.xml that was previously created and downloaded to the device.

3. Go to the Access Control menu and change the sign-in method to **HPAC-Local List** for the features you want to have the users authenticate for. Ensure the guest user is locked out.

9.9 Managing jobs

9.9.1 Deleting jobs

Double-click the pull print queue name to view users' stored jobs. To delete a print job, right-click the job and select **Delete**.

Printer	Server ID	Location	Queued	Retained
PULLPRINTQUEUE	QA03		17	0

To view remote jobs in the PersonalQ tile, you will have to go to the remote server and add the hostname or IP address of the first server. For example, if you want to view "ServerB" jobs in the "ServerA" PersonalQ tile, follow the steps below:

1. Go to ServerB > HPAC > Settings tile > Spooler > Configure > Servers tab > in the "Server2" field, enter the hostname or IP address of ServerA with port 5600.

Update Cancel

*** - Indicates Restart Required for Field Change**

Server Name * SERVERB

Description * HP AC Print Server

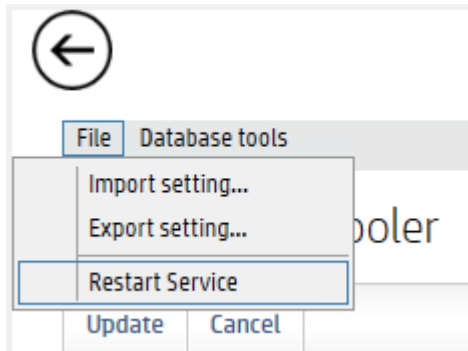
General SNMP Directories **Servers** Advanced

Server Parameters

Server1 * 127.0.0.1:5600

Server2 * 10.10.8.66:5600

- Since there is an asterisk next to the field, this indicates services must be restarted. Go to the File menu > Restart Services. Then close and reopen the admin console.



- Go to ServerA > HPAC > PersonalQ tile to view jobs on both servers.

Printer	Server ID
PULLPRINTQUEUE	SERVERA
PULLPRINTQUEUE	SERVERB

To view "ServerA" jobs in the "ServerB" PersonalQ tile, follow the above steps on the opposite servers.

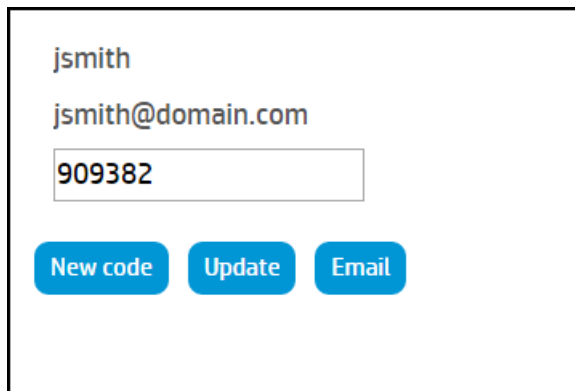
IMPORTANT: Make sure each server has a unique Spooler name (as set in the Settings tile > Spooler tab > Configure > "Server Name" field), since only the first 8 characters of the server name are used for the Spooler name.

9.10 Using myCode

This website will allow users to change their codes.

Prerequisites

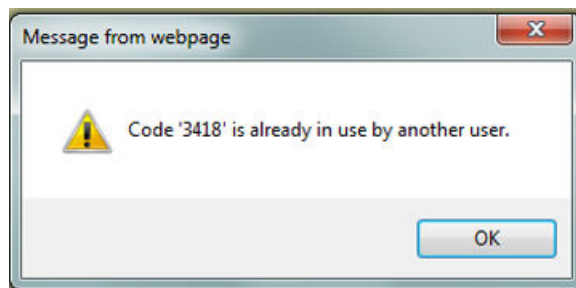
- Must have enabled in the Settings tile > Pull Print, select your server and click **Configure**. Go to the General tab > Device Authentication Method > Code Only, or Card or Code, or Card & Code:
 - For users to view:
 - Users can view own codes.
 - To allow users to email codes:
 - Users can email own codes.
 - To allow users to change or choose own codes:
 - Users can change own codes.
 - Users can choose own codes.
- 1. On the PC enter `http://<servername>/AD-authenticator/MyCode.aspx`.



The screenshot shows a web page with the following content:

- Username: `jsmith`
- Email: `jsmith@domain.com`
- Code input field: `909382`
- Buttons: **New code**, **Update**, and **Email**

2. Click the **New Code** button to change the code.
3. To manually change the code, enter the code and click the **Update** button.
 - If the code is already in use the following message will display:



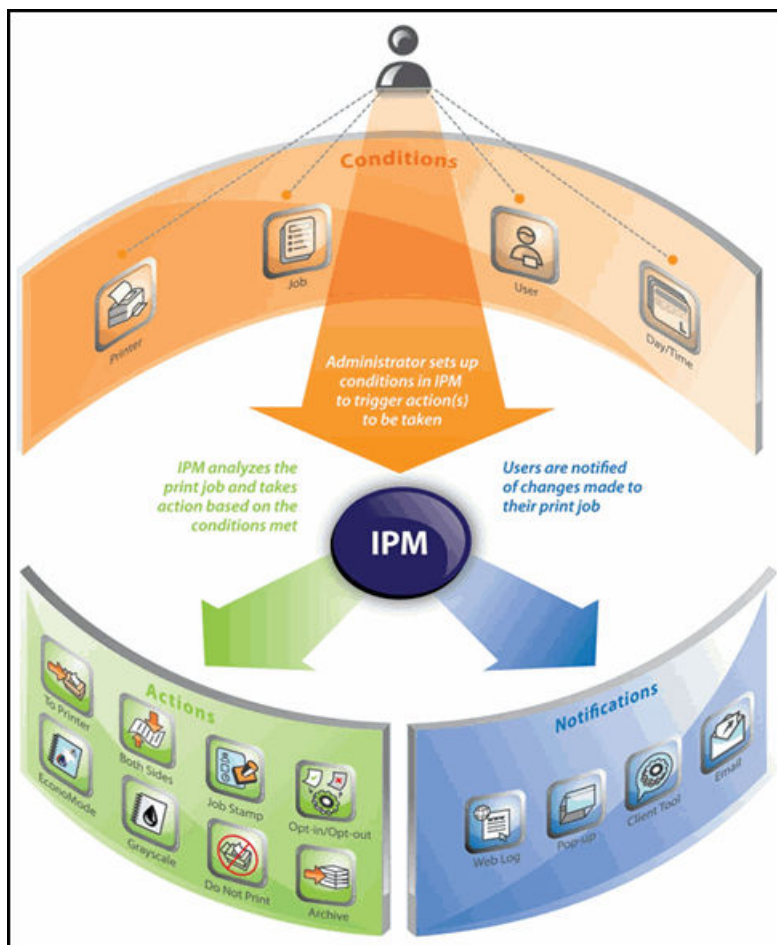
10 Intelligent Print Management

10.1 Introduction

This chapter provides detailed explanations and procedures for installing, configuring, and using HP's Access Control Intelligent Print Management system (HP AC IPM).

HP Access Control (HP AC) Intelligent Print Manager is a solution product that allows you to implement real action plans to meet your corporate initiatives, without being intrusive to the end user community. Intelligent Print Management, or rules based printing is bundled with HP Access Control Enterprise software.

Use HP Access Control (HP AC) Intelligent Print Manager to create and control printing processes by setting conditions, actions, and notifications.



- **Conditions:** Administrator sets up conditions to trigger actions
- **Actions:** IPM analyzes the print job and takes action based on conditions met
- **Notifications:** Users are notified of changes made to their print jobs

10.2 General configuration

Before setting up and creating rules, we will first configure the HP Access Control server's default options for IPM for the following:

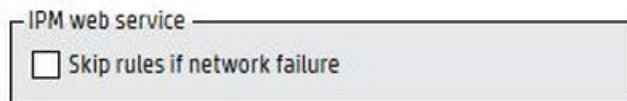
- Failover
- Notification
- Testing
- Activity logging
- Cost per page assignments
- User Grouping

Prerequisites

- IPM installed and configured on the HP Access Control Enterprise Server.

10.2.1 Failover

1. In the HP Access Control configuration utility go to the Settings tile and select the IPM tab.
2. To allow users to print if the client loses connection to the IPM web server, select **Skip rules if network failure**. If not selected, then rules are unable to be checked against the server and all rules-based printing will stop.



3. Click **Apply**.

10.2.2 Desktop notification settings

Desktop notifications can be sent from the server to the end-users' desktop for notifications such as defined printing costs or opt-in/opt-out.

Prerequisites

- IPM installed and configured on the HP Access Control server.
- Clients configured for IPM and IPM Notification
- Ports open for communication between the HP AC IPM web service to the client PCs

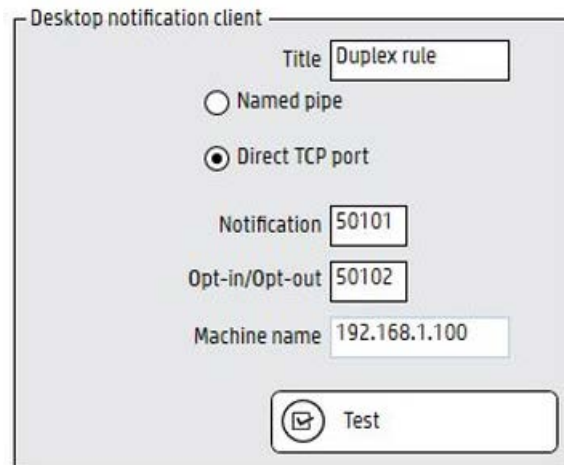
Complete the following steps:

1. In the HP Access Control configuration utility go to the Settings tile and select the IPM tab.
2. Under the Desktop notification client, enter the parameters to send notifications from the server to the desktop when the IPM Notification Desktop client is installed on the end user's PC. The notification will display to the user when the rule is applied.

- **Title:** What will appear in the notification window on client desktops.
- Choose **Named Pipe** or **Direct TCP port** as the communication method between the server and the client desktops.
- **Machine Name:** Enter the FQDN or IP address of a user's desktop to test the connection between the server and the desktop.

 **NOTE:**

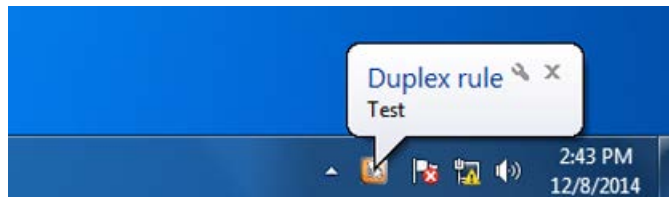
- If the TCP port is different than the default port, select **Direct TCP port**.
- If the Opt-in/Opt-out rule is enabled in IPM, select **Direct TCP port**.



The screenshot shows a configuration window titled "Desktop notification client". It contains the following fields and options:

- Title:** Duplex rule
- Named pipe
- Direct TCP port
- Notification:** 50101
- Opt-in/Opt-out:** 50102
- Machine name:** 192.168.1.100
- Test:** A button with a mail icon and the text "Test".

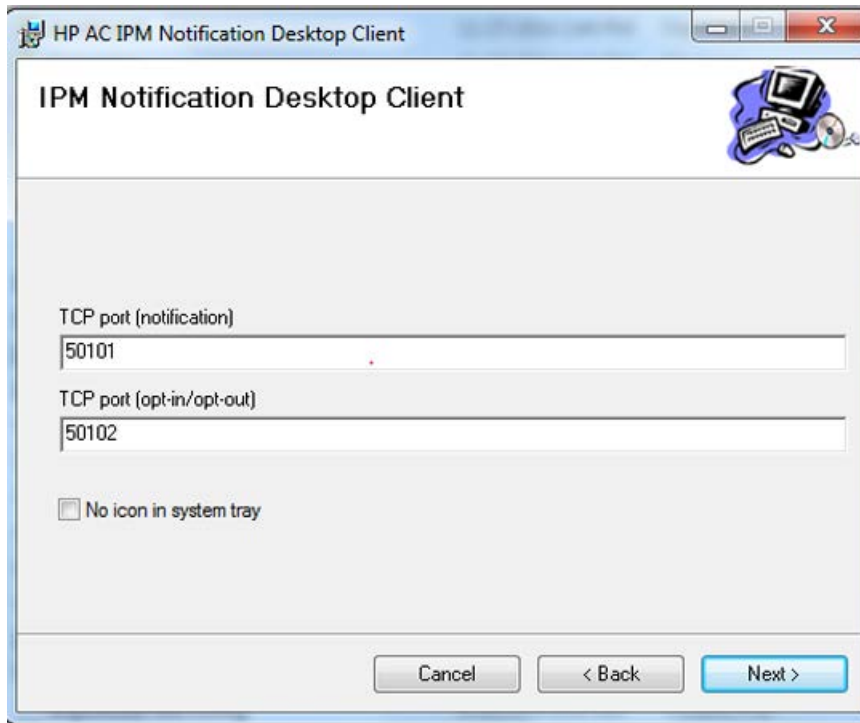
3. Click **Apply** and **Test** to send a message to the client PC.
4. On the client PC, a notification will appear in the system tray.



10.2.3 Installing the IPM desktop notification client

1. Run **HP AC IPM Notification Desktop Client x64.msi**.

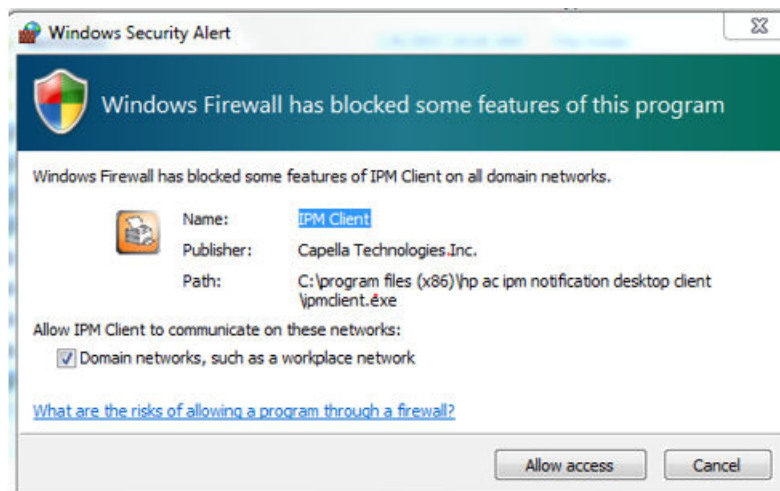
2. Leave the ports set at the defaults and click **Next**. Do not check **No icon in system tray**, as this is the only way to turn off the client. If that is checked, then in order to turn off the client you must uninstall it.



3. Click **Close**.

 **NOTE:** This is only the Notification client – this is not required if there are no desktop pop-up notifications required.

4. If prompted, click **Allow Access** to allow the client to communicate through the firewall.



5. An icon will be added to the system tray.



10.2.3.1 Do not show IPM pop-up if rule is followed

This feature applies to the IPM actions "Print in grayscale" and "Print on both sides". If either or both of the two rules are followed at the time of print, the Opt-in/Opt-out pop-up will not display. For example, if the IPM rule contains the actions "Print in grayscale" and the "Opt-in/Opt-out" pop-up, and if a user prints a document in grayscale, the Opt-in/Opt-out pop-up will not display, because the "Print in grayscale" rule is already followed. However, if the user prints a color document, the Opt-in/Opt-out pop-up displays, giving the user the option to apply the "Print in grayscale" rule.



NOTE: If any other actions are included in the Opt-in/Opt-out action, such as "Job Stamp" or "Economode", the pop-up will always display, regardless if "Print in grayscale" or "Print on both sides" are followed at the time of print.

By default, this feature is disabled. To enable the feature, complete the following steps:

1. Go to the `Program Files\HP\HP Access Control\IPMWS` folder and open the **web.config** file with Notepad started with **Run as Administrator**.
2. On the `<add key="HidePopup" value="false" />` line, change the value from false to true.
3. Save the file.

10.2.3.2 Use client IP address instead of host name for IPM notification pop-up

If there are DNS issues on the network and client host names cannot be resolved, use client IP address for IPM pop-ups, instead of using client host names. By default, this feature is disabled. To enable the feature, complete the following steps:

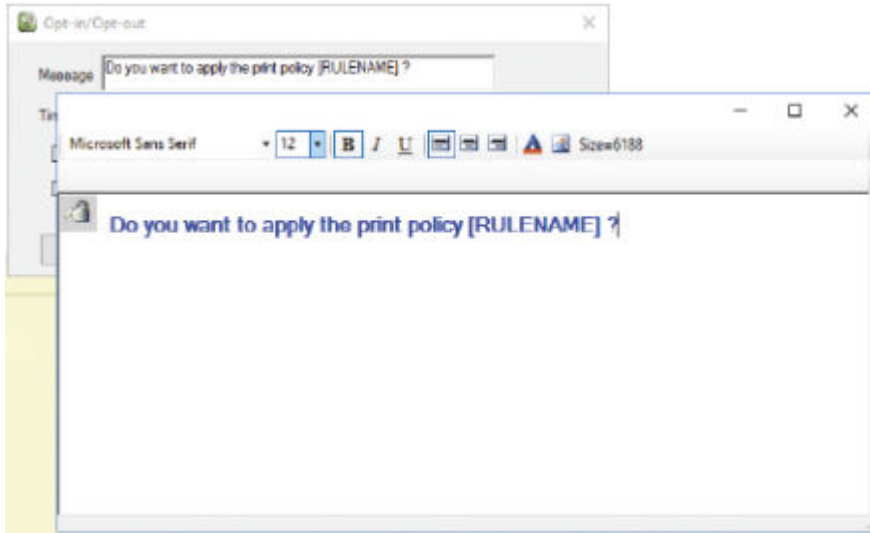
1. Go to the `Program Files\HP\HP Access Control\IPMWS` folder and open the **web.config** file with Notepad started with **Run as Administrator**.
2. On the `<add key="UseClientIP" value="false" />` line, change the value from false to true.
3. Save the file.

10.2.3.3 Enable HTML/Rich Text Box for IPM pop-up

With this feature, the Opt-in/Opt-out pop-up message that displays on user workstations at the time of print can be customized to include various font sizes, font types and images. Complete the following steps to edit the message text:

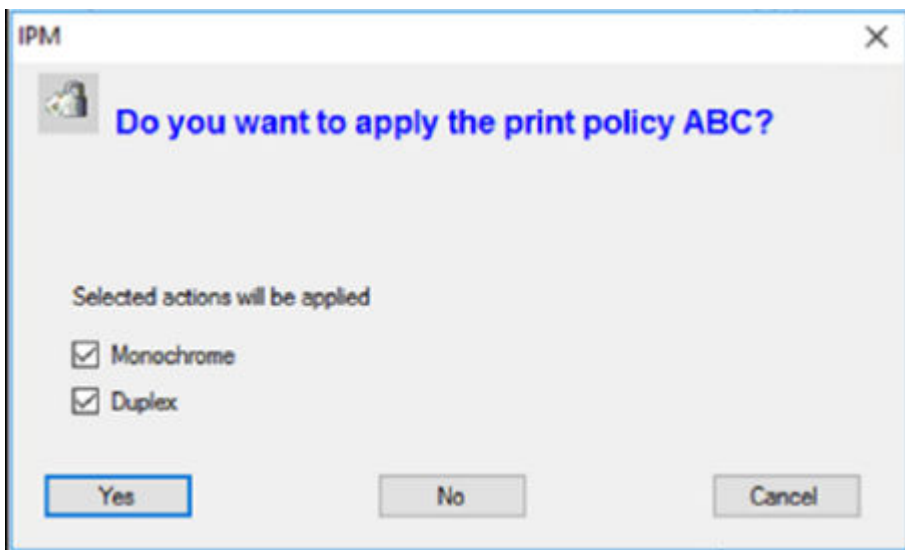
1. In the Opt-in/Opt-out action properties, double-click in the "Message" text field.

- In the text editor window, modify the font type, text alignment, or insert an image.



NOTE: The "Size=" field is the size of the message in bytes. The maximum size allowed is 64,000 bytes.

- When users print, they will see the customized message in the Opt-in/Opt-out pop-up window.

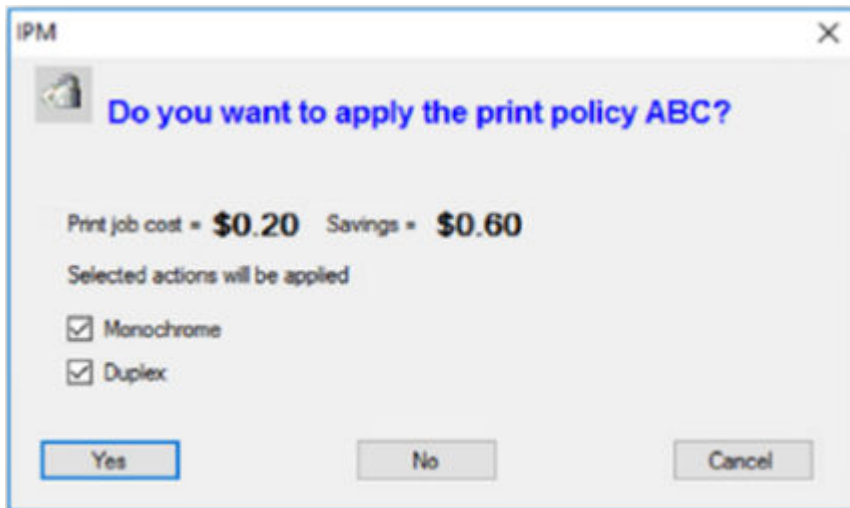


10.2.3.4 Show savings in pop-up when rules are followed

Prerequisites:

- Costs specified in the HPAC > Settings > IPM > Cost per page section.
- Configure a printer for IPM and IPM cost in the HPAC > Print Server tile, or install the Enterprise Client with IPM on a client workstation.
- Create an IPM rule with the Opt-in/Opt-out action and the desktop client notification.
- Install the IPM Notification Client on a client workstation.

When a user prints, the Opt-in/Opt-out pop-up window shows the cost of the print as well as savings if the IPM rule is applied.




10.2.4 Cost per page

The cost per page feature to set estimated costs for different features within a print job. The Desktop Notification Client uses this data to notify the end user of the cost of a print job. If the Opt-in/Opt-out action is used, the user can modify the job to meet an estimated target cost.

Prerequisites

- IPM installed and configured on the HP Access Control Server.
- Clients configured for IPM and IPM Notification.

 **NOTE:** To use IPM costs with the HPAC Print Client on workstations, the first group of IPM Costs Per Page (set in **HPAC > Settings > IPM > Costs Per Page** section) will automatically be used. It is recommended to set the costs per page before installing the HPAC Print Client. However, if costs per page are applied or changed after installation of the client, recycle the IPMWS application pool or click the **Clear cache** button in **Settings > IPM**.

Complete the following steps:

1. In the HP Access Control configuration utility go to the Settings tile and select the IPM tab.



2. Under the Cost per page feature you can set estimated costs for different features within a print job. The Desktop Notification client uses this data to notify the end user the cost of a print job, and if the rule was created with an Opt-in/Opt-out action, the user can modify the job to reduce the estimated costs.

- You can define up to three cost per page profiles to set different cost models to different print queues.

– Cost per page –

	Simplex	Duplex
Sales		
Economode	.02	.01
Mono	.05	.02
Color	.20	.10
Marketing		
Economode	.02	.01
Mono	.10	.05
Color	0.30	.15
Executive		
Economode	0.02	.0001
Mono	.05	.02
Color	.10	.05

- Click **Apply**.

 **TIP:** Values for duplex printing should always be lower than those for simplex printing.

10.2.5 User grouping for Job Stamps

User grouping is applied when the cost center option of an IPM job stamp rule is used. When configured, the name of the user's cost center is printed on all printed pages.

Prerequisites

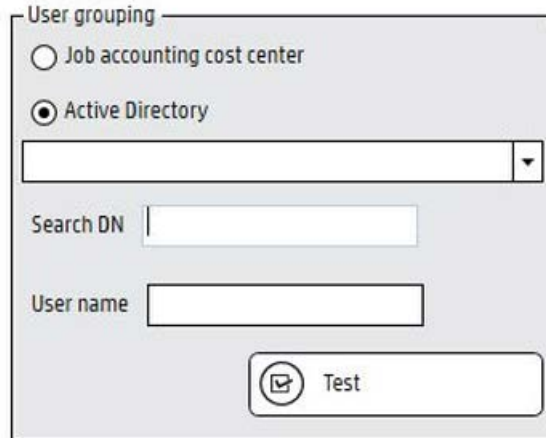
- IPM installed and configured on the HP Access Control server.
- Clients configured for IPM and IPM Notification.
- HP Access Control Job Accounting server if using job accounting cost centers.
- Rule created using a job stamp.

Complete the following steps:

- In the HP Access Control configuration utility go to the Settings tile and select the IPM tab.



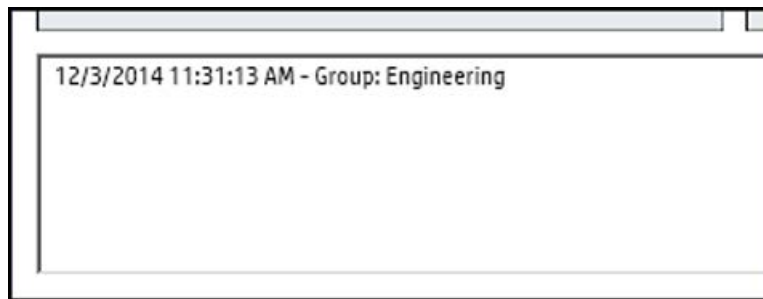
2. Choose the Job accounting cost center if you want costs centers previously defined within HP Access Control Job Accounting, or select **Active Directory** if you want to use groups defined in Active Directory.



3. If using Active Directory, click the drop-down list to select an AD field that contains the group names you want in the jobs stamps.

 **NOTE:** The **Search DN** field displays the domain your server belongs to.

4. To test the connection to either Job Accounting cost centers or AD, enter a network username in the **User name** field and click **Test**. The name of the group the user belongs to will display in the status bar at the bottom.



5. Click **Apply**.

10.2.6 IPM Authentication

IPM authentication contains the credentials to allow the IPM web service to retrieve user grouping information and for notifications.

Prerequisites

- IPM installed and configured on the HP Access Control server.
- Clients configured for IPM.
- Device configured for IPM.
- Print driver configured to Start Printing after last page is spooled.

- User Grouping information configured in the Settings tile > IPM tab > User Grouping section.
- For notifications, a domain account or local account is required with administrative privileges. To send email notifications requires a domain account.

Complete the following steps:

1. Go to the Settings tile and select the IIS tab.



2. Under the IPM authentication enter the username and password of a domain user in the form of domain \username.

 A screenshot of the 'IPM authentication' settings window. The title bar reads 'IPM authentication'. Below the title bar, it says 'IIS anonymous authentication (restart IIS after any changes)'. There are two input fields: 'Login (domain\user)' with the value 'hpsolstrs1' and 'Password' with the value '**'.

3. Restart IIS and click **Apply**.



4. Messages will appear in the bottom pane confirming the settings are saved and the service has restarted.

```

10/31/2014 1:12:59 PM - Save successful
10/31/2014 4:12:41 PM - IPM data saved
10/31/2014 4:53:45 PM - HPAC IPM: Settings saved
10/31/2014 4:53:48 PM - IIS service restarted
  
```

10.2.7 Email notification

If using email notification to notify end-users regarding IPM rules, the SMTP server must be configured.

Prerequisites

- IPM installed and configured on the HP Access Control server
- IPM Rule configured for email notification.

Complete the following steps:

1. Go to the Settings tile > Pull Print tab, select the server, and then click **Configure**. Go to the Advanced tab > SMTP.
2. In the SMTP section, enter the following information:

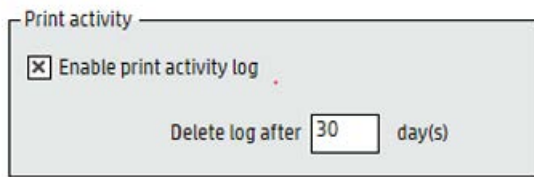
- **Server Name:** Enter the FQDN or IP address of the email server.
- **Server Port: type the email server port.** The default port is 25. Check TLS to enable Transport Layer Security protocol to encrypt and securely deliver the email.
- **Login and Password:** Enter the username and password that has access to the email server.
- **Sender Email Address:** Enter the email address that will appear in the “from” field of the email sent to users.
- **Recipient email:** Enter an email address to test the connection between the email server and the recipient. Click **Test** to send the email.
- **Email Subject:** Enter the subject of that will appear in the notification email.
- **Email body:** Enter what will appear in the body of the notification email.

3. Click **Test connection** and **Update**.

10.2.8 Activity logging

The Print Activity log provides a report of jobs printed with defined rules.

1. On the HP Access Control server select the Settings tile and go to the IPM tab.
2. Under Print activity, select **Enable print activity log**. Choose how long to keep the log before deletion.



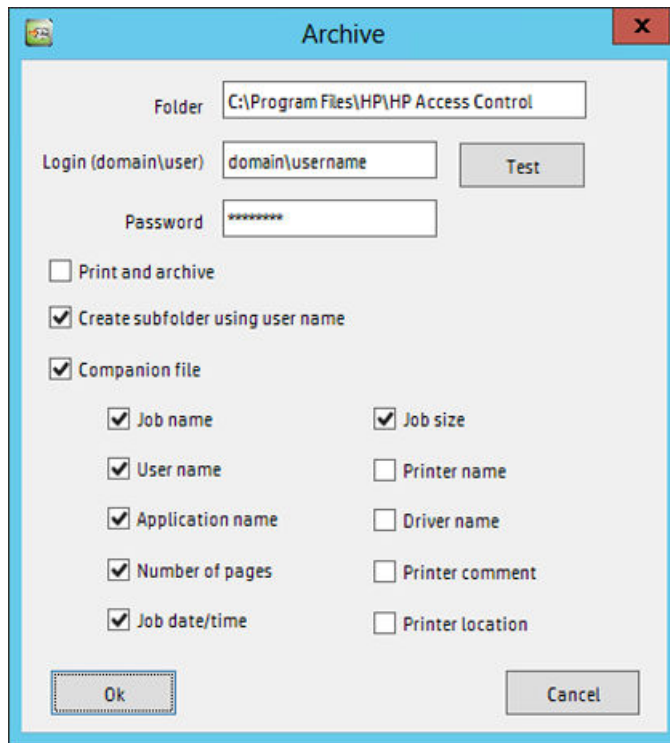
3. Click **Apply**.


10.2.9 Configuring the Intelligent Print Management (IPM) Archive action

HP Access Control (HP AC) Intelligent Print Management (IPM) software can be used to create a print policy to archive print jobs. Intelligent Print Management generates companion files, which are XML files containing print job information.

To generate the companion file in Intelligent Print Management, complete the following steps:

1. In the Intelligent Print Management software, open the Archive preferences window.
2. For **Folder**, type the archive folder location, or double-click the text field to browse for the archive folder location. If the login information is not entered, the folder must allow write access for the "Everyone" account.
3. Select **Print and archive** to send the job to the printer and the archive folder. If the box is not checked, the print job is archived but not printed.
4. Select **Create subfolder using user name** to create a subfolder within the archive folder.
5. Select **Companion file**. As shown in the graphic below, the following **Companion file** sub-items must be selected to generate the companion file that can be used by Secure Pull Print.



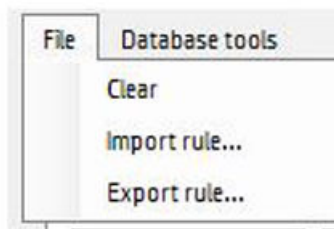
 **NOTE:** If using IPM with local client queues, enter the folder as a UNC path and ensure that everyone in the group has full control over that directory.

10.3 Using IPM to create rules

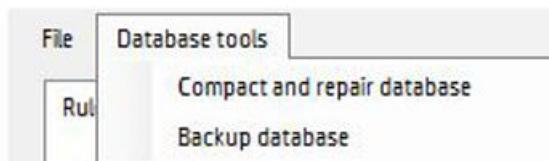
The IPM tile is where you define rules and policies to be applied to your printing environment.

The File menu allows you to import/export rules and clear rule processes.

- Click **Import rule** to import an XML file of rule processes.
- Click **Export rule** to save the current process as an XML file.



The **Database tools** menu allows you to repair or backup the database of information in case the server or application needs to be reinstalled.




10.3.1 Create a rule

To create a rule, complete the following steps:

1. Go to the IPM tile and under the Rules tab enter the name for the new rule.



2. Click **Create**.

 **NOTE:** When multiple rules are listed, use the up and down arrows to rearrange the order of the rules. Rules are checked in the order they are listed. The first rule that matches the print job properties is applied. If no rule matches the print job properties, nothing will happen.

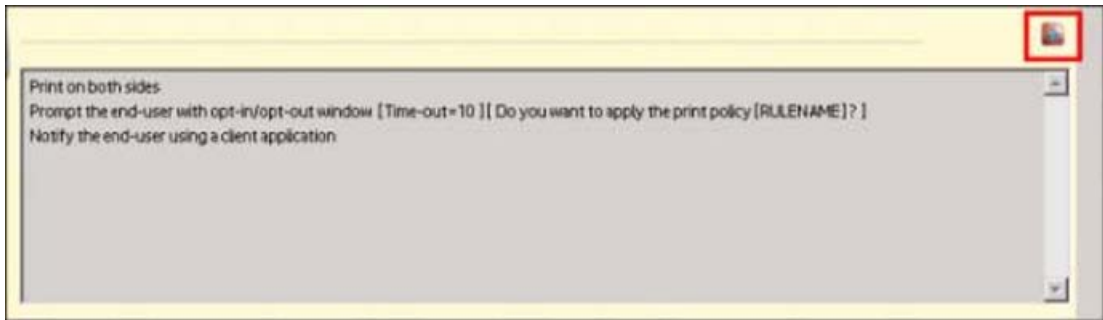
3. Select a rule from the Rules list.



4. Click the **Process** tab.

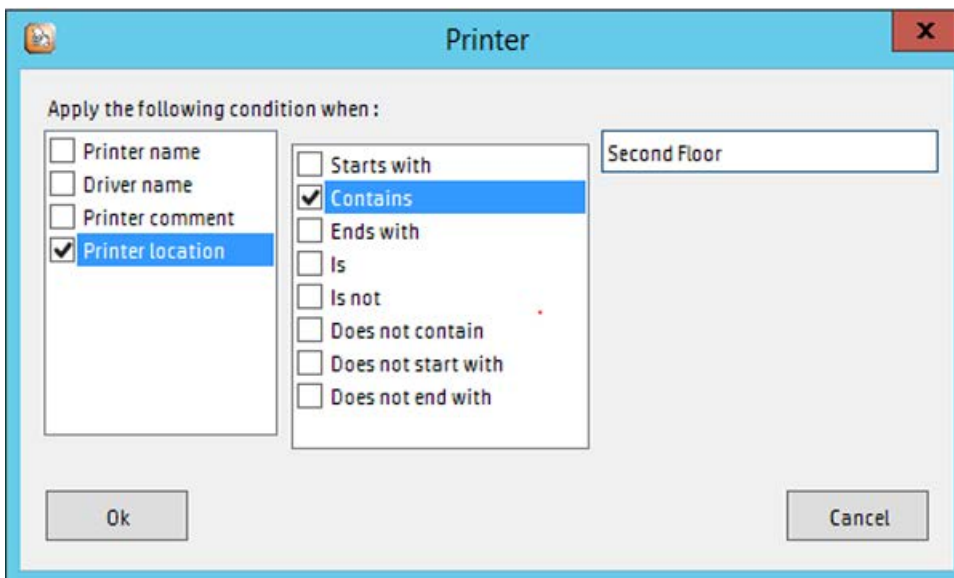
5. Click and drag icons from the **Conditions**, **Actions**, and **Notifications** sections to the process design window on the right.

Moving the cursor over icons to view a description display in the help window at the bottom. Click the expansion arrow to display a list of parameters of the current rule process.

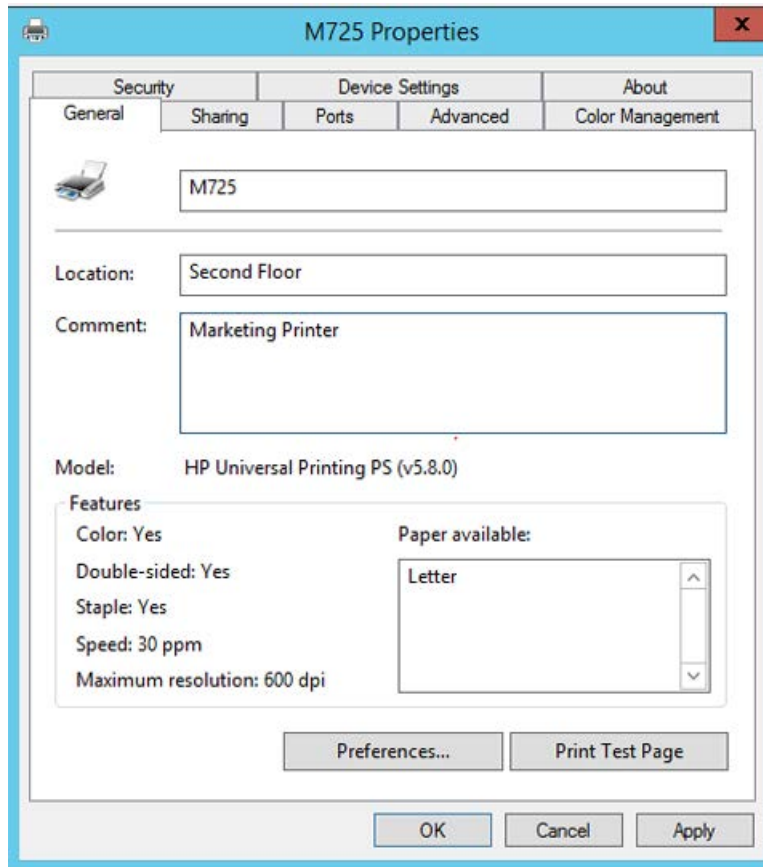


 **NOTE:** To delete a process element, right-click the icon and select Remove. Click OK to confirm the deletion.

6. Under **Conditions**, choose what condition is required to trigger the rule by dragging the icon to the process design window. Right-click the icon to view the Condition properties.
 - **Printer Condition:** You can create a condition based on **Printer name**, **Driver name**, **Printer comment**, or **Printer location**.



 **NOTE:** Go to the General tab to see printer driver Properties **Location** and **Comment** information.



- **Job condition:** The following parameters are configurable and choosing one of these parameters will allow for additional configuration options (i.e. number of pages is greater than 2):

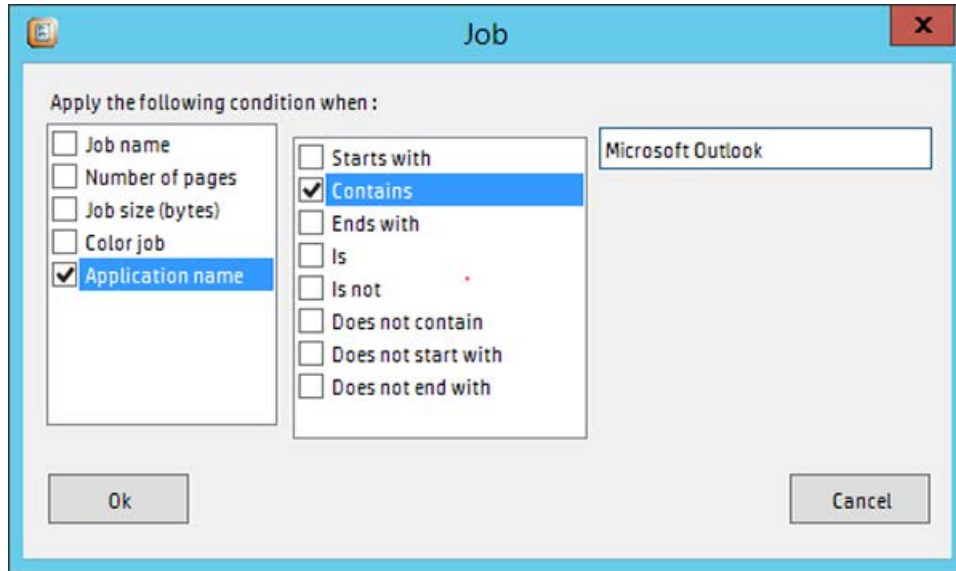
- Job name
- Number of pages
- Job size (bytes). Job size is measured in bytes and usually varies, depending on the printer driver that is used when the job is spooled.



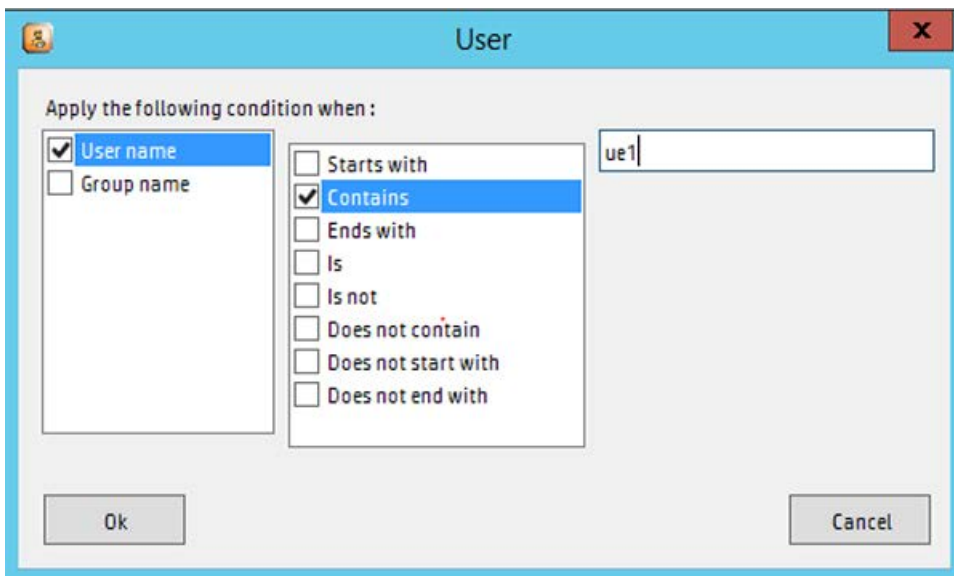
NOTE: When the Equal to parameter is selected, the job size must be the exact size of the spooled job. If the job size entered does not match the actual job size the condition will fail. To view the actual size of a spooled job, pause the print queue and right-click the print job and click **Properties**. The job size will be displayed.

- Color job
- Application name. To determine the application name print the document to a file and open the file with Wordpad. Search for the line @PJL SET JOBATTR-"JobAcct6=" where the application name will be located. Use this application name to define the condition or use the following application names listed below when using a HP print driver:
 - Microsoft Word
 - Microsoft Excel
 - Microsoft PowerPoint
 - Microsoft Outlook
 - Microsoft OneNote

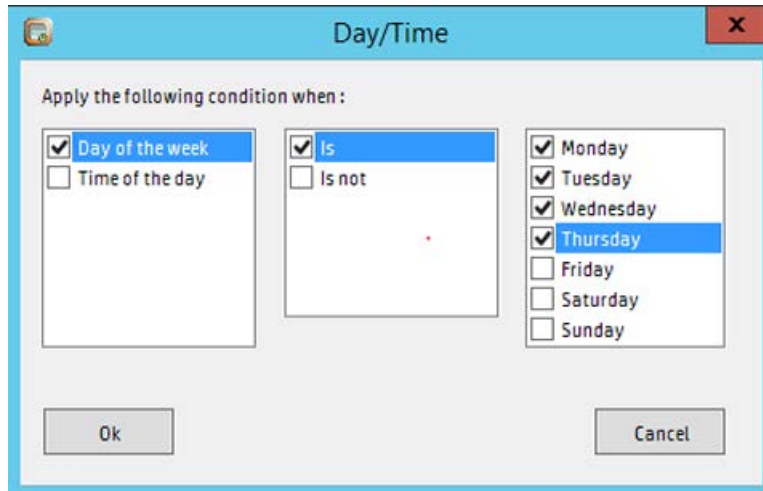
- WordPad
- Notepad
- Paint
- Adobe Reader
- Adobe Acrobat
- Internet Explorer



- **User condition:** The possible parameter is User name and Group name.

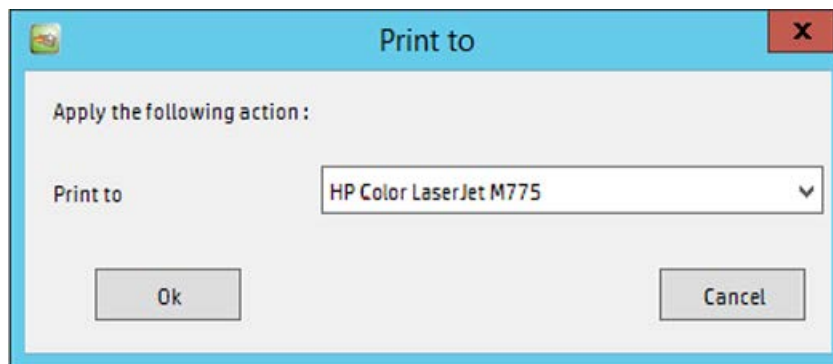


- **Day/Time Condition:** You can set a parameter by day of the week or time of day.



7. Under Actions, you can specify what actions to apply to the job:

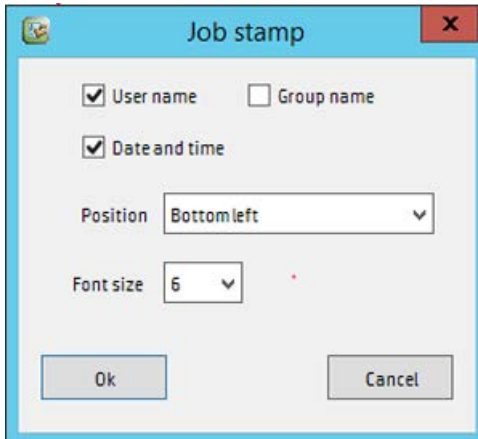
- **Print to a different printer:** Sends the print job to a different queue installed locally on the print server.



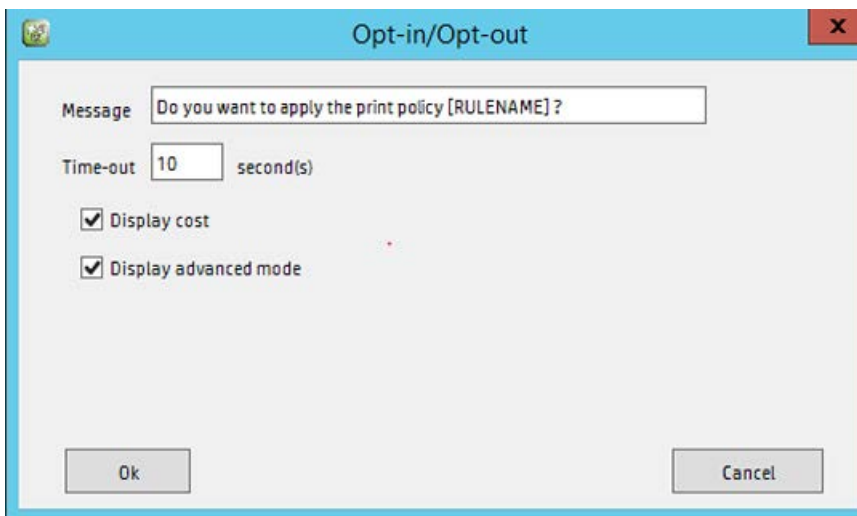
- **Print on both sides:** Creates duplex jobs.
- **Economode:** Prints the job in economode, thereby utilizing less toner.
- **Print in Grayscale:** Prints the entire document in grayscale.
- **Do not print the job:** Cancels the print job.
- **Job stamp:** Stamps the User name, Group name, and/or Date and time. **Group name** is the group name defined in HP AC Job Accounting. You can also specify the Position and Font size on this page.

 **NOTE:**

- Only available on HP LaserJet printers when using PCL5, PCL XL 3.0, or PS drivers. PCLXL2 and PCL6 drivers are not supported.
- Only available on HP OfficeJet Pro and HP S900 devices when using PCL 5 or PS drivers.
- Double-byte languages are not supported.



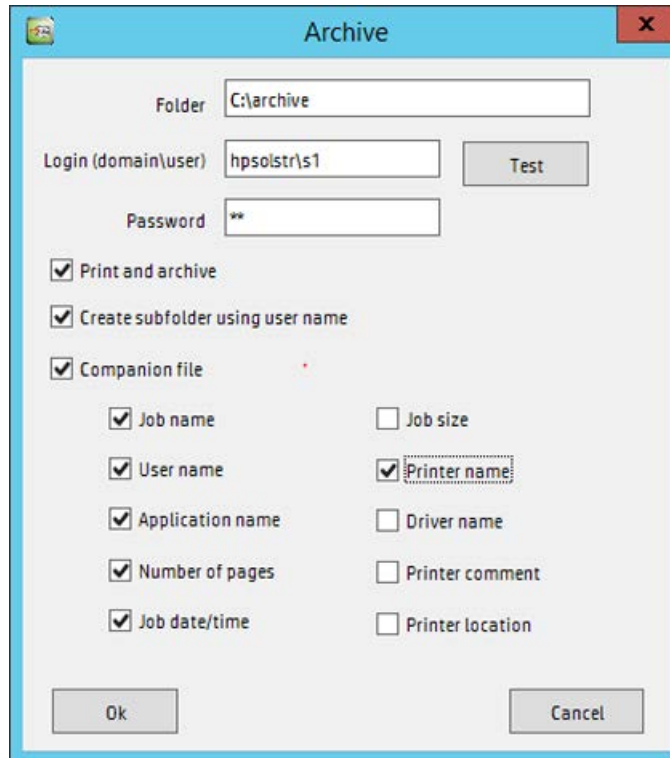
- **Opt-in/Opt-out:** Marks the process as optional to the end user. When included in a rule, the Opt-in/Opt-out action provides a message to users, giving them an opportunity to decline.



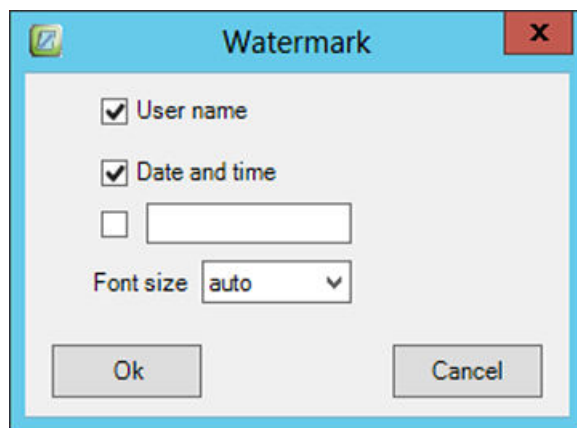
- **Archive:** Archives all print jobs to a folder. The folder must be in the form of drivename\foldername (i.e. c:\archives) or a UNC path (i.e. \\servername\sharename). Enter the location of the archive folder, and make sure the folder has write access for “everyone.”

 **NOTE:** If the Archive rule is used with the Enterprise Client, it is recommended that the archive folder be a UNC path. This is because if a local folder name is used, the archive files will be stored locally on client workstations.

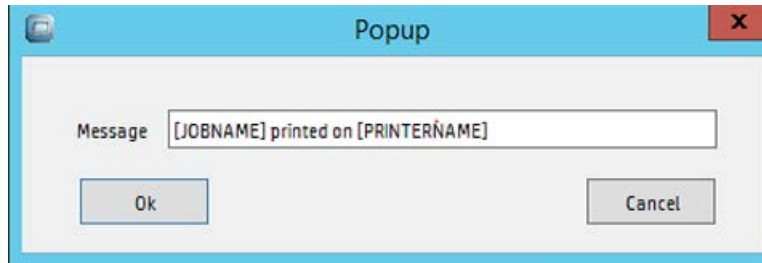
- **Print and Archive:** When not checked, the job will be archived and not printed.
- **Create subfolder using username:** Creates a subfolder in the archive folder based on the User name who printed the job.
- **Companion file:** Creates an XML file containing the information selected.



- **Watermark:** Prints a watermark on every page. In the Properties window, select if you want to print the user name who printed the job, the date and time the job was printed, or custom text.

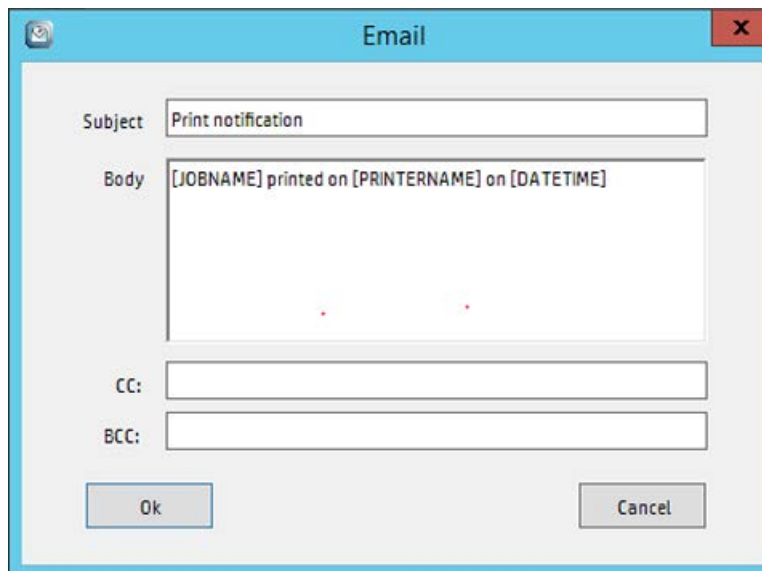


8. In the Notifications, you can configure how users will be notified that a rule has been applied to their job. Any combinations can be used to notify a user of rules that affect a job.
 - **Pop-Up:** Requires messenger service to be started on the server and the end-user's desktop to receive pop-up notifications. If the Messenger service is not available, the Notification client may be used.

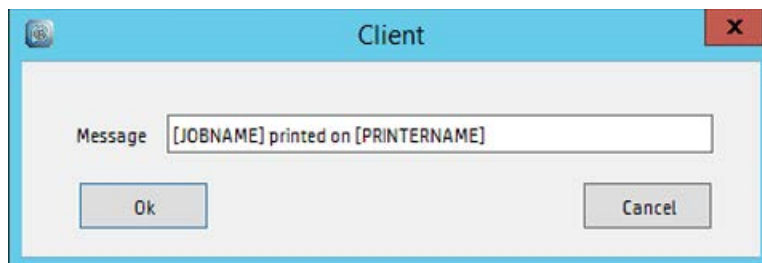


- **Email:** Sends a notification email to the user. The user email is obtained automatically from Active Directory.

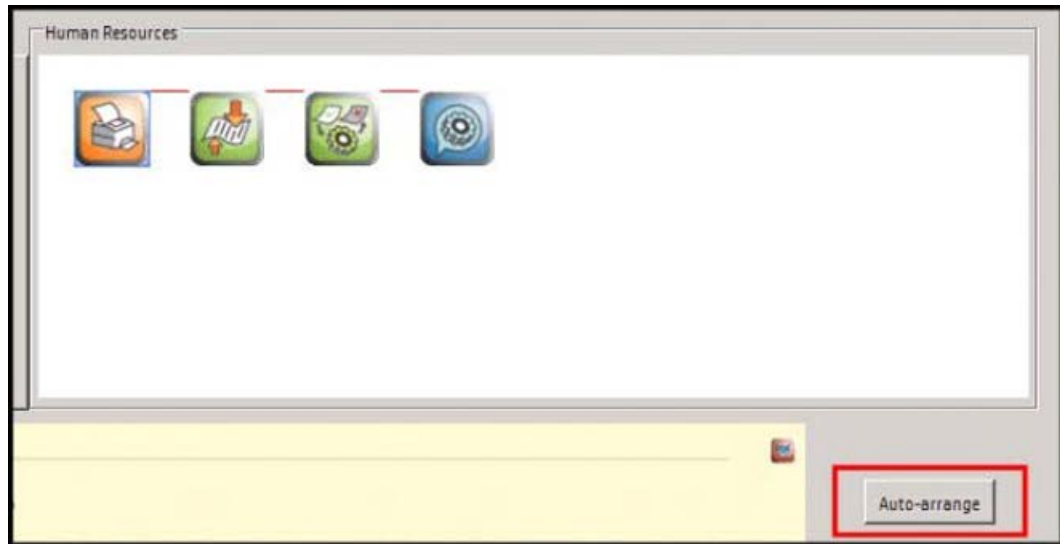
 **NOTE:** The email server must be configured to send email notifications.



- **Web log:** Updates the user log when the rule is used to initiate a print job. The Web log provides the user with a view/list of the print jobs that HP AC IPM has processed. To see the list of print jobs, connect to <http://<HP AC IPM Servername>/myprint> where <HP AC IPM Servername> is the name of the server where HP AC IPM is installed.
- **Client application:** Sends a message using the Notification Desktop Client. The Client must be installed on the end user desktop to receive notification.



9. When all the icons have been placed in the Process design window, click **Auto-arrange** button to align them.

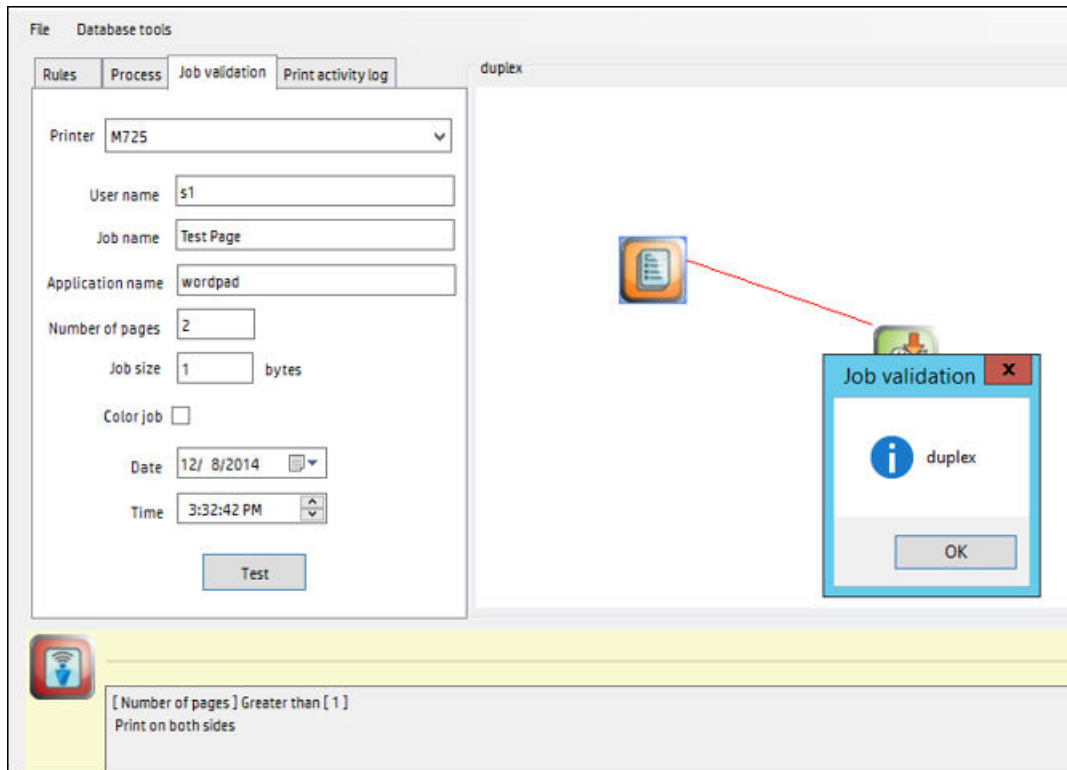


10. To determine that the conditions, actions, and notification options are valid for the rule you created, click the Check button. A message will display indicating that the rule is valid or invalid. If the rule is invalid, the icon representing the part of the process that needs correction or completion will blink. Correct the parameters and run the Check function again.



11. To test the rule, go to the **Job validation** tab. From here you can test the rules without actually creating the print job with the specific attributes to trigger the rule.

12. Select a printer from the drop-down list and enter the parameters for testing. For example, to test a rule where number of pages greater than 1 will force duplex, you would enter 2 in the **Number of pages** and click **Test**. The job validation pop-up will confirm the rule is working.



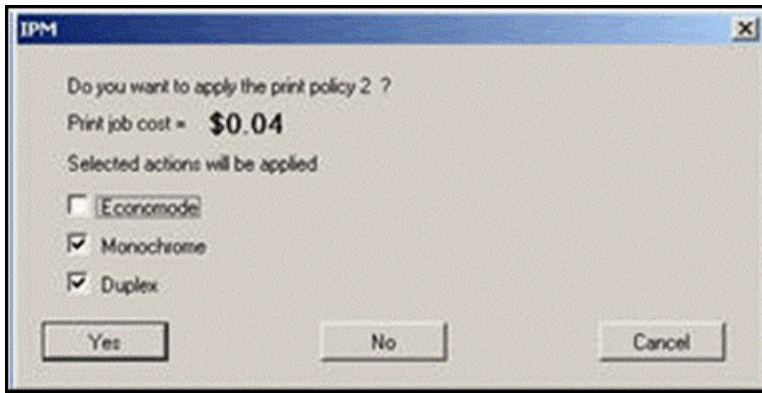
10.3.2 Notifying users of Cost per page

Prerequisites

- HP AC IPM installed and configured on the HP Access Control server.
- Rule defined using opt-in/opt-out with display cost enabled.
- Cost per page setup in Setting tile > IPM tab > Cost per page section.

The user can set the cost per page in the Cost per page section of the Settings tile > IPM tab. If the Cost per page setting is enabled in the Notification Desktop Client application, the user can see the estimated cost impact of a rule using the Opt-in/Opt-out feature. This setting is reflected in the Print job cost (the cost per page multiplied by the number of pages in the job).

Example: The administrator sets a rule for Economode, Monochrome, and Duplex. The Opt-in/Opt-out feature allows the user to override the rule by clicking any or all of the restrictions. When the user clicks a restriction, the change is reflected in the **Print job cost**.



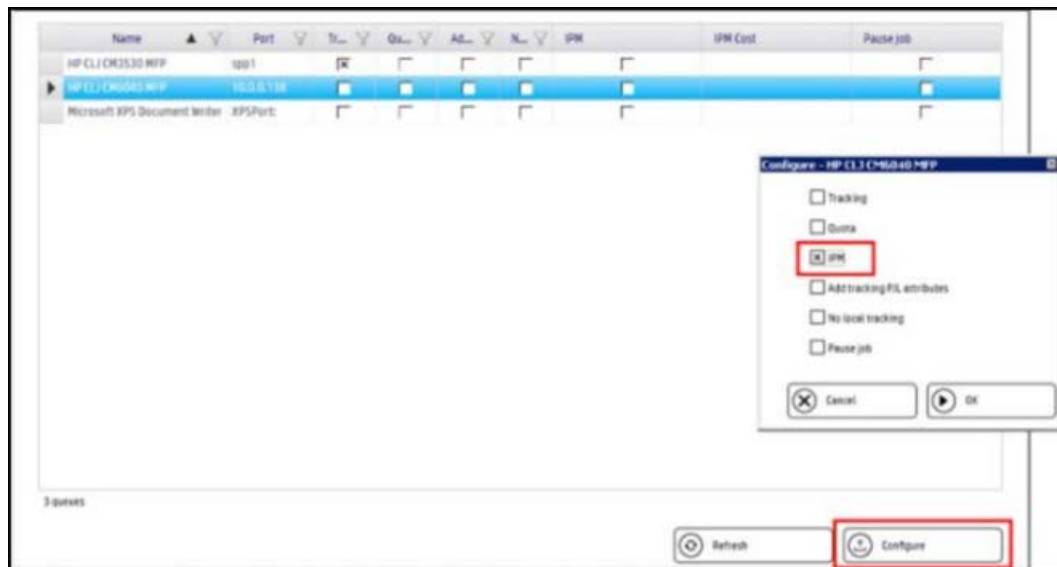
10.3.3 Configure IPM on a printer

Prerequisites

- IPM installed and configured on the HP Access Control server.
- Rule(s) configured and tested on the IPM server.
- Print driver installed on the server (required for validation and testing of the rules)
- If you will be configuring an HP OfficeJet Pro device, a PCL5 driver is required. PCL6 and PostScript drivers are not supported with IPM rules and HP OfficeJet Pro devices.

Before applying rules to a printer, you will have to configure the printer for IPM. Complete the following steps:

1. Go to the **Print Server** tile.
2. Select a device from the device list. Click **Configure**.



3. In the Configure window, select **IPM**. Click **OK**.
4. An X displays under the IPM column, indicating the printer is configured for IPM and is ready to receive printing rules.

10.3.4 Print activity log tab

Prerequisites

- IPM configured on the HP Access Control server
- Print activity log enabled (Settings tile > IPM tab > Print Activity)
- Rules defined
- Devices configured for IPM
- Print jobs sent and rules applied during the last x amount of days (where x is the number of days the log is kept for before deletion).

Complete the following steps:

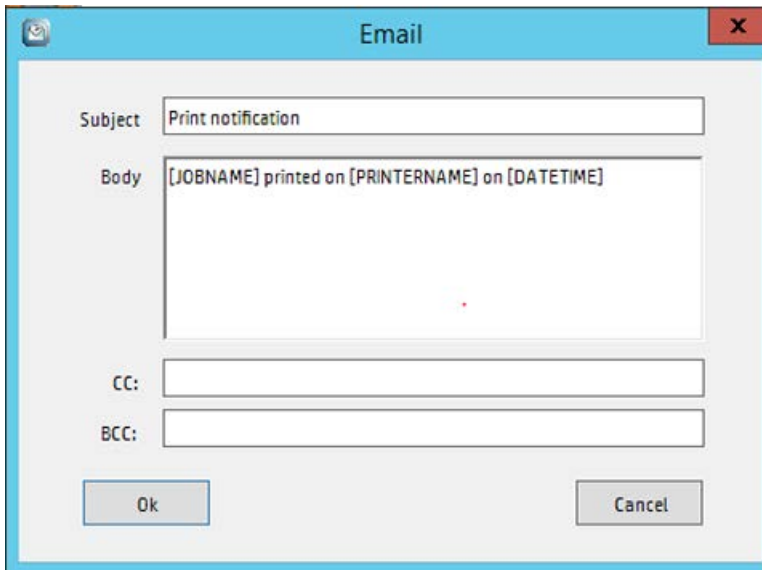
1. Go to the IPM tile and select **Print Activity log** tab.
2. Enter information in the fields to define the report:
 - In the **From** and **To** fields, select the beginning and end dates you want to view in the log.
 - In the **Rule** field, enter a rule name to view print activity information about a specific rule.
 - In the **User** field, enter a user name to view print activity information relating about a specific user.
 - In the **Printer** field, enter a printer name to view print activity information about a specific printer.
 - In the **Job name** field, enter the name of a job to view print activity information about a specific print job.
3. In the **Applied** drop-down menu, select the information you want to see in the report.
4. Click **View** to see the output, or **Export** to save it as a CSV file.

10.3.5 Modifying messages to end users

Notifications sent to end users can be customized using macros. This applies to Opt-In/Opt-Out, email messages, and pop-up notifications.

The following macros are available to customize the message:

- [PRINTERNAME]
- [RULENAME]
- [JOBNAME]
- [DATETIME]
- [USERNAME]



The image shows a standard Windows-style dialog box titled "Email". It has a blue title bar with a close button (X) in the top right corner. The dialog contains several input fields and two buttons. The "Subject" field is pre-filled with the text "Print notification". The "Body" field contains a template string: "[JOBNAME] printed on [PRINTERNAME] on [DATETIME]". Below the body field are two empty text boxes labeled "CC:" and "BCC:". At the bottom of the dialog are two buttons: "Ok" on the left and "Cancel" on the right.

Subject	Print notification
Body	[JOBNAME] printed on [PRINTERNAME] on [DATETIME]
CC:	
BCC:	

Ok Cancel

11 Device Analysis

11.1 Introduction

HP's Access Control Device Analysis solution allows an organization to quickly determine the performance of a networked printer fleet by gathering data and providing detailed analysis with statistical reports. Before implementing print initiatives such as cost reduction or environmentally-conscious compliance, you need to know how your fleet operates today.

HP Access Control Device Analysis (HP AC DA) provides data organization and analysis to target needs, help focus on a real action plan, and then monitor the plan's success.

11.2 Operation

This chapter describes the features and operation of the HP Access Control Device Analysis (HP AC DA) application.

11.2.1 Settings

Use the **Settings** tab to configure the parameters for the scanning process, and to schedule scans.

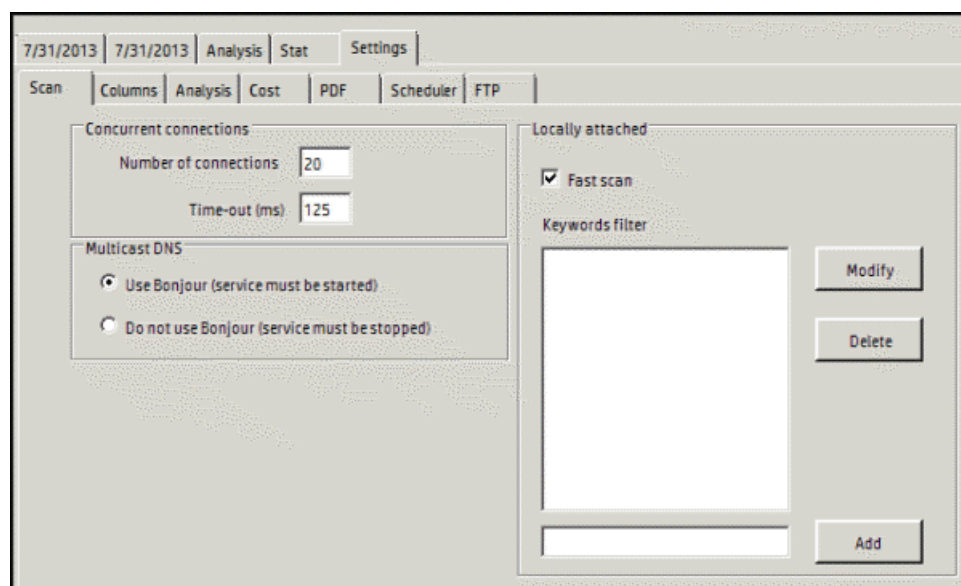
Make sure to configure additional settings, such as SNMP, email, and license settings, in the **Settings** tile.

11.2.1.1 Scan settings

Use the **Scan** tab to enter numbers in the Number of connections and Time—out (ms) fields in the Concurrent connections section.

Following are the Scan settings for Concurrent connections, Multicast DNS, and Locally attached scans. Click **Save** after making any changes. Click **Default** to restore the default settings.

Figure 11-1 Scan settings



11.2.1.1.1 Concurrent connections

The maximum number of devices scanned simultaneously.

11.2.1.1.1.1 Time-out (ms)

The number of milliseconds the application waits for a printer to respond to a TCP/IP request.

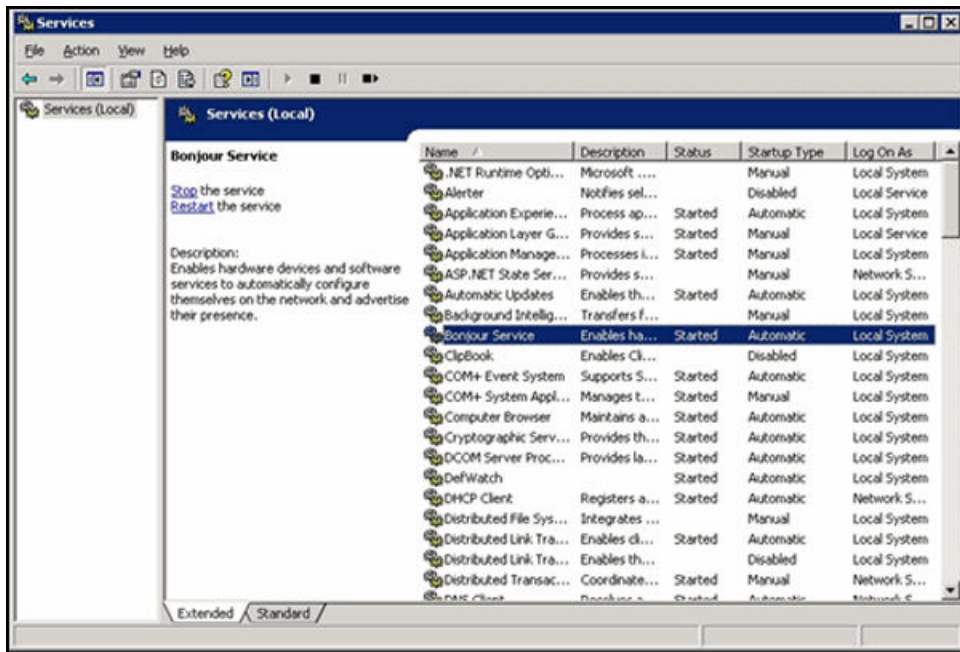
11.2.1.1.2 Multicast DNS

This section only displays if iTunes 10 is installed on the system. Choose whether or not to use Bonjour.

Follow the steps below to start or stop the Bonjour Service:

1. Go to Control Panel, Administrative Tools, Services.
2. Click **Bonjour Service**. Then click **Start** or **Stop** the service.

Figure 11-2 Bonjour service



11.2.1.1.3 Locally attached

11.2.1.1.3.1 Fast scan

This scan quickly scans network neighborhood for devices locally installed on connected PCs.

If not checked, the scan generates a list of all locally attached devices on all PCs on the domain controller. The amount of time to complete the scan depends on the size of the domain. Larger domains cause slower scans.

11.2.1.1.3.2 Keywords filter

Filters keywords found in the driver names.

1. Type keywords in the appropriate text box.
2. Click **Add** to add to the list.

11.2.1.2 Column settings

Use the **Columns** tab to set up columns that contain custom device data. Create up to 10 additional columns. Choose to display data in text, integer, decimal, or date format.

Figure 11-3 Column settings

The screenshot shows a software interface with a 'Settings' tab selected. Below it, the 'Columns' sub-tab is active. A 'Custom columns' section contains a text box labeled 'Number of additional columns' with the value '0'. Below this are ten rows, each representing a column configuration. Each row has a text input field for a title and a dropdown menu for the data format. All dropdown menus are currently set to 'Text'.

Follow the steps below to configure column settings:

1. Enter the preferred number of additional columns in the text box.
2. Enter title names for the columns next to the column numbers.
3. Use the drop-down menu(s) to format the data as Text, Integer, Decimal, Date or Currency.
4. Click **Save** when finished.

11.2.1.3 Analysis settings

Use the **Analysis** tab to define the Number of days in a month and year in the appropriate fields. These fields are used to calculate the page count. Click **Save** after making changes. Click **Default** to restore the default values.

Figure 11-4 Analysis settings

The screenshot shows a software interface with a top navigation bar containing tabs: Scan 1, Scan 2, Analysis, Stat, and Settings. Below this is a secondary navigation bar with tabs: Scan, Columns, Analysis, Cost, PDF, Scheduler, and FTP. The 'Analysis' tab is selected. The main content area is titled 'Analysis' and contains two input fields: 'Number of days in a month' with the value '22' and 'Number of days in a year' with the value '260'.

11.2.1.4 Cost settings

Use the **Cost** tab to define the per-page costs for Mono and Color printing devices. Click **Save** if any changes are made.

Figure 11-5 Cost settings

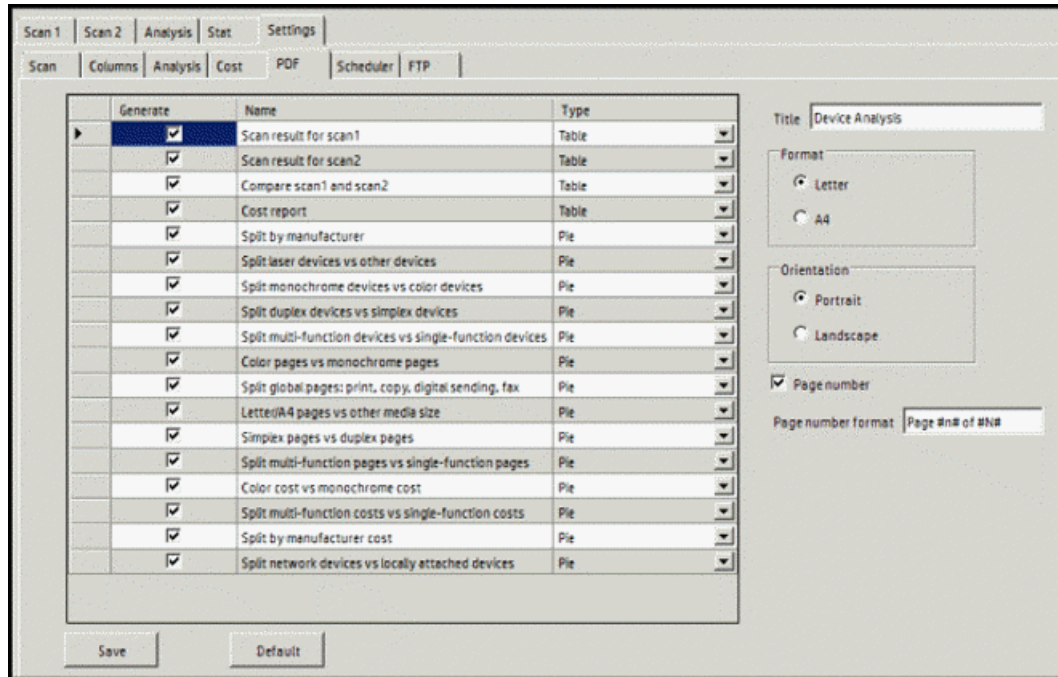
The screenshot shows the same software interface as Figure 11-4, but with the 'Cost' tab selected in the secondary navigation bar. The main content area is titled 'Costs per page' and contains a table for defining costs. The table is organized into two main columns: 'Laser' and 'Others'. Each of these columns has two sub-columns: 'Printer' and 'MFP'. There are two rows for 'Mono' and 'Color'. Each cell in the table contains a text input field with the value '0'.

	Laser		Others	
	Printer	MFP	Printer	MFP
Mono	0	0	0	0
Color	0	0	0	0

11.2.1.5 PDF settings

Customize the data displayed in the PDF report of your scans and analysis. Click **Save** to save changes. Click **Default** to restore the default settings.

Figure 11-6 PDF settings



11.2.1.5.1 Display options table

The table under the PDF tab contains the display options for the PDF report. Each row represents a page of report information. The following information and options are displayed in the table:

- **Generate:** Which sub-report pages will be generated in the PDF report. Place a checkmark next to the name of each sub-report page you want displayed in the PDF report.
- **Name:** Name of the sub-report page.
- **Type:** Graphic display for the sub-report information. Use the drop-down menus to select the graphic display.

TIP: The PDF report will generate the sub-report pages in order from top to bottom. Click and drag the heading of a selected row up or down to change the order of the sub-report pages in the PDF report. Click the Default button at the bottom to restore the default order of the sub-reports.

11.2.1.5.2 Title

Enter the title of the PDF report in the text field.

11.2.1.5.3 Format


Select the paper size for the PDF report:

- Letter
- A4

11.2.1.5.4 Orientation

Select the page orientation:


- Portrait
- Landscape

 **TIP:** Use Landscape orientation if the report is a comparison of two scans. This displays the two scan graphics on the same page for easy comparison.

11.2.1.5.5 Page number and Page number format

Select **Page number** if the page numbers should display in the PDF report in the bottom-right corner.

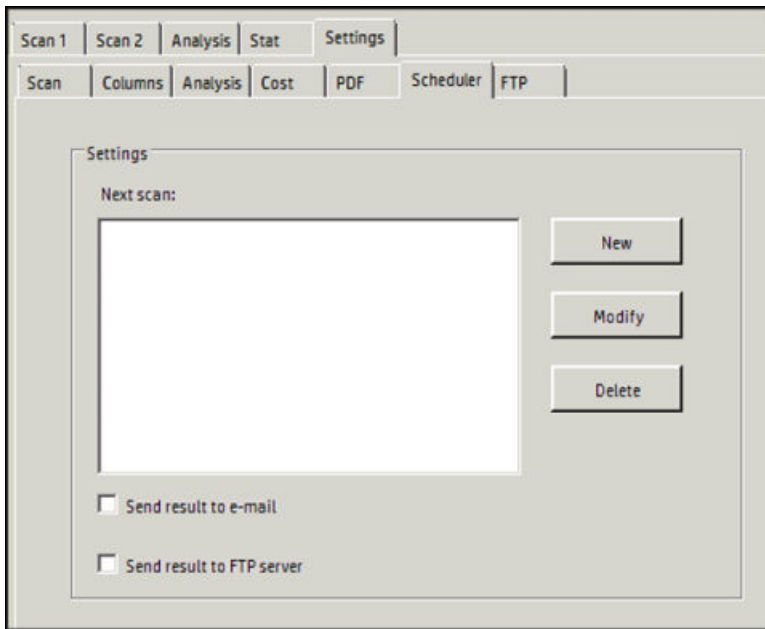
If Page number is selected, the Page number format option displays. Edit the text in the text field to customize the display of the page numbers.

 **NOTE:** The variable text “#n#” represents the current page number and “#N#” represents the total number of pages. Edit the text to change what is visible in the bottom-right corner.

11.2.1.6 Scheduler settings

Use the **Scheduler** tab to define future and recurring scans.

Figure 11-7 Scheduler settings



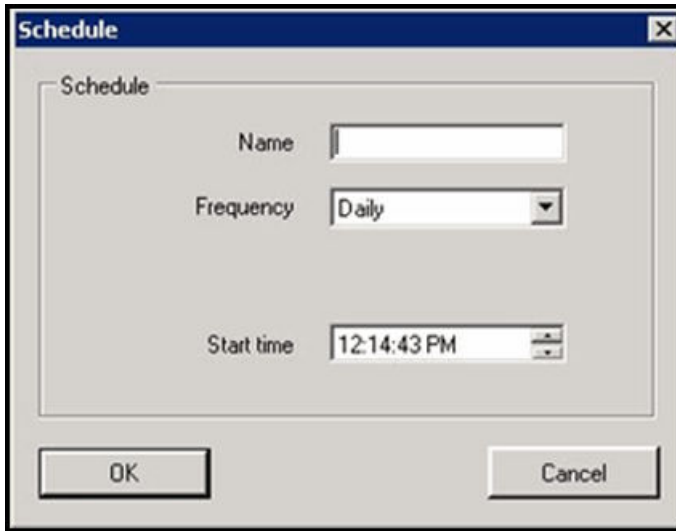
11.2.1.6.1 Create a new schedule

Follow the steps below to create a new schedule:


1. Under the Scheduler tab, click **New**.
2. Enter a Name for the new schedule in the Name field.
3. Set the Frequency for a recurring scan: **Daily**, **Weekly**, or **Monthly**.
4. Use the up or down arrows to set a Start time.

5. Click **OK** to accept the settings.

Figure 11-8 New schedule meeting



6. Click **Save** to save the schedule.

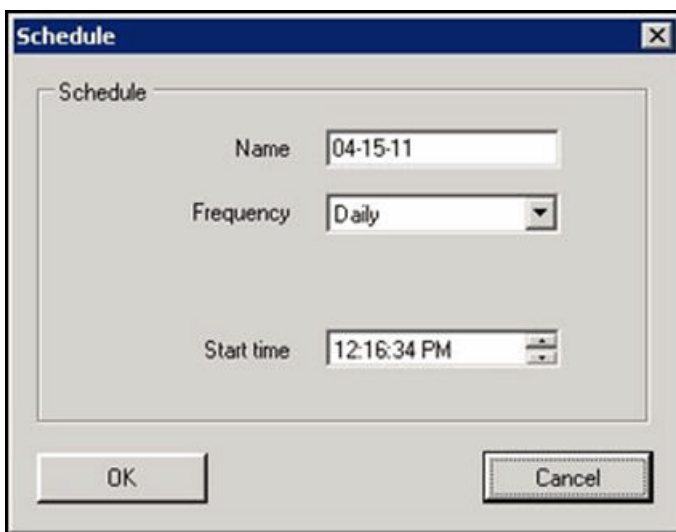
 **IMPORTANT:** The Scheduler feature will work only if the application is running.

11.2.1.6.2 Modify a schedule

Follow the steps below to modify an existing schedule:

1. Select a scheduled scan in the Settings window of the Scheduler tab.
2. Click **Modify**.
3. Make any desired changes in the Name, Frequency or Start time.
4. Click **OK** to accept the settings.

Figure 11-9 Modify a schedule



5. Click **Save** to save the schedule.

11.2.1.7 FTP settings

Use the **FTP** tab to define settings for FTP delivery of scan results.

Figure 11-10 FTP settings

The screenshot shows a software interface with a 'Settings' tab selected. Within this tab, the 'FTP' sub-tab is active. The configuration area contains five input fields: 'FTP server name' (empty), 'FTP server port' (containing '21'), 'FTP server login' (empty), 'FTP server password' (empty), and 'FTP directory' (containing '/').

11.2.2 Scanning devices

When the Device Analysis tab is first selected, the default screen is shown. Unless a previous scan is open when HP Access Control Device Analysis (HP AC DA) is started, the columns on the default screen do not contain any data.

Figure 11-11 Scan tab

The screenshot displays a window titled 'File Edit View Scan Help' with a search box. The 'Scan 1' tab is selected. Below the menu bar is a table with the following columns: 'Last check', 'Manufacturer', 'Model', 'IP', 'Serial number', 'Part number', 'Asset ID', 'Engine count', 'Total monochrome', and 'To'. The table body is empty, with a status bar at the bottom indicating '0 device(s)'. A scroll bar is visible at the bottom of the table area.

11.2.2.1 Create a new scan

To create a new scan, complete the following steps:

1. Select the **Scan 1** or **Scan 2** tab.
2. Under the Scan menu, choose the scan function you wish to perform:
 - SNMP discovery
 - Start multicast DNS discovery
 - IP range discovery
 - Locally attached discovery
 - Rescan all
 - Rescan selected rows

11.2.2.1.1 SNMP discovery

SNMP discovery sends a broadcast over a selected network and discovers what devices are available.

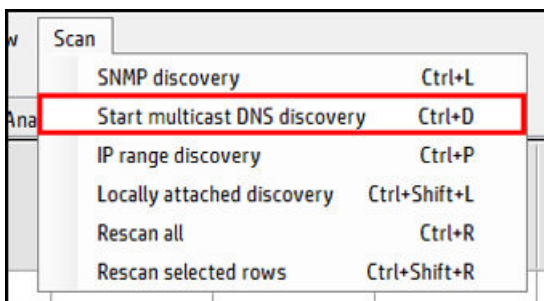
Go to the Scan menu and select **SNMP discovery**.

11.2.2.1.2 Start multicast DNS discovery

Multicast DNS discovery continually scans the network for devices until **Stop multicast DNS discovery** is selected. The scan is ongoing to show any device changes as they happen.

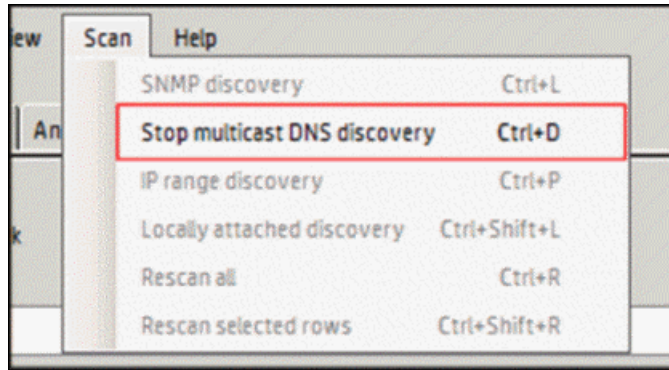
1. Go to the Scan menu and select **Start multicast DNS discovery**. The progress of the DNS discovery is tracked in the activity log at the bottom.

Figure 11-12 Start DNS



2. To stop the scan, go to the Scan menu and select **Stop multicast DNS discovery**.

Figure 11-13 Stop multicast DNS discovery

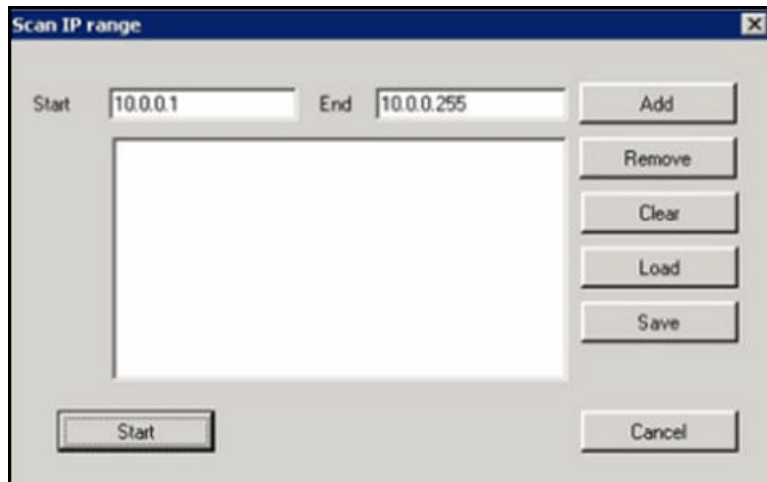


11.2.2.1.3 IP range discovery

Discover devices within a selected range of IP addresses.

1. Go to the Scan menu and select **IP range discovery**.
2. Enter IP addresses in the Start and End fields.

Figure 11-14 IP range scan



3. Click **Add** to add the range to the list in the display field.
4. Click **Save** to save the range for future reports.
5. Click **Start** to begin the scan.


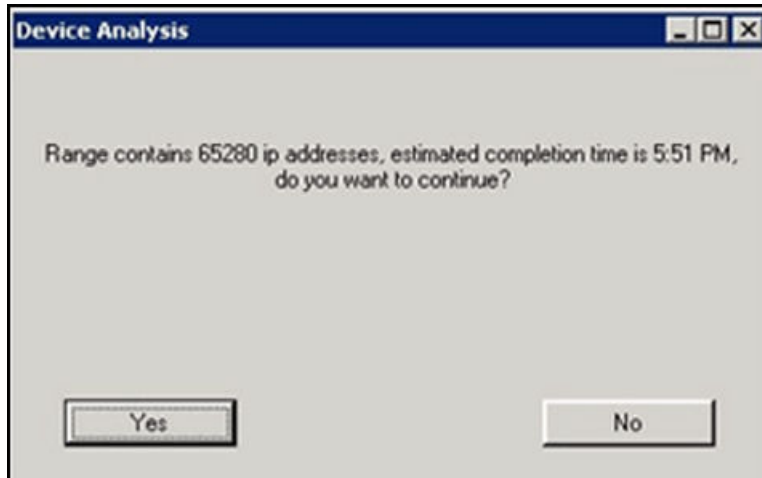
 **NOTE:** If an IP range includes over 3,000 IP addresses, a pop-up window will inform you of the estimated time of completion. Click **Yes** to continue.


Figure 11-15 Estimated completion time



11.2.2.1.4 Locally attached discovery

Discover all devices locally attached to PCs, through LPT or USB ports, on either the network or the domain controller, depending on your Locally attached settings.

To discover all locally-attached devices, go to the Scan menu and select **Locally attached discovery**.

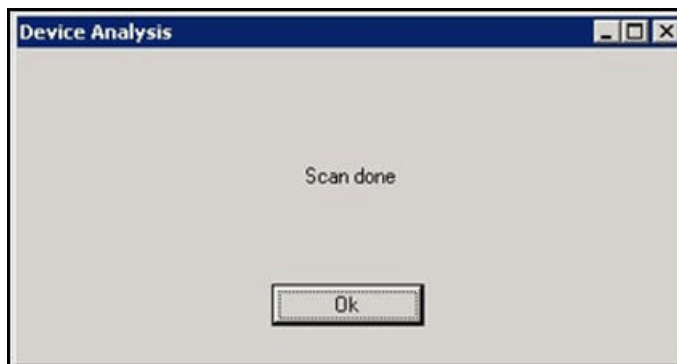
 **NOTE:** If the HP Web Jetadmin SNMP Proxy Agent is installed on a desktop where a device is locally attached, an SNMP broadcast or IP range discovery will discover the device.

Go to www.hp.com for more information.

11.2.2.1.5 Rescan all

When a scan is loaded, go to the Scan menu and select **Rescan all**. This will collect current data and update all devices using the same scan parameters in Scan 1 or Scan 2. When the scan has finished, the Scan done message will appear.

Figure 11-16 Scan completed



The Last Check column will display the current date.

11.2.2.1.6 Rescan selected rows

To collect current data for one or more selected devices, click on the row(s) you want to rescan. Then go to the Scan menu and select **Rescan selected rows**.

11.2.2.2 Open a previous scan report

Follow the steps below to load information from a previous scan:

1. Select the **Scan 1** OR **Scan 2** tab.
2. Go to the File menu and click **Open** to open a previous scan.
3. Navigate to the scan file (.das) and click **Open** to load the scan.

11.2.2.3 Insert a scan

Follow the steps below to load information from another scan into the current scan:

1. Click **Insert** on the File menu.
2. Navigate to the scan file (.das) and click **Open** to load the scan. The inserted data is included at the end of the data currently displayed.

11.2.2.4 Edit menu

Use the **Edit** menu to edit the data in the selected rows.

- **Undo:** Undo one previous action
- **Copy selected rows:** Copy one or more selected rows
- **Cut selected rows:** Cut one or more selected rows
- **Paste selected rows:** Paste one or more selected rows
- **Delete selected rows:** Delete one or more selected rows

11.2.3 Scan data

When a scan is loaded, the columns are populated with data from the devices in the scan range.

Figure 11-17 Scan data

Last check	Manufacturer	Model	IP	Serial number	Part number	Asset ID	Engine count	Total monochrome
7/31/2013 8:52:0...	HP	Officejet Pro 276d...	10.96.140.55	CN2CD1266J	CR770A		88	79
7/31/2013 8:52:0...	HP	LaserJet M3027 MFP	10.96.140.204	CNLLG21977	CC479A		17,729	17,729
7/31/2013 8:52:0...	HP	LaserJet M9050 MFP	10.96.140.12	JP1L78702F	CC395Q		2,420	2,420
7/31/2013 8:53:5...	HP	LaserJet flow MFP ...	10.0.0.106	MX3CD940N9	CF118V		479	479
7/31/2013 8:53:5...	HP	LaserJet 9050	10.0.0.125		00000A		15,580	15,580
7/31/2013 8:54:0...	HP	LaserJet 4200	10.0.0.129		00000A		10	10
7/31/2013 8:53:5...	HP	LaserJet 700 color...	10.0.0.118	MX1CD6800H	CC522Q		525	244
7/31/2013 8:54:0...	HP	LaserJet M3035 MFP	10.0.0.130	CNLLG12407	CC477A		4,650	4,650
7/31/2013 8:53:5...	HP	LaserJet color Mo...	10.0.0.120	MX4C0950CV	CD646V		1,383	968
7/31/2013 8:53:5...	HP	Color LaserJet CP5...	10.0.0.122	CNBNF00039			117	20
7/31/2013 8:54:0...	HP	LaserJet P3005	10.0.0.133	CN01P00279	Q7816V		1,250	1,250
7/31/2013 8:54:0...	HP	LaserJet P3010 Se...	10.0.0.140	VN8C94W019	00000A		3,280	3,280
7/31/2013 8:54:0...	HP	LaserJet 600 M603	10.0.0.136	CN2CC8G014	CE996V		2,824	2,824
7/31/2013 8:53:5...	HP	LaserJet M4555 MFP	10.0.0.121				2,624	2,624
7/31/2013 8:54:1...	Canon	IR-ADV C5030 61...	10.0.0.171	GN31302			1,127	305
7/31/2013 8:54:0...	HP	LaserJet M5035 MFP	10.0.0.131	CN8XB00489	Q7831A		3,010	3,010

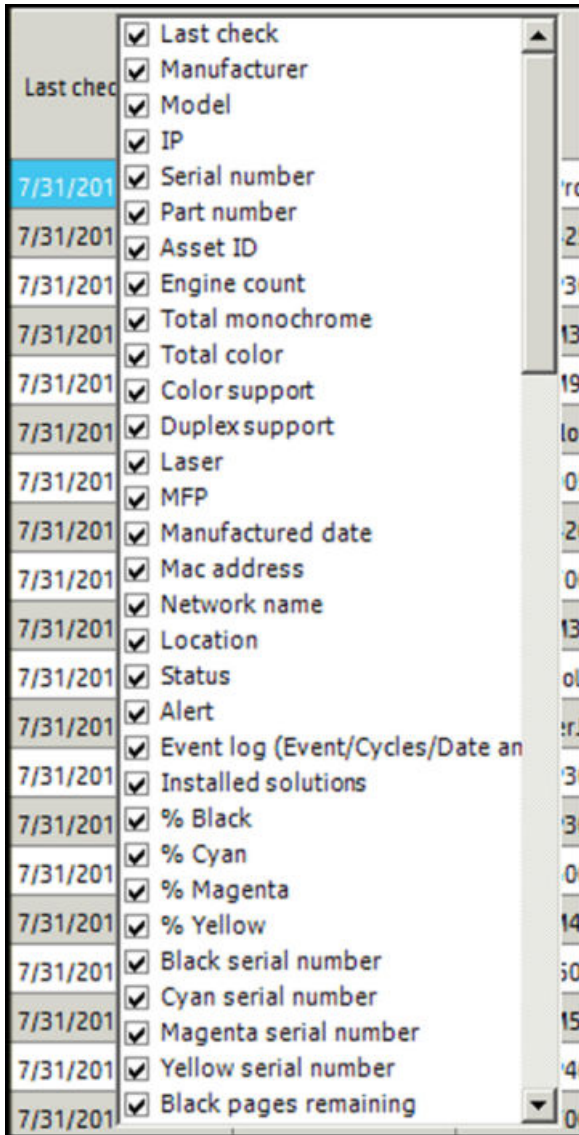
The following information displays by default for each scan performed:

- **Last check:** the date the scan was performed
- **Manufacturer:** the manufacturer of the device scanned
- **Model:** the device model number
- **IP:** the device IP address
- **Serial number:** the device serial number
- **Part number:** the device part number
- **Asset ID:** the asset ID number of the device
- **Engine count:** the device engine count
- **Total mono:** the total number of monochrome pages
- **Total color:** the total number of color pages
- **Color support:** Does the device support color printing?
- **Duplex support:** Does the device support duplex printing?
- **Laser:** Is the device a LaserJet printer?
- **MFP:** Is the device a multi-function printer?
- **Manufactured date:** the date the device was manufactured (may be entered by user)
- **MAC address:** the Media Access Control (MAC) address of the device
- **Network name:** the name of the device network
- **Location:** the location of the device
- **Status:** the device status
- **Alert:** any alerts on the device
- **Event log (Event/Cycles/Date and time):** last error code recorded on HP devices (includes error code / page count / date and time)
- **Installed solutions:** any solutions installed on HP devices

11.2.3.1 Customize column display

Follow the steps below to customize the columns displayed in a scan:

Figure 11-18 Customize columns



1. Right-click in any column heading.
2. Clear the check boxes of the columns that should not display.

11.2.3.2 View options

Click **View** menu and select any additional data columns to display:

- Total
- Duplex
- Format
- Toner
- Supplies
- Cost
- Column

- Sum/Average
- Default
- Log

11.2.3.2.1 Total

Click **Total** to display the following columns:

- **Total fax:** the total number of copies faxed from the device
- **Total scan:** the total number of copies scanned on the device
- **Total mono prints:** the total number of pages printed in monochrome
- **Total color prints:** the total number of pages printed in color
- **Total mono copies:** the total number of pages copied in monochrome
- **Total color copies:** the total number of pages copied in color

11.2.3.2.2 Duplex

Click **Duplex** to display the following columns:

- **Print Letter/A4 duplex monochrome** – number of A4 + letter pages printed in duplex mode, monochrome
- **Print other media size duplex monochrome** – number of other media pages printed in duplex mode, monochrome
- **Print Letter/A4 duplex color** – number of A4 + letter pages printed in duplex mode, color
- **Print other media size duplex color** – number of other media pages printed in duplex mode, color
- **Scan Letter/A4 duplex monochrome** – number of A4 + letter pages scanned in duplex mode, monochrome
- **Scan other media size duplex monochrome** – number of other media pages scanned in duplex mode, monochrome
- **Scan Letter/A4 duplex color** – number of A4 + letter pages scanned in duplex mode, color
- **Scan other media size duplex color** – number of other media pages scanned in duplex mode, color

11.2.3.2.3 Format

Click **Format** to display the following columns:

- **Print Letter/A4 simplex monochrome:** Number of A4 and letter pages printed in simplex mode on a monochrome setting
- **Print other media size simplex monochrome:** Number of other media pages printed in simplex mode on a monochrome setting
- **Print Letter/A4 simplex color:** Number of A4 and letter pages printed in simplex mode on a color setting
- **Print other media size simplex color:** Number of other media pages printed in simplex mode on a color setting
- **Scan Letter/A4 simplex monochrome:** Number of A4 and letter pages scanned in simplex mode on a monochrome setting
- **Scan other media size simplex monochrome:** Number of other media pages scanned in simplex mode on a monochrome setting

- **Scan Letter/A4 simplex color:** Number of A4 and letter pages scanned in simplex mode on a color setting
- **Scan other media size simplex color:** Number of other media pages scanned in simplex mode on a color setting

11.2.3.2.4 Toner

Click **Toner** to display the following columns:

- **% Black / Cyan / Magenta / Yellow:** Percentage of color ink used
- **Black / Cyan / Magenta / Yellow serial number:** Serial number of color ink cartridge
- **Black / Cyan / Magenta / Yellow pages remaining:** Number of remaining pages the color ink cartridge can produce
- **Black / Cyan / Magenta / Yellow pages printed:** Number of pages printed with the color ink
- **Black / Cyan / Magenta / Yellow install date:** Date the color ink cartridge was installed
- **Black / Cyan / Magenta / Yellow last use date:** Date the color ink cartridge was last used
- **Quantity Black / Cyan / Magenta / Yellow cartridge:** Number of cartridges used on the device (entered by user)

11.2.3.2.5 Supplies

Click **Supplies** to display the following column:

- **Misc. supplies 1 - 25:** List of supplies installed on the device

11.2.3.2.6 Cost

The Cost view option will display the total costs of printing, based on the per-page costs set in the Cost settings tab.

Click **Cost** to display the following columns:

- **Total cost:** total cost of all printing
- **Monochrome cost:** total cost of monochrome printing
- **Color cost:** total cost of color printing

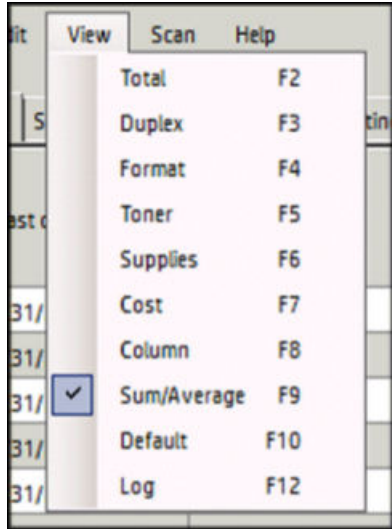
11.2.3.2.7 Column

The Column option, when selected, will show any custom columns that have been added in the Columns settings tab.

11.2.3.2.8 Sum/Average

The Sum/Average option calculates the sums and averages for all devices scanned and displays the calculations below the scan results.

Figure 11-19 Sum average



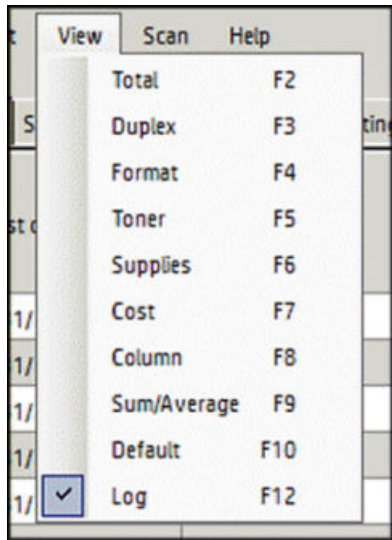
11.2.3.2.9 Default

The Default option will remove any other options checked and return the columns to the default view.

11.2.3.2.10 Log

The Log option displays the activity log box at the bottom of the Device Analysis window. The activity log shows the timed progress of a selected scan, including information on the found devices.

Figure 11-20 Log option



TIP: Click and drag the top border of the activity log box to adjust the height to view more scan activity on the screen.

Right-click anywhere in the log box and click **Clear** to remove all scan activity information.

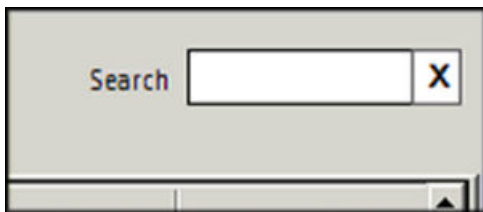
Figure 11-21 Clear activity log



11.2.3.3 Search

Use the **Search** field to filter scan results.

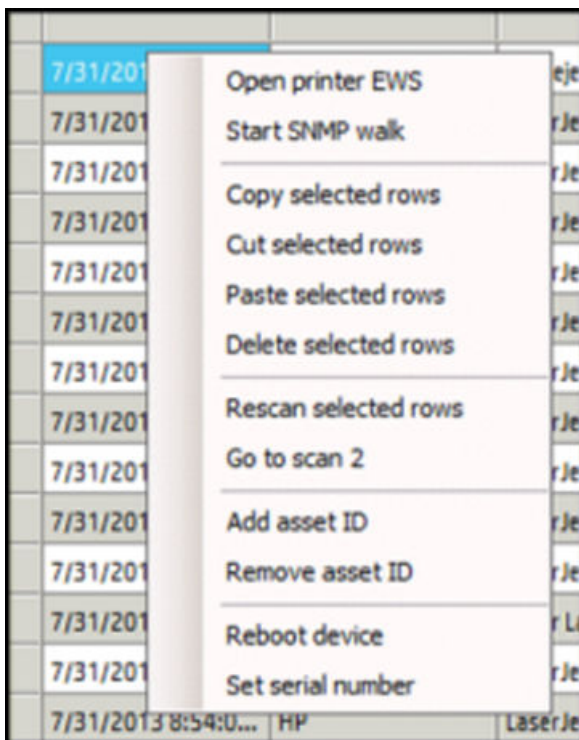
Figure 11-22 Search field



11.2.3.4 Device options

Right-click a device line to display an option menu for that device.

Figure 11-23 Device options



- **Open printer EWS:** Go to the embedded web server for the device
- **Start SNMP walk:** Gather and report SNMP data for the device in a .txt file
- **Copy selected rows:** Copy one or more selected rows
- **Cut selected rows:** Cut one or more selected rows
- **Paste selected rows:** Paste one or more selected rows
- **Delete selected rows:** Delete one or more selected rows
- **Rescan selected rows:** Perform a new scan on one or more selected rows
- **Go to Scan 2:** Jump to corresponding device line in Scan 1 or Scan 2
- **Add asset ID:** Add a sequential asset ID for every device in the scan
- **Remove asset ID:** Remove a sequential asset ID for every device in the scan
- **Reboot device:** Reboot the selected device
- **Set serial number:** Change the serial number of HP devices. Type the new number of the HP device under the **Serial number** column before clicking **Set serial number**.

CAUTION: Adding or removing an asset ID overwrites or removes existing IDs. This action must be verified.

11.2.4 Analysis tab

The Analysis tab will display similarities and differences between the two scans loaded in the Scan 1 and Scan 2 tabs.

NOTE: If only one scan is loaded, the Analysis tab displays the page count difference between the scan and the date displayed in the Manufactured date column. If the Manufactured date column is empty, the device does not display in the Analysis report.

Figure 11-24 Analysis report

Days interval between scans	Manufacturer	Model	IP	Serial number	Part number	Asset ID	Difference engine count	Difference mono
1	HP	OfficeJet Pro X476...	10.0.0.75	CN28L7P025	CN460A		0	0
1	HP	OfficeJet Pro 276d...	10.96.140.55	CN2CD12G6J	CR770A		0	0
1	HP	OfficeJet Pro 251d...	10.0.0.87	CN2C512G8Y	CV136A		0	0
1	HP	LaserJet P4015	10.0.0.166	CNBV200131	CXXXXA		0	0
1	HP	LaserJet P3010 Se...	10.0.0.140	VNBC94W019	CXXXXA		0	0
1,603	HP	LaserJet P3010 Se...	10.96.140.23	VNBC92R007	CXXXXA		5,870	5,870
1	HP	LaserJet P3005	10.0.0.191	CND1R65699	Q7815A		0	0
1	HP	LaserJet P3005	10.0.0.133	CND1P00279	Q7816V		0	0
1	HP	LaserJet MFP M725	10.0.0.208	MX1CDCW0Y1	CF069Q		0	0
2,003	HP	LaserJet M9050 MFP	10.96.140.12	JP1L7B702F	CC395Q		2,420	2,420
1	HP	LaserJet M806	10.0.0.80		CXXXXA		0	0
1	HP	LaserJet M3035 MFP	10.0.0.131	CNBX800489	Q7831A		0	0
1	HP	LaserJet M4555 MFP	10.0.0.14	CN1CBC801J	CXXXXA		0	0
1	HP	LaserJet M4555 MFP	10.0.0.121				0	0
1	HP	LaserJet M3035 MFP	10.0.0.130	CNLLG12407	CC477A		0	0
1,727	HP	LaserJet M3027 MFP	10.96.140.204	CNLLG21977	CC479A		17,729	17,729
1	HP	LaserJet flow MFP ...	10.0.0.85	MX1CF6C0F8	CF367D		0	0
1	HP	LaserJet flow MFP ...	10.0.0.106	MX3CD940N9	CF118V		0	0
1	HP	LaserJet color flo...	10.0.0.120	MX4CD950CV	CD646V		0	0
1	HP	LaserJet 9050	10.0.0.125		CXXXXA		0	0

11.2.4.1 Added and removed devices

Colored rows indicate added or removed devices between Scan 1 and Scan 2. Added devices are shown in the green rows. Removed devices are shown in orange.

11.2.4.1.1 Customize view

Follow the steps below to customize the view:

1. Right-click in any column title to display three view options, allowing you to customize your view of the analysis results.
 - **Common devices:** devices found in both Scan 1 and Scan 2
 - **Added devices:** devices found in Scan 2 but not in Scan 1
 - **Removed devices:** devices found in Scan 1 but not in Scan 2
2. Click to deselect the options to not view the data in the analysis.

11.2.4.2 Analysis intervals

When the Analysis tab is selected, an Analysis menu becomes available to select analysis intervals.


The Page Count columns display an estimate value calculated using the Real page count and the Daily, Monthly, or Yearly interval selected, as defined in the Settings tab.

 **NOTE:** Use the **Settings** tab to define the calculations for the Analysis interval options.

11.2.4.3 Analysis data

The following data will be provided in the Analysis report, depending upon the Analysis choices:

- **Days interval between scans:** Number of days between the dates of the first and second scans
- **Difference/Average/Projected engine count:** Difference in the engine count between scans, the average engine count among scans, or the projected engine count of scans, depending upon whether the Analysis interval selection is **Real**, **Daily**, **Monthly**, or **Yearly**.

 **NOTE:** If **Real interval** is selected, the column header will display **Difference**. If the interval between the two scans is 45 days and **Monthly interval** is selected, the column header will display **Average**. If **Yearly interval** is selected, the column header will display **Projected**.

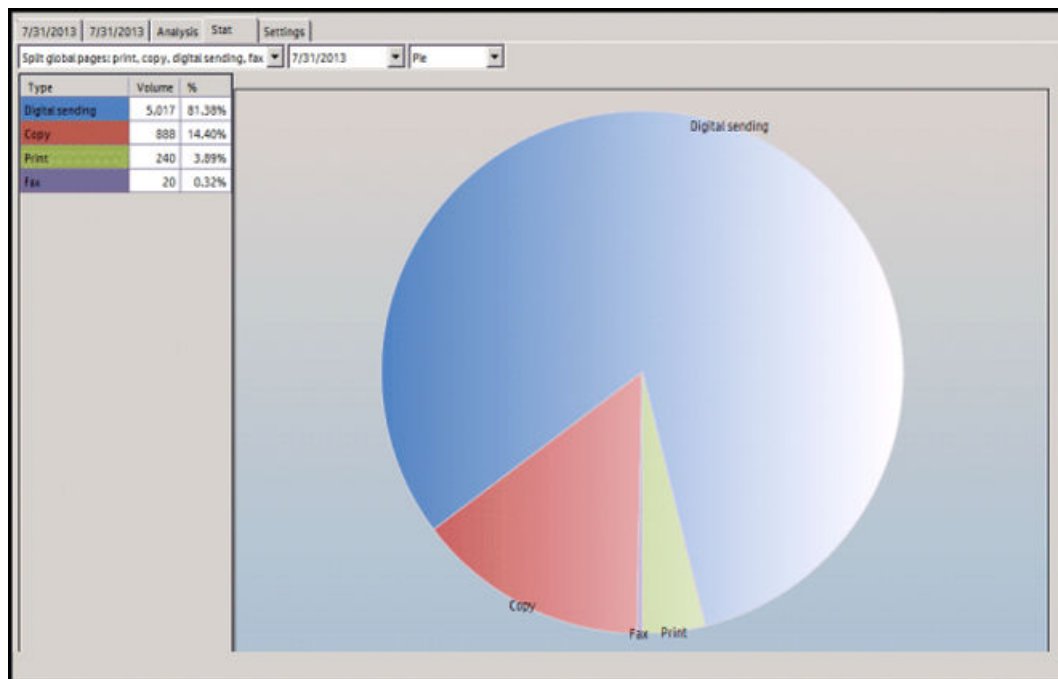
- **Difference/Average/Projected mono:** Difference in monochrome pages between scans, the average number of monochrome pages scanned, or the projected number of monochrome pages scanned, depending on the analysis interval selection
- **Difference/Average/Projected color:** Difference in color pages between scans, the average number of color pages scanned, or the projected number of color pages scanned, depending on the Analysis interval selection
- **Difference black:** Difference in percentage of black ink used between scans
- **Difference cyan:** Difference in percentage of cyan ink used between scans
- **Difference magenta:** Difference in percentage of magenta ink used between scans
- **Difference yellow:** Difference in percentage of yellow ink used between scans
- **Difference/Average/Projected quantity black cartridge:** Difference, average, or projected quantity of black cartridges used, depending upon whether the Analysis interval selection is **Real**, **Daily**, **Monthly**, or **Yearly**

- **Difference/Average/Projected quantity cyan cartridge:** Difference, average, or projected quantity of cyan cartridges used, depending upon whether the Analysis interval selection is **Real, Daily, Monthly,** or **Yearly**
- **Difference/Average/Projected quantity magenta cartridge:** Difference, average, or projected quantity of magenta cartridges used, depending upon whether the Analysis interval selection is **Real, Daily, Monthly,** or **Yearly**
- **Difference/Average/Projected quantity yellow cartridge:** Difference, average, or projected quantity of yellow cartridges used, depending upon whether the Analysis interval selection is **Real, Daily, Monthly,** or **Yearly**

11.2.5 Stat tab

The Stat tab allows you to display statistics based on the selected scan, in text and graphic formats:

Figure 11-25 Stat display

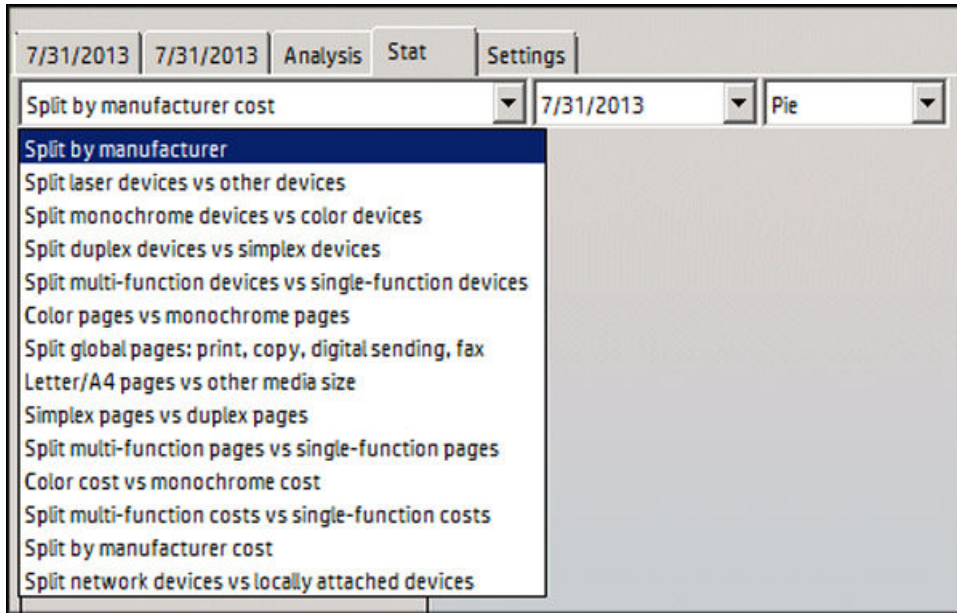


11.2.5.1 Stat display options

Use the drop-down lists to select what information to include in the scan statistics.

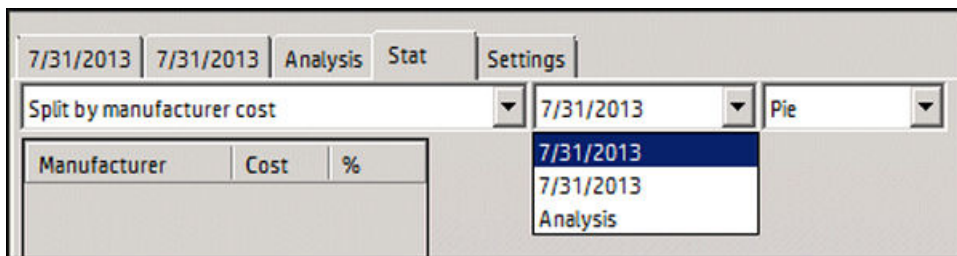
1. Select the data to display.

Figure 11-26 Statistic data display



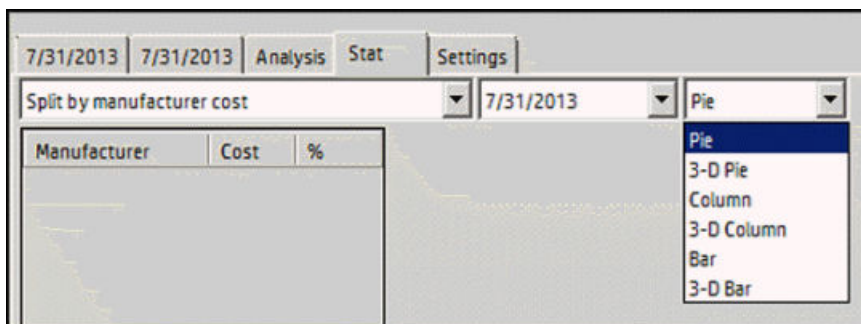
2. Select a scan or analysis to display.

Figure 11-27 Statistics scan



3. Select the graphic display.

Figure 11-28 Statistic graphic

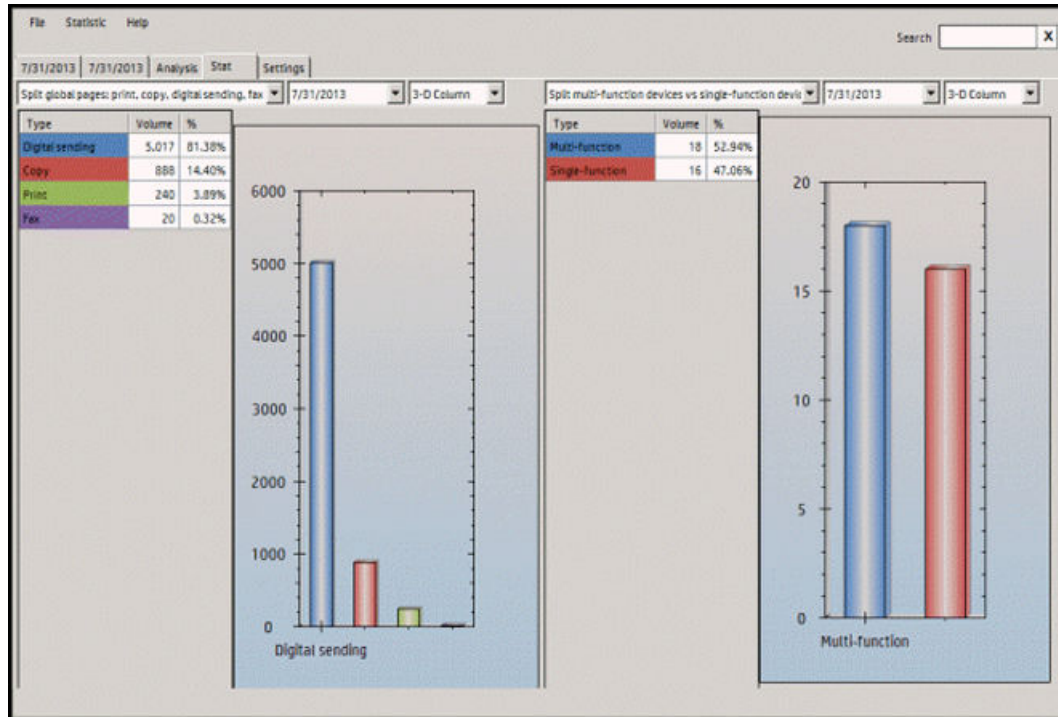


11.2.5.2 Statistic menu

Use the **Statistic** menu to customize the view of the statistical data.

- **Legend:** displays the legend for the graph
- **Split screen:** displays two sets of data and graphics for comparison

Figure 11-29 Statistics display




Save and share the important data from your scans by exporting to a CSV or XLS file, or generating a PDF report.

11.2.5.2.1 Export

Export the scan data, analysis, or statistics to a `.csv` or `.xls` file. Use Microsoft Excel to view any exported graphics.

Click **File**. In the Export sub-menu, select one of the two options:

- Export to CSV
- Export to XLS

 **NOTE:** Selecting **Export** only exports information visible on the screen in the currently-selected tab. Therefore, check that all data and graphics on the screen are correct, then export to the preferred file. To export data from the Stat tab to an `.xls` file, Microsoft Excel must be installed.

11.2.5.2.2 Generate PDF report

Follow the steps below to create a PDF report that displays all scan data and graphics in one report.

1. Approve all PDF report settings in the PDF tab under Settings.
2. Go to the File menu and click **Generate PDF report**.
3. Select a location to save the report, then click **Save**. A **View the report** message displays.
4. Click **Yes** to view the report.

12 Job Accounting

12.1 Overview


HP Access Control Job Accounting enables you to track the use of devices across your organization. Gain control of your imaging and printing environment and costs. Monitor, allocate, and manage resources by tracking usage by device, user, project, department, and cost center. Collect data, and analyze the results to identify savings opportunities. Create and send reports to communicate the value and impact of printing. Create streamlined imaging and printing practices by ensuring the right device is in the right place and being used for the right job.

12.2 HP AC Job Accounting Architecture

12.2.1 HP AC Job Accounting print system overview

The HP AC Job Accounting server consists of three basic software components:

- HP Access Control (HP AC) Job Accounting Database Server
 - Collects the tracking data from Job Accounting print servers and from the devices
 - The database can be installed locally on the server or on a remote SQL server
- HP Access Control (HP AC) Job Accounting Web Server
 - The web server provides an interface through a web browser to access the data from the Job Accounting Database Server and administer the server
- HP Access Control (HP AC) Job Accounting print server (HP AC Job Accounting Print Server)
 - Contains the Job Accounting tracking engines to track print information reported by the print spooler and will forward to the Job Accounting Database server.

 **NOTE:** The modules can be installed together on one server, or split across multiple servers, if required.

To track shared network devices for printing the HP AC control Job Accounting Print server must be installed on the server hosting the shares.

12.2.2 Job Accounting clients

Table 12-1 Job Accounting Client Notifications

Client Notifications			
	IPM	JA Quota Client (systray)	Overview
HP AC Print Client (local IPM/Quota)	✓	✓	The HP AC Print Client can be installed on client computers to automatically configure installed printers to use IPM rules, quota, delegate printing, and/or encryption (see Note 4) with an Enterprise server. The HP Access Control server requires IPM, Job Accounting, and/or Pull Printing to be installed. The HP AC Print Client applies to all currently installed enterprise queues using TCP/IP using LPR protocol printers on the client computer.

Table 12-1 Job Accounting Client Notifications (continued)

HP AC JA Allocation Client	✓	✓	The HP AC JA Allocation Client can be installed on client computers to allow input and collection of allocation (metadata) for HP AC Job Accounting. The HP Access Control server requires HP AC Job Accounting to be installed.
HP AC JA Print Client	See Note 3, below	See Note 3, below	To track local printers connected to client desktops via USB, LPT1 or Standard TCP/IP port, install the Job Accounting Print Client. The Job Accounting Print Client is installed on client desktops where local print activity is tracked and then sent to the Job Accounting Database Server.
NOTES:			
	1	To use client applications, client desktops must have one of the following operating systems: Microsoft Windows Vista (32-bit or 64-bit), Microsoft Windows 7 (32-bit or 64-bit), or Microsoft Windows 8 (32- or 64-bit).	
	2	Print Stream Clients are NOT designed to be installed or used together on a single workstation.	
	3	Not applicable unless you have server-based and client-based tracking and server-based IPM/Quota + client-based pull printing on different queues, then ✓	
	4	Delegate printing and/or encryption is available in HP AC 14.2 and above.	

12.2.2.1 Cost Allocation

Prerequisites

- All allocation printers need to be shared on the Print Server.
- All allocation printers need to use Port Monitor on the Print Server.

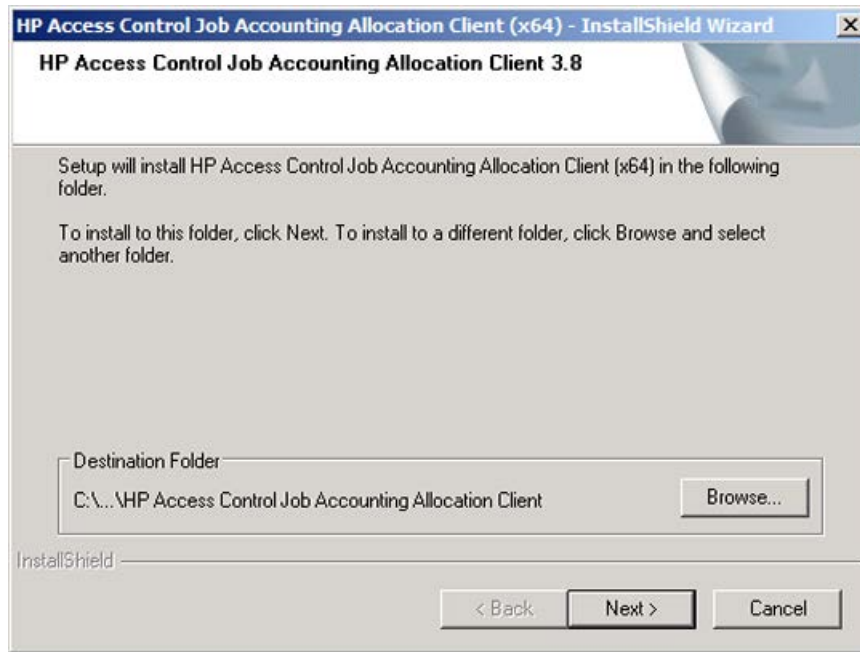
 **NOTE:**

- Use a Domain User with Local Administrator Rights to install and configure the printer and software. For Windows Vista and Windows 7 users, make sure that you run the installer using the Option Run as administrator.
- The Job Accounting Allocation Client cannot be used on the same PC that has the HP AC Print Client installed.

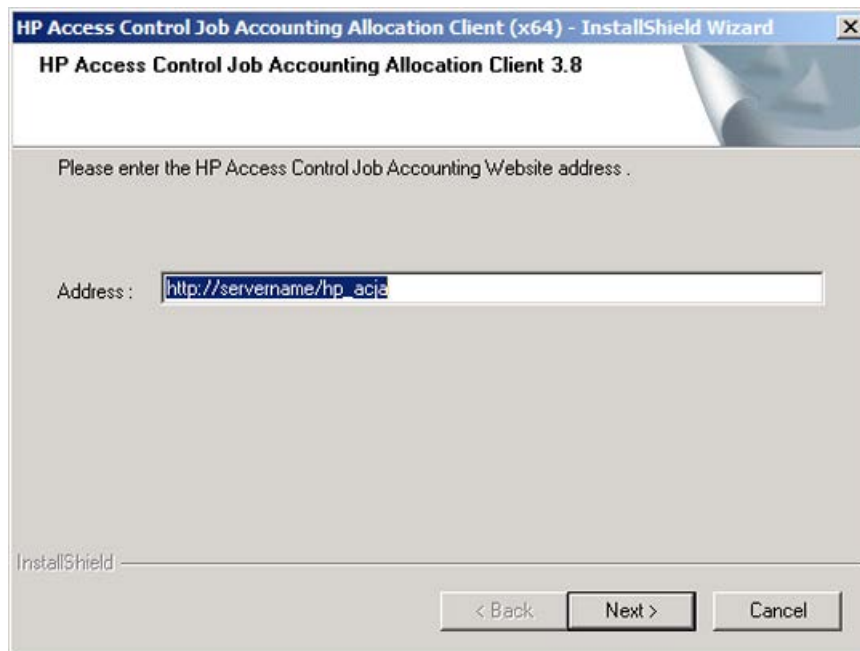
12.2.2.1.1 Installation of the Allocation Client

1. Run the HP AC JA Allocation Client file. The InstallShield Wizard will guide you through the installation process.
2. Read through the License Agreement and click **Yes** to confirm, and **No** to abort the installation.


3. Select the installation directory or click **Next** to keep the default. Click **Next** to keep the default programs folder.



4. When prompted, provide the Web address of the HP Access Control Job Accounting Web Server. This is typically `http://servername/hp_acja`, where 'servername' is the name of the physical server where Job Accounting is installed.




5. Click **Finish** to complete the installation process.

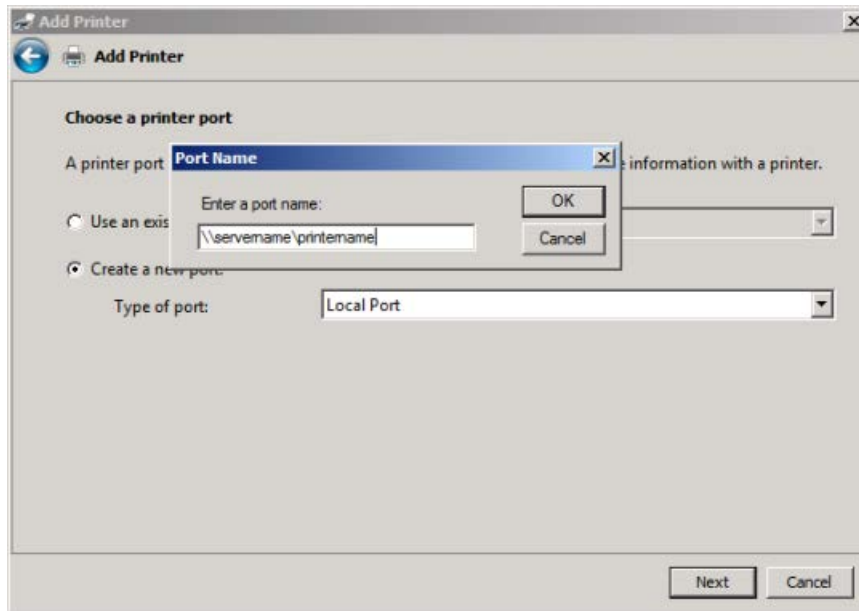
 **NOTE:** After installation is complete, log off and log back on. When the user logs on, the alloc.exe file, required for the allocation pop-up, is started.

12.2.2.1.2 Installation and Configuration of the Allocation Printer

1. Open the Printers and Faxes folder and run the Add Printer wizard.
2. Select Local printer and click **Next** (Uncheck **Automatically detect...**).
3. Select **Create a new port**, choose **Local Port**, and click **Next**.

 **NOTE:** Do Not Use the Allocation Port. This is a Port extension that the Local Port will be using.

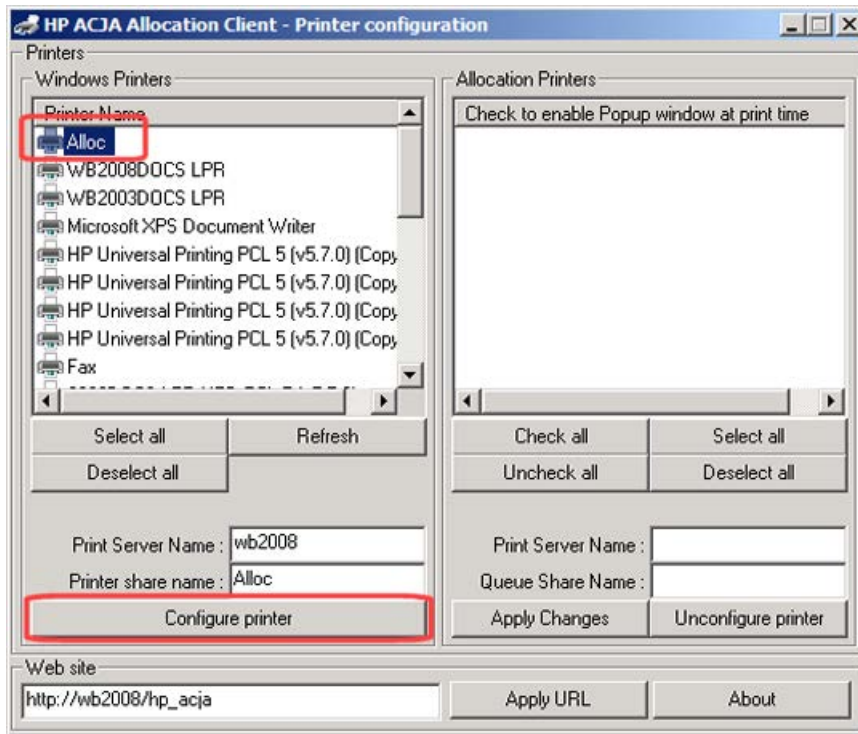
4. For the port name, enter \\servername\printername where “printserver” is the name of the server running the JA Print Server and “printername” is the share name of the allocation printer shared on the print server. Click **OK** to confirm.



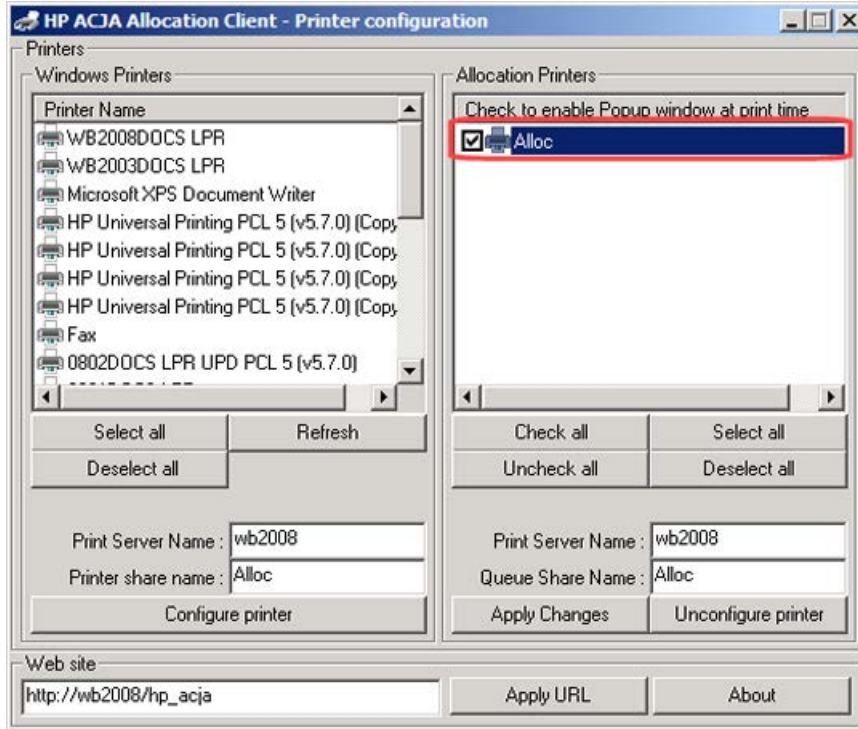
5. Select the appropriate driver for the printer and continue to finish the remaining steps in the Add Printer wizard.

 **NOTE:** Repeat these steps for each allocation printer to be used on the workstation.

6. Go to Start > All Programs > HP AC JA Allocation Client, and select **Allocation Queue Configuration**. Highlight the allocation printer in the Windows Printers Pane and click **Configure Printer**.

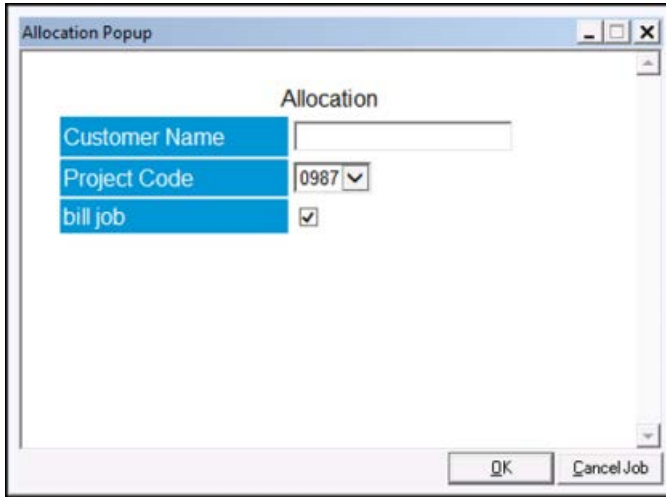


7. The allocation printer configured will move to the Allocation Printers Pane.



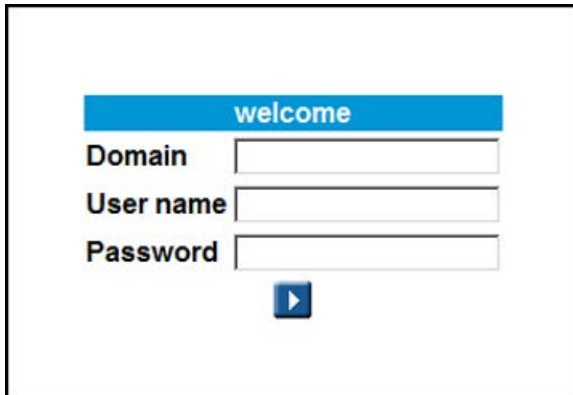
 **NOTE:** Repeat these steps for each allocation printer to be used on the workstation.

8. Open the **Properties** of the Allocation Printer that you have added in the steps above, and click **Print Test Page**.
9. The Allocation popup window appears displaying an allocation profile created on the Job Accounting Server. Click **OK** to continue with the test.



12.2.2.1.3 Viewing jobs in the Allocation Job Browser


1. Go to Start > All Programs > Allocation Client > Allocation Job Browser. Enter your Windows Domain, User name, and Password, then click the arrow button.



2. Leave all the parameters as default in the New Query screen and click the arrow button at the bottom.

The screenshot shows the 'New Query' interface. It includes a title bar, a list of configuration parameters with their current values, and a date/time range selector. A red square highlights the play button at the bottom center.

You will see the test page you printed in the Result Display screen.

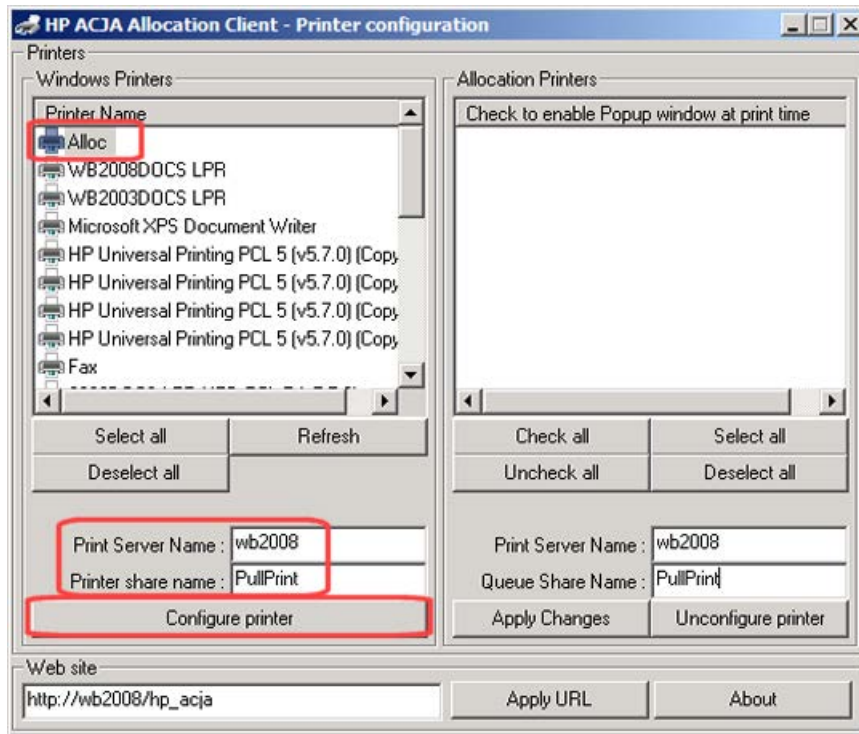
 **NOTE:** The job information will be inserted in the database at the next scheduled job retrieval. You will not see this result if you run this query before the job has been processed.

12.2.2.1.4 Configuring a Shared Pull Print Printer for Allocation

When configuring a shared pull print printer from the Server with Allocation Client, please follow the steps below to ensure that the correct document name will be displayed on the pull print window:

1. Share the pull print printer from the server.
2. Install a new printer and point it to a physical printer that will be commonly used by the user, using Standard TCP/IP as the port type. If possible download and use the same driver as the shared pull print printer from the server.
3. Open the Allocation Client Queue Configuration and select the newly created printer from Step 2.

4. Enter the name of your pull print server into the **Print Server Name** field. Enter the share name of the pull print printer into the **Printer Share Name** field.




5. Click **Configure**.

12.2.2.2 Job Accounting Print Client

The Job Accounting Print Client tracks printers connected to client desktops via USB, LPT1 or Standard TCP/IP ports. The print activity from the client is tracked and then sent to the Job Accounting Database Server.

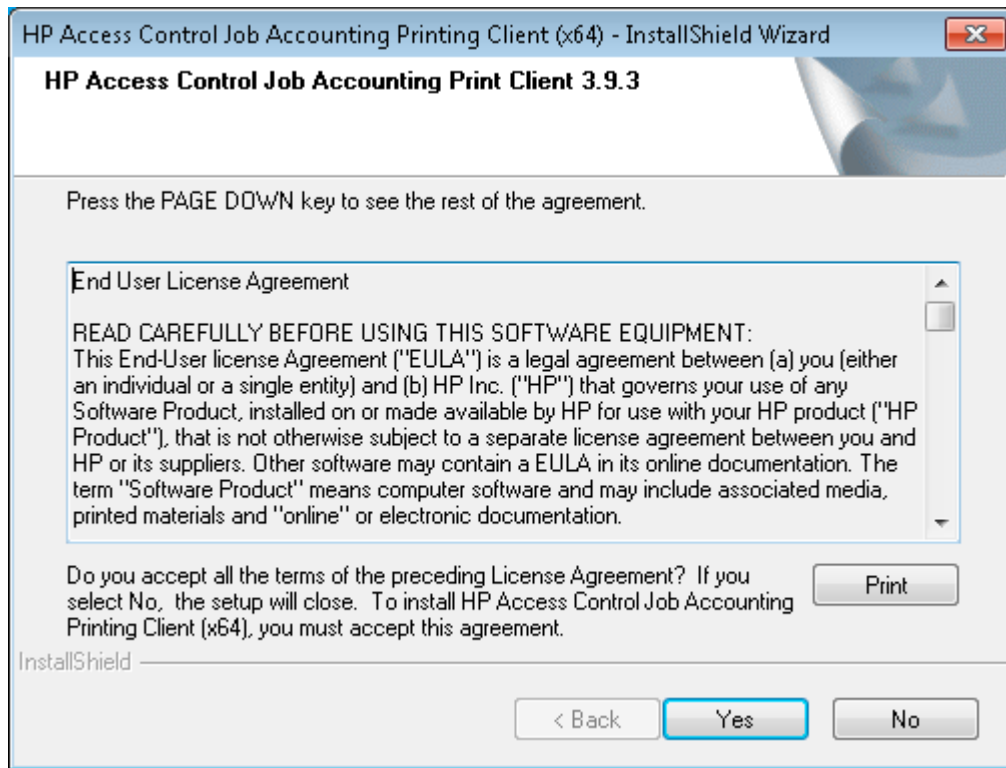
Prerequisites

- HP Access Control Job Accounting Server

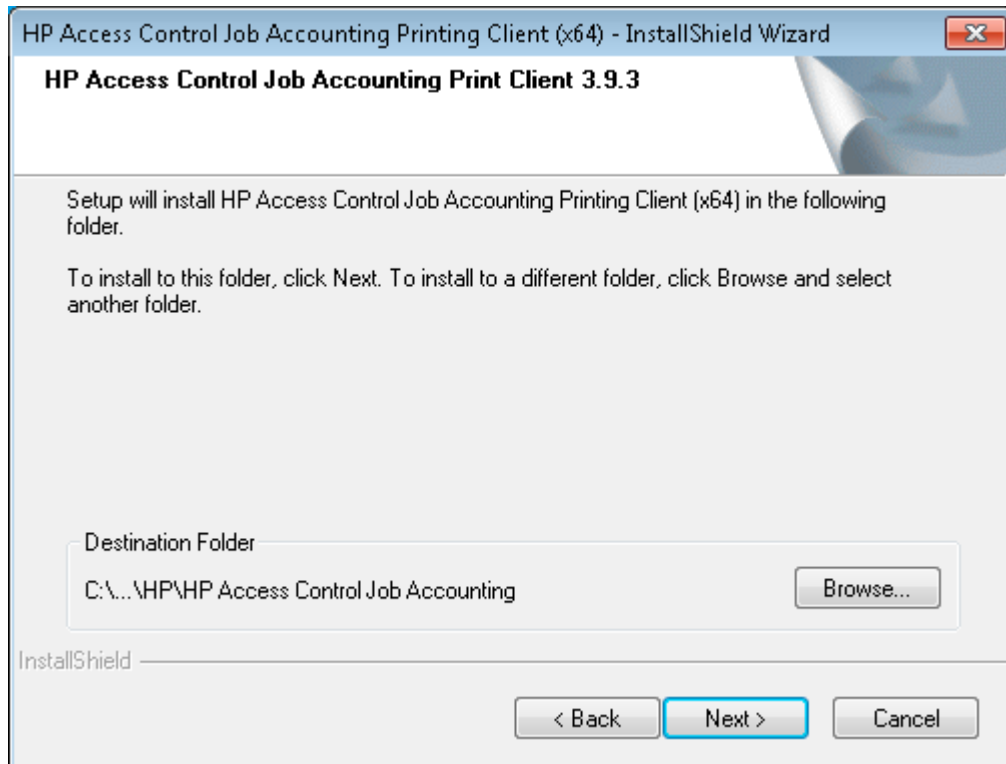
 **NOTE:** The Job Accounting Print client is not compatible with any other print clients.

Complete the following steps:

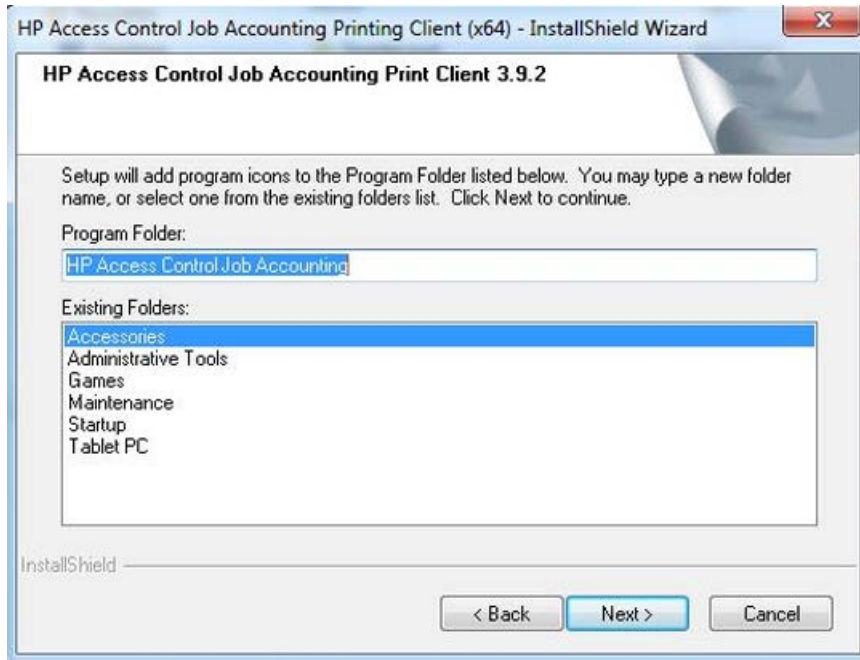
1. Run the HP Access Control Job Accounting Print client with administrative rights.



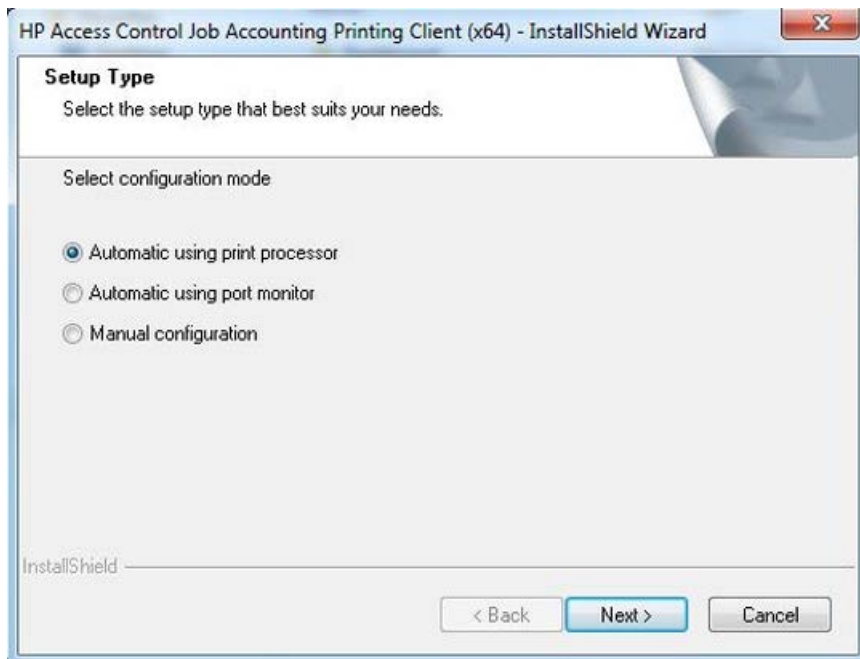
2. Select the folder to install the client.



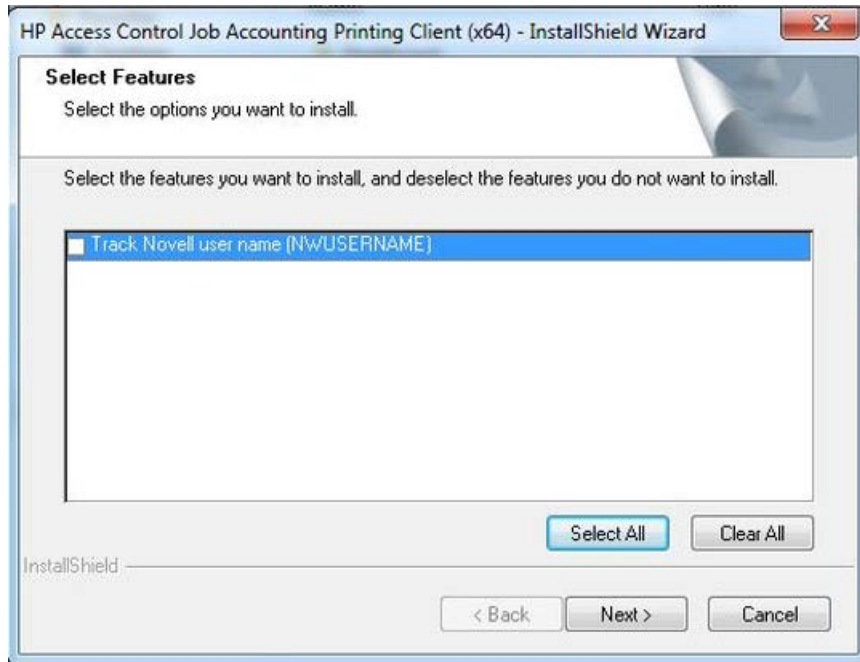
3. Select the Program Folder to add the program icons to.



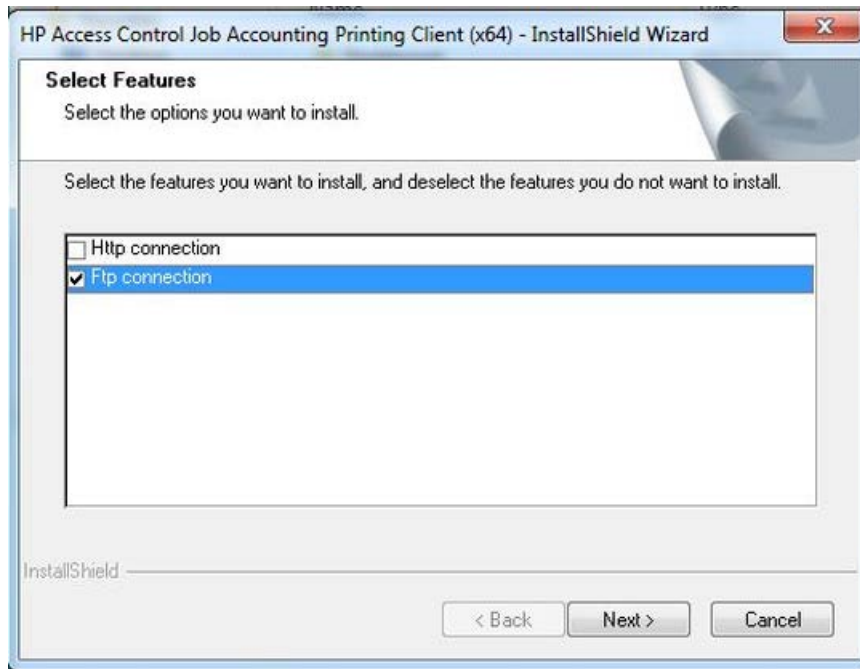
4. On the Setup Type screen, select one of the following configuration modes:
- **Automatic using print processor** for USB printers
 - **Automatic using port monitor** for local connected or Standard TCP/IP ports
 - **Manual Configuration** to manually configure printers with the Printer Configuration Tool



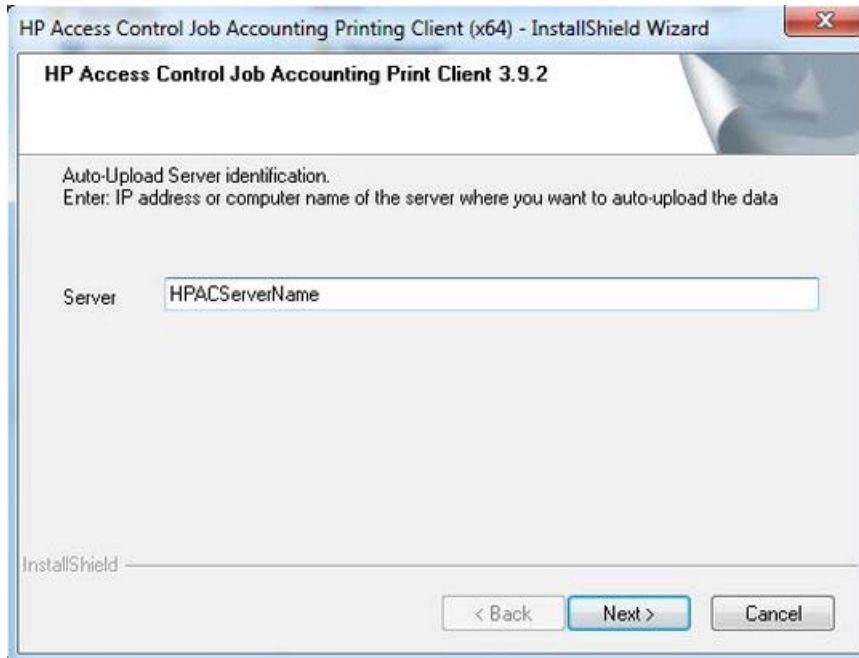
5. For Novell environment, select to **Track the Novell user name**.



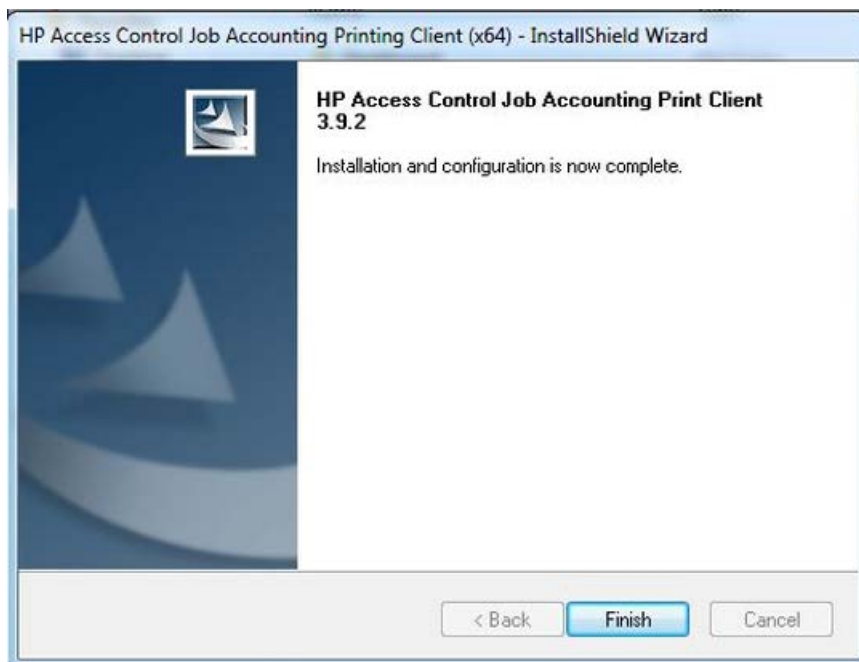
6. Choose the connection method to push the job accounting information to the HP Access Control server running the Job Accounting Server.



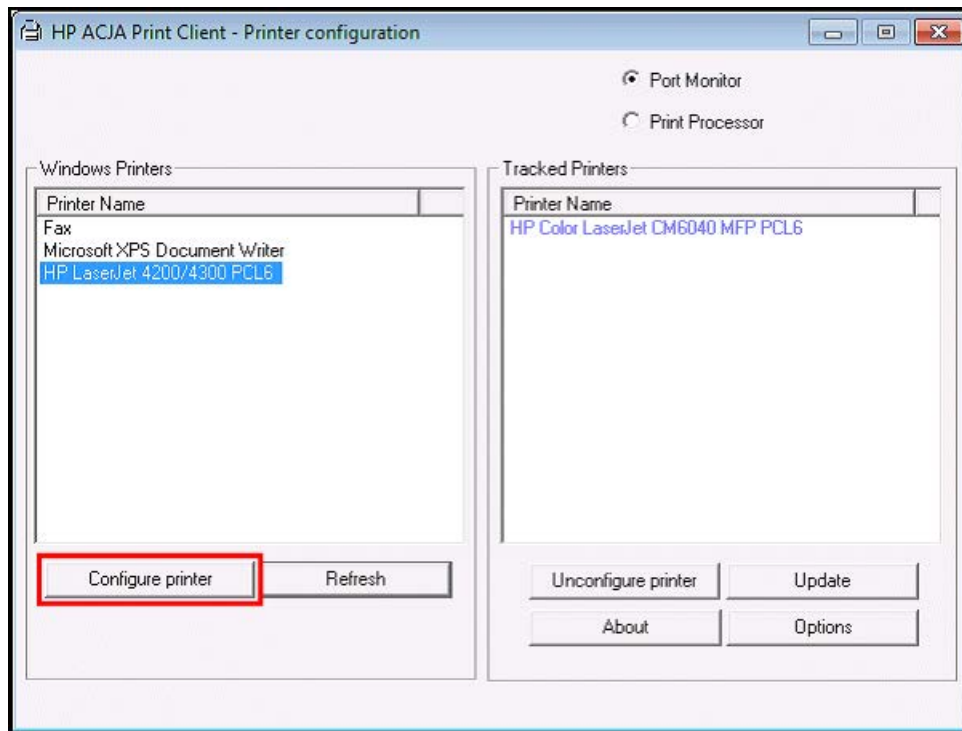
7. Enter the IP address where the accounting data will be auto-uploaded to.



8. Click **Finish** to complete the installation.



9. If during the installation you chose Manual configuration, go to Start >All Programs > HP Access Control Job Accounting and choose Printer Configuration. Select the printer, and click **Configure printer**.



12.3 Information flow

HP Access Control can track usage from supported HP devices using in-device tracking or by tracking print jobs from a print server. HP FutureSmart Devices: The Job Accounting statistics module receives tracking data and creates a XML file to push to the Job Accounting Database Server. HP Non-FutureSmart Devices: HTTP is used to receive tracking files from these devices. Non-HP Devices: support tracking of data from a print server.

12.3.1 In device tracking

HP devices support tracking of page level information at the device level. This provides the most accurate level of tracking as it will only count printed pages. If a user deletes or retains and reprints a job, the information will be sent to the Job Accounting server.

How it works:

1. After completing a job, the printer sends tracking data to the Job Accounting data collector.

 **NOTE:** This can be data collectors on the Job Accounting Web server, or installed on a remote server.


2. The Job Accounting web server will record the tracking data in the SQL database through an SQL transaction by the HP AC Job Accounting Agent service.

 **NOTE:** The database can be local or remote.

12.3.2 HP Access Control (HP AC) Job Accounting print server

The HP AC Job Accounting Print Server can detect every print job sent to any of these shared printers by monitoring the print spooler. HP AC Job Accounting keeps track of all printed documents, as well as their characteristics including:

- Document name
- Printer (local and shared name) and its properties (such as color or black and white, or duplex unit)
- Job owner: name, machine name
- Number of sent pages and printed pages for HP devices configured to send printer confirmation using SNMP
- The printing mode (Economode, duplex, color)
- The date and time when the print job was sent
- The media used and its size (A3, A4, letter)

 **NOTE:** Print server tracking requires SNMP traps to be configured and working correctly to accurately track canceled pages and or retained/reprinted pages. It is recommended to use in-printer tracking.

12.4 Getting started

HP AC Job Accounting interface is easy to use, with its Remote Control panel and user-friendly buttons and icons for fast navigation through various functions. Every HP AC Job Accounting icon is context-sensitive. When the cursor is positioned for several seconds on an icon, a description of the action associated with the icon will appear. Lists and pull-down menus are built dynamically, according to what is declared/registered in HP AC Job Accounting. For instance, the printers, print servers, media, and currencies are all updated based on information contained in other tables. You can use the Ctrl and Shift keys to choose multiple entries in a list.





Specific icons allow you to reach a certain page or service. By clicking on any button in the HP AC Job Accounting Remote Control panel, you will be able to access information and to launch certain tasks. When more than one page of information is generated, the page navigation bar illustrated in the figure below appears at the bottom of each page:



To reach a specific page, click the first page number in the bar and type the number of the page you want to reach:



To select one or more elements in a list, simply check the box on the left of the element, or click the box in the title bar to select all elements in the list:


<input type="checkbox"/>		User name	Access rights	Language	Currency name	Modify parameters
<input type="checkbox"/>		Admin	Administrator	English	US dollar	
<input type="checkbox"/>		User	User	English	US dollar	
<input type="checkbox"/>		williams	Administrator	English	US dollar	

To delete an item, select one or more from the list and click the delete icon in the title bar:



To modify the parameters of an element in the list, click the Modify icon:



 **NOTE:** It is only possible to modify one element at a time.

HP AC Job Accounting has three distinct user categories:

- **HP Access Control (HP AC) Job Accounting users**
These users have an HP AC Job Accounting account. They can launch queries and get query results (on costs, printed documents) and be informed on the print system.
- **HP Access Control (HP AC) Job Accounting administrators**
These users have an HP AC Job Accounting account and the ability to launch queries or gather statistics about the print system. Furthermore, HP AC Job Accounting administrators are able to manage other HP AC Job Accounting accounts, currencies, exchange rates, user permissions, etc.
- **HP Access Control (HP AC) Job Accounting allocation super user**
These users have an HP AC Job Accounting account. They can launch queries and obtain query results (on costs, printed documents) and be informed on the print system. They can also view and modify allocation information stored in the database.

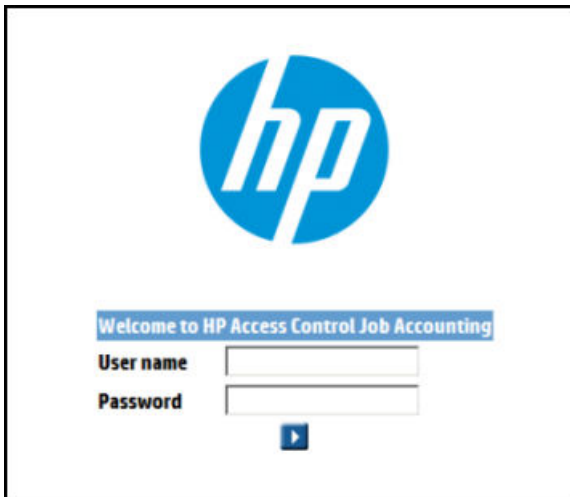
12.4.1 Login page

To access the HP AC job accounting server, do one of the following:

- Open the Job Accounting tile from within the HP AC configuration utility.

OR

- In a web browser, enter `http://<servername>HP_ACJA` or `https://<servername>/HP_ACJA`



 **NOTE:** Both the default login and password are **Admin**. The password field is case-sensitive.

The following rules apply to the login page:

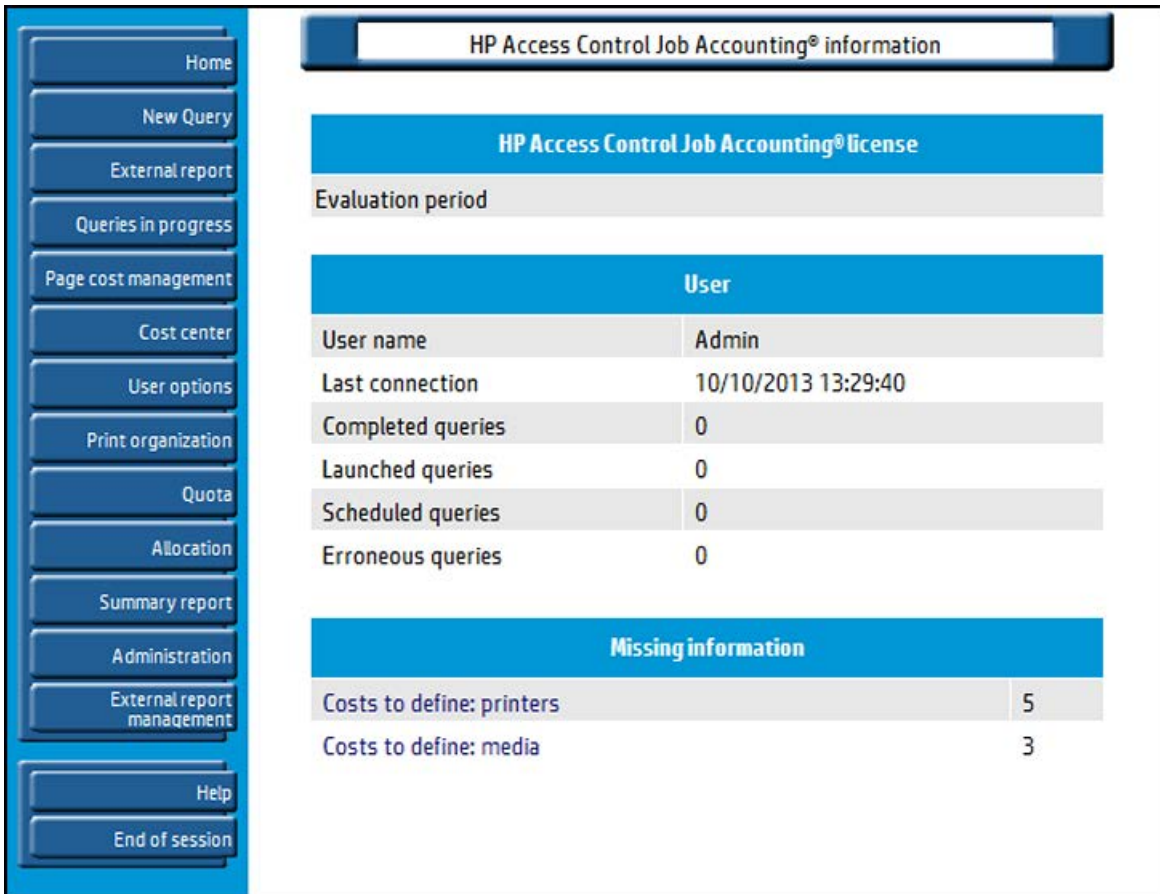
- Entering user information on this page allows access to HP AC Job Accounting.
- If the user name or password is invalid, an error message appears.

 **NOTE:**

- **For the HP AC Job Accounting Administrator Account:** A default account is created when installing HP AC Job Accounting, to allow you to access the application for the first time. When you are connected, it is highly recommended that you change the password of the Admin account. For more information, see [Section 12.10, HP AC Job Accounting user options](#).
- **For HP AC Job Accounting Users:** The HP AC Job Accounting administrator created your account with a user name and a password. Only your HP AC Job Accounting administrator can provide you with this information. After accessing your account for the first time, you can modify your password. For more information about modifying your password, see [Section 12.10, HP AC Job Accounting user options](#).


12.4.2 Information page

When you have successfully logged into HP AC Job Accounting server, the HP AC Job Accounting Information page appears:




HP Access Control Job Accounting® information	
HP Access Control Job Accounting® license	
Evaluation period	
User	
User name	Admin
Last connection	10/10/2013 13:29:40
Completed queries	0
Launched queries	0
Scheduled queries	0
Erroneous queries	0
Missing information	
Costs to define: printers	5
Costs to define: media	3

The information page consists of two parts: the HP AC Job Accounting Remote Control panel on the left, and the larger General Display window on the right. The HP AC Job Accounting Remote Control panel will always be displayed and does not change appearance. The General Display will change depending on the selection made in the Remote Control panel.

 **NOTE:** What is displayed in the General Display will vary based on the logged in user and the associated rights assigned to that user.

The general display window is divided into the following sections:

- The information about your license status. If HP AC Job Accounting is registered, nothing is displayed.
- Information about the current user.
 - Completed queries (queries for which a result is available)
 - Launched queries (queries running and for which a result is expected)
 - Scheduled queries (queries planned but not yet run)
 - Errors in queries (queries aborted due to error)
- Information about costs and exchange rates.

 **NOTE:** This information only appears for an HP AC Job Accounting administrator.

 **NOTE:**

- For the HP AC Job Accounting administrator: Read the information presented on this page carefully. Only the proper system configuration will produce accurate query results.
 - It is the HP AC Job Accounting administrator's responsibility to view this page to update the Job Accounting configuration on a regular basis. Users are not notified to update parameters surrounding elements added to the print system.
-

12.4.3 License

This section provides information about HP AC Job Accounting license status.

1. Click the Help button on the remote control panel and click **View License Information**.

License information will display.

2. To view the License Agreement, click **License Agreement**.

 **NOTE:** You can also view Job Accounting licensing details by accessing the License tile in the HP AC configuration utility.

12.4.4 Database Manager

The Job Accounting Database Manager is a simple tool for managing the Job Accounting database. It is not intended to replace any SQL Management Tools that are included with SQL Server.

 **WARNING!** Please make sure the database is backed up prior to applying any changes to the database.

The Database manager can be accessed:

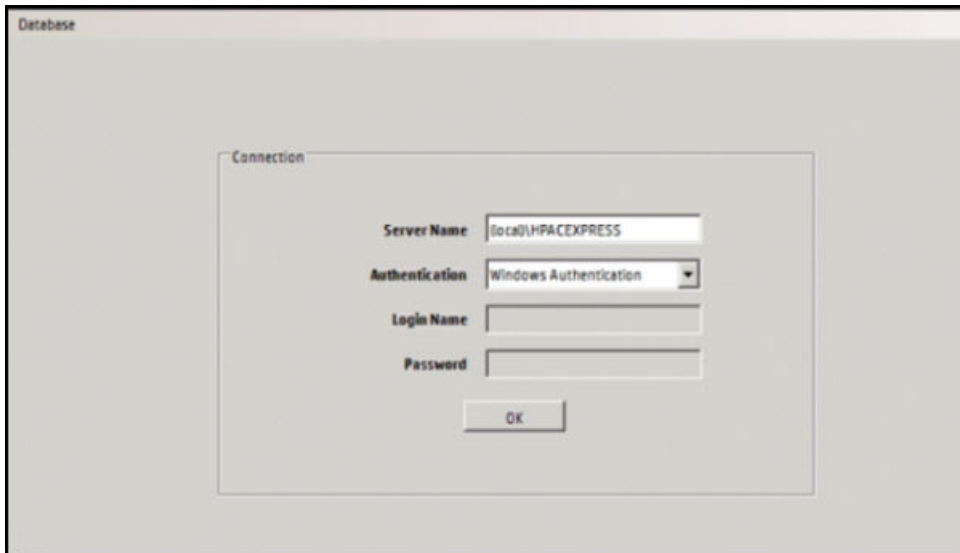
- Within the HP AC configuration utility, go to the Job Accounting tile > Database Manager tab;

OR

- Using your web browser, enter the following URL:

http://<servername>/HP_ACJA

and select the Database Manager menu.



In the **Server Name** field, make sure to include the instance name if you used a named instance of SQL. Enter the correct login credentials. Click **OK**.

Running SQL queries:

1. To view SQL queries, go to the **Database** menu and select **SQL Query**.
2. Enter query and click **Run**. Results will appear in the results pane.
3. Open Database menu and select **Database Manager** to exit SQL query menu.

Using Database Manager to delete records:

! WARNING! The deletion process cannot be reversed. Once an item has been deleted it will no longer be in the database. A complete database restore would be required to restore the deleted items to the database. All records associated with the deleted object will also be deleted.

In the **Database Manager**, select items to delete:

- Select **Print servers** to delete a selected print server, including all printers and jobs assigned to it.
- Select **Printers** to delete a selected printer and all jobs assigned to it.
- Select **Domains** to delete a selected domain, including all users and jobs assigned to it.
- Select **Users** to delete a selected user and all jobs assigned to the user.
- Select **Allocation** to delete a selected allocation profile and jobs assigned to it.
- Select **Jobs** to delete jobs within a selected date range.

Back up the Job Accounting Database:


The Job Accounting database can be backed up using any of the following methods:

- In the HP AC configuration utility go to Job Accounting tile > Database Manager. Under Database menu, select Back up Database. Choose the directory or a UNC path to save the backup to.
- In a web browser, enter the following URL:
http://<servername>/HP_ACJA
In the Database Manager tab, under Database menu choose **Back up Database**. Choose the directory path or a UNC path to save the backup to.
- Back up the HP_ACJA database using standard SQL tools.

12.5 HP AC Job Accounting administration

Use the HP AC Job Accounting Administration page to add, delete, or modify HP AC Job Accounting functions and parameters. All administration operations are performed from this menu. HP AC Job Accounting administration is divided into two parts:

- The HP AC Job Accounting administrator assigns and configures individual accounts; including HP AC Job Accounting accounts, currencies used in the application, and email system.
- The HP AC Job Accounting administrator defines the costs and prices (such as printers and media), which will affect query results.

 **NOTE:** The Administration menu only appears in the HP AC Job Accounting remote control if you have Administrator rights.

Access the Administration screen by clicking **Administration** on the HP AC Job Accounting remote control:


12.5.1 Account options

This page provides information on the various accounts in the system, and allows the administrator to create new accounts or modify existing ones. To access the HP AC Job Accounting Accounts options, click **Accounts** on the Administration screen.



12.5.1.1 Create an account

1. Click **Create an account**.
2. Enter a unique user name.
3. Enter your password and then confirm it by entering it again. For security reasons, passwords are masked.

 **NOTE:** Passwords are case sensitive

4. Check the group you want the user to belong to:

User: Allocation Super

User: Quota Super

User: Administrator



5. Click the Go  icon to validate the account, or the Cancel  icon to reject it and stop the operation.

Figure 12-1 Go and Cancel icons




This account has the language and currency attached by default to the Admin account. For more information on changing the language and currency, see [Section 12.10, HP AC Job Accounting user options](#).



12.5.1.2 Modify an account

Administrators can modify the password or the access rights attached to a user name. You may find this function useful when reinitializing an account password.

 **NOTE:** It is possible to modify only one account at a time.

- To modify account information, click the Modify  icon.
- To change the password, enter the password, and then enter the password again to confirm it.
- To grant or withdraw administration rights, check or uncheck the **Administrator** box.

 **NOTE:** The access rights of an Admin account cannot be changed.

- Click the Go  icon to accept the modification, or the Cancel  icon to reject it and stop the operation.

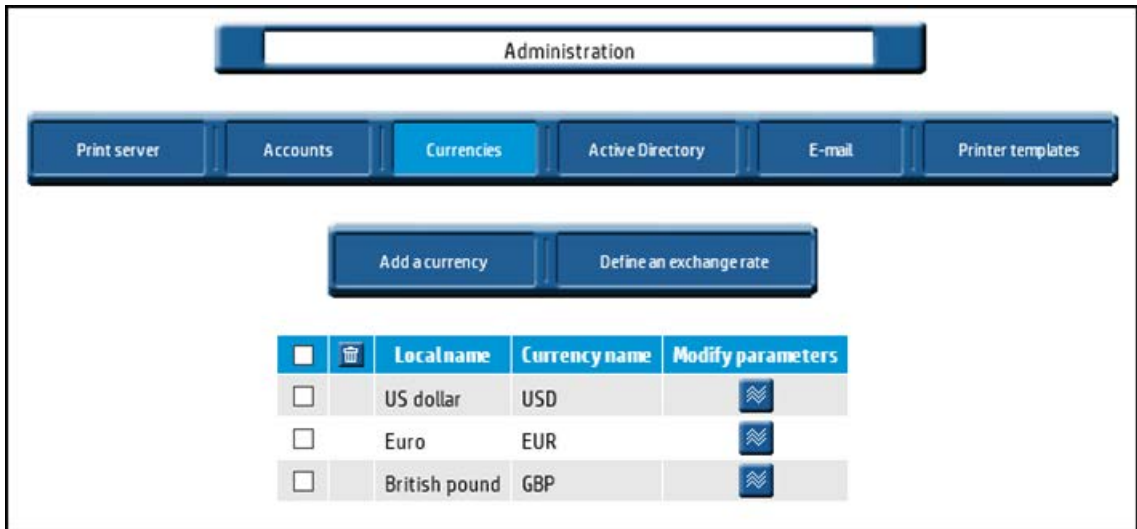
12.5.1.3 Delete an account

To delete an account, check the box corresponding to the user account you want to delete. Click the **Delete** icon. You will be asked to confirm the deletion before the account is removed.

 **TIP:** You can delete several accounts in one operation.

12.5.2 Currencies

To view defined currencies, add a currency, or define a currency exchange rate, click **Currencies** on the Administration page.



This page lists all currencies defined in HP AC Job Accounting and provides their acronym. These currencies may be used in HP AC Job Accounting to display costs for elements such as printers, media, or jobs.

A currency will ultimately express a cost associated with a given printer. Each time a new cost is entered by an HP AC Job Accounting administrator, the default currency for this cost is the same as the currency associated with the current administrator. You can modify the currency, which is attached by default to each HP AC Job Accounting user and administrator in the User options. For more information, see [Section 12.10, HP AC Job Accounting user options](#).

HP AC Job Accounting contains the following default currencies:

- US dollar
- European Euro
- British pound

NOTE: You may delete any currency, as long as it has not been used to express a cost.

12.5.2.1 Add a currency

Forms of currency are entered in **Add a currency**. To add a currency, complete the following steps:

1. From the Currencies page, click **Add a currency**.

2. Specify the new currency name and acronym (Example: USD for a US dollar).
3. Click the Go icon to add the currency, or the Cancel icon to stop the operation.

12.5.2.2 Define an exchange rate

An exchange rate must be associated with each currency. All exchange rates are set to “0” by default.

 **NOTE:** You must define an exchange rate for the new currency, or all costs expressed in the new currency will be incorrect.

Use the following steps to define an exchange rate:

1. On the Currencies page, check the box beside a currency to select it.
2. Click **Define an exchange rate**.

Figure 12-2 Define exchange rate



Currency name	Rate	Currency name
1 US dollar =	0.6666	Euro
1 US dollar =	0.6091	British pound
1 US dollar =	1	cur_PS
1 US dollar =	1	cur_Bs.
1 US dollar =	1	cur_BRL
1 US dollar =	1	cur_PLN
1 US dollar =	1.0989	cur_CDN
1 US dollar =	1.6666	cur_SGD
1 US dollar =	1	cur_USQ
1 US dollar =	1	cur_PES

3. Enter the exchange rate for the currency.
4. Click the Go  icon to accept the defined exchange rate, or the Cancel  icon to stop the operation.


12.5.3 Delete an exchange rate

To delete an exchange rate, complete the following steps:

1. On the Currencies page, check the box beside a currency to select it.
2. Click **Define an exchange rate**.
3. Enter **0** in the field beside the currency, for the exchange rate you want to delete.

12.5.4 Modify a currency



To modify a currency name or acronym, complete the following steps:


 **NOTE:** You can modify only one currency at a time. On the Currencies page, check the box beside a currency to select it.

1. Click the Modify  icon to access Modify a currency screen.

Figure 12-3 Modify a currency




2. Enter a **New currency** name or **New local name** in the designated fields.
3. Click the Go  icon to save the modifications, or the Cancel  icon to stop the operation.

 **NOTE:** You do not have to redefine the exchange rate for a modified currency.


12.5.5 Delete a currency


Use the following steps to delete a currency:

1. On the Currencies page, check the box beside a currency to select it.
2. Click Delete .



3. Click the Go  icon to delete the currency, or the Cancel  icon to stop the operation.

 **TIP:** You can delete several currencies at a time.

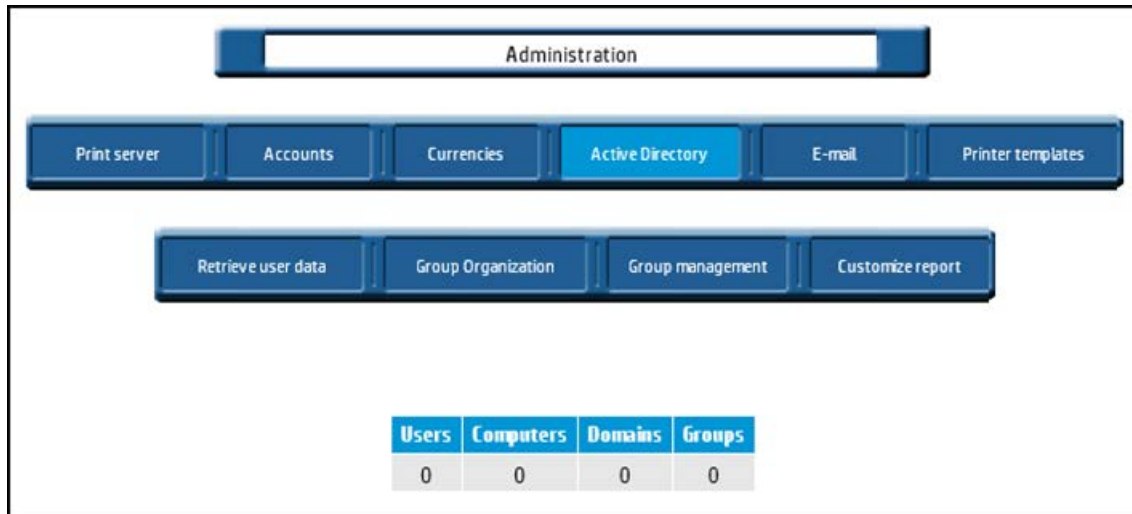
 **NOTE:** The exchange rates attached to a deleted currency are automatically deleted.

12.5.6 Active Directory

Information regarding users, groups, domains, and computers is collected the first time a user is detected in the database. If no network scan has been performed, only the users printing with the HP AC Job Accounting print server will be stored in the database. After a network scan has been launched, the information pertaining to users, groups, domains, and computers is stored in the database.

On the Active Directory screen, the administrator can create new HP AC Job Accounting groups, which are processed like standard network groups. If a user belongs to several groups, assign the user to a group and obtain user information through various queries.

To access the Active Directory options, click **Active Directory** on the Administration page.




The Active Directory displays the total number of users, computers, domains, and groups that are currently tracked. These numbers will change according to the data detected on your network. The data is refreshed once every 30 seconds.

From Active Directory, the administrator can perform the following tasks:

- Click **Retrieve user data** to launch the search.
- Click **Group organization** to add, delete, or organize groups.
- Click **Group management** to manage groups and user assignments to groups, to charge them based on printing activity.
- Click **Customize report** to add and define columns in your queries. The summary report is not affected.

HP AC Job Accounting allows you to retrieve and use data regarding individual print system users. This data, also called Active Directory in the Windows system (ADSI), reports the user's group and domain, if any. Data such as the user's first and last name, the name and operating system of the machine, and the user's declaration in the system are also given based on information previously entered by an administrator.

This user data enables accurate monitoring of print costs over a network. Individual users are charged for printing costs, rather than costs associated with a particular workstation. For companies with a large user base, individual accounts should be placed in different groups or domains, depending on the internal organization. User queries can be launched by specifying a Windows domain, limiting the scope of your query. Using this method produces faster, more precise results.

 **NOTE:** Active Directory only supports Domain Controller on Windows 2000, 2003, and 2008. pDC on Windows NT 4.0 is not supported.

You can add this data to your HP AC Job Accounting database using automatic or manual retrieval. To enable automatic database updates, you should have the necessary network permissions, which can only be applied by the network administrator. These rights should be registered before any printing or manual data retrieval.

12.5.7 Retrieving user data

User data can also be manually retrieved by the HP AC Job Accounting administrator.

1. Click **Retrieve user data** to launch this operation.

Figure 12-4 Retrieve user data

Users	Computers	Domains	Groups
0	0	0	0

Affected domain (Netbios name)	CTSUPPORT
DNS Name	
User name	
Password	
Scan type	<input checked="" type="radio"/> Complete <input type="radio"/> Group <input type="radio"/> Computer
Group Organization	Primary Group

2. Choose a specific **Affected domain** to scan.



You can also specify the login and password of an HP AC Job Accounting administrator for the defined domain of your print system. For security purposes, the password is encrypted and not visible.


 **NOTE:**

- Passwords are case-sensitive.
- HP AC Job Accounting uses this identification to research users on the network. The user performing the scan must have administrator rights in each affected domain—be aware of any firewalls that may block the scan.
- If no login or password is entered, HP AC Job Accounting verifies the network authorizations of the machine from which the search was initiated.

3. Limit the scope of information scanned by choosing **Computer** or **Group** in the options list of the Scan type field.

The Computer option allows the retrieval of various computers and users. The Group option allows retrieval of various groups, as well as all attached users. Complete scan retrieves all information related to your domain by taking into account all levels of your system. This last option is selected by default.

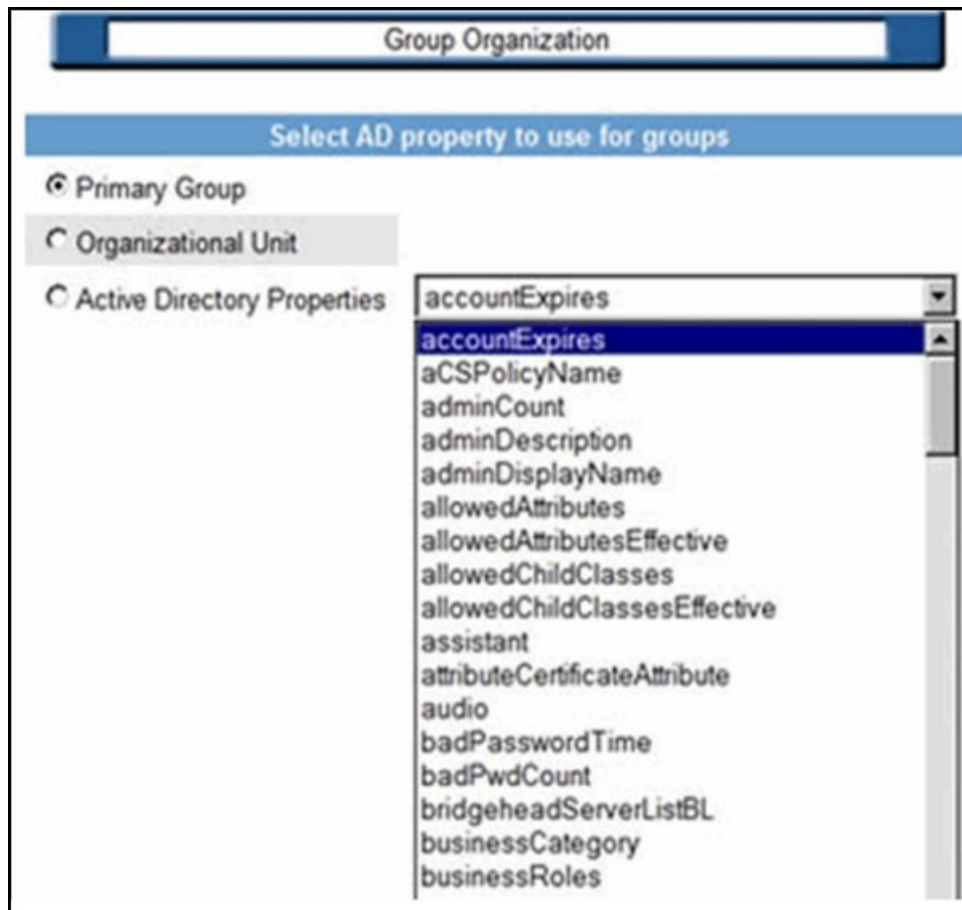
4. Click the Go  icon to accept the process, or the Cancel  icon to stop the operation.

 **NOTE:** This operation must be performed for each domain of the print system. Each new user or group in any domain is automatically added to the HP AC Job Accounting database. All lists and drop-down menus that summarize end users, machines, groups, and domains existing in the NT system are automatically created and updated in the HP AC Job Accounting interface, if the user has printed. For more information on these parameters, see [Section 12.11.3, Parameterize queries](#).

12.5.8 Group Organization


Group Organization defines which Active Directory property to use to query group activity and costs for each user. The three options for organization are Primary Group, Organizational Unit, or Active Directory Properties.

Figure 12-5 Group Organization



Primary Group and Organizational Unit (default OU is Users) are the standard Active Directory properties.

Active Directory Properties allow for the selection of available AD properties; or a property can be specified by entering a valid AD property as text. If the option is configured on the HP AC Job Accounting Server, and security has been configured to disable Anonymous access on the HP AC Job Accounting web site in the IIS console, a list of AD properties populates a drop-down list. Otherwise, only an input field displays and the property must be supplied as text input.

 **NOTE:** A complete network scan must be launched to update the database if **Organizational Unit** or **Active Directory Properties** is selected.

12.5.9 Group management

Group management defines how print jobs are allocated to the groups of your network, which affects the result of some queries and modifies the printing cost charges per group user.

A single user may belong to several groups. For example, a user can belong to the Development group, the Accounting group, and the Management group. The user can be attached to one specific group or several, if desired. Each user could be assigned to a favorite group. In this manner, all printing activity related to a user is counted only once, and not twice or three times, as is the case when the user belongs to several groups. To set up this feature you will first need to choose a domain. Use the following steps to manage groups:


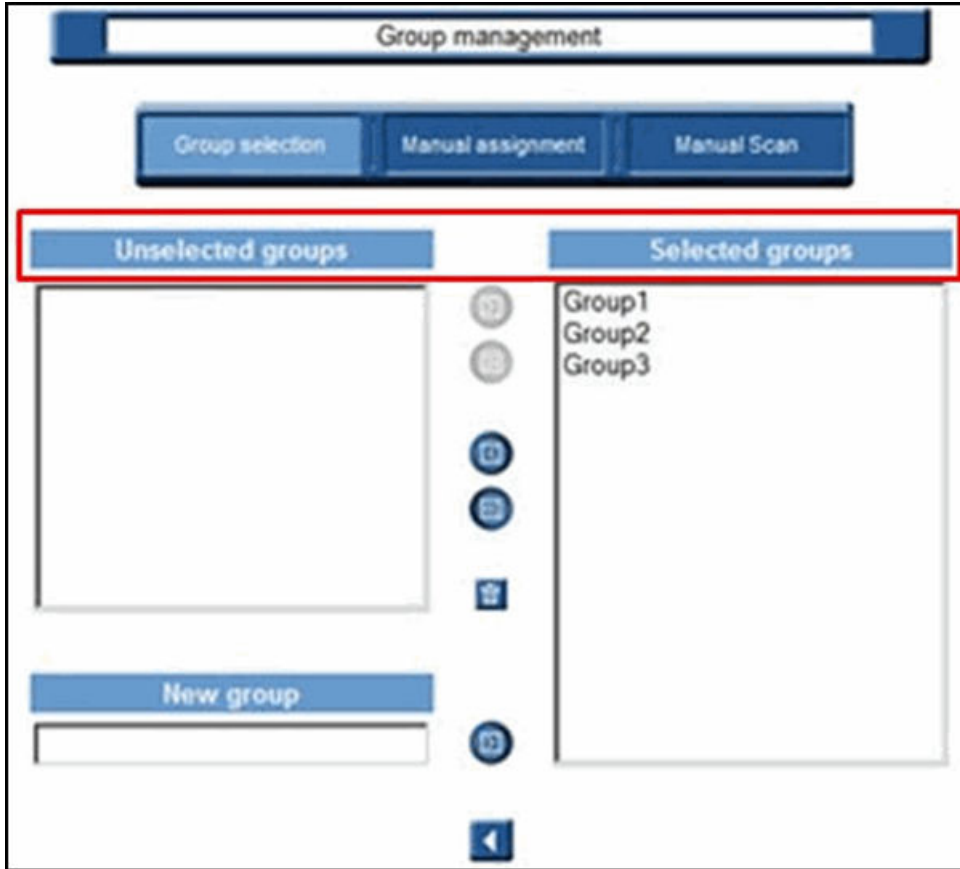
1. Click **Group management** on the “Active Directory” page.
2. Choose a Domain.
3. Click the Go  icon to continue to the **Group selection** menu:

Figure 12-6 Group selection

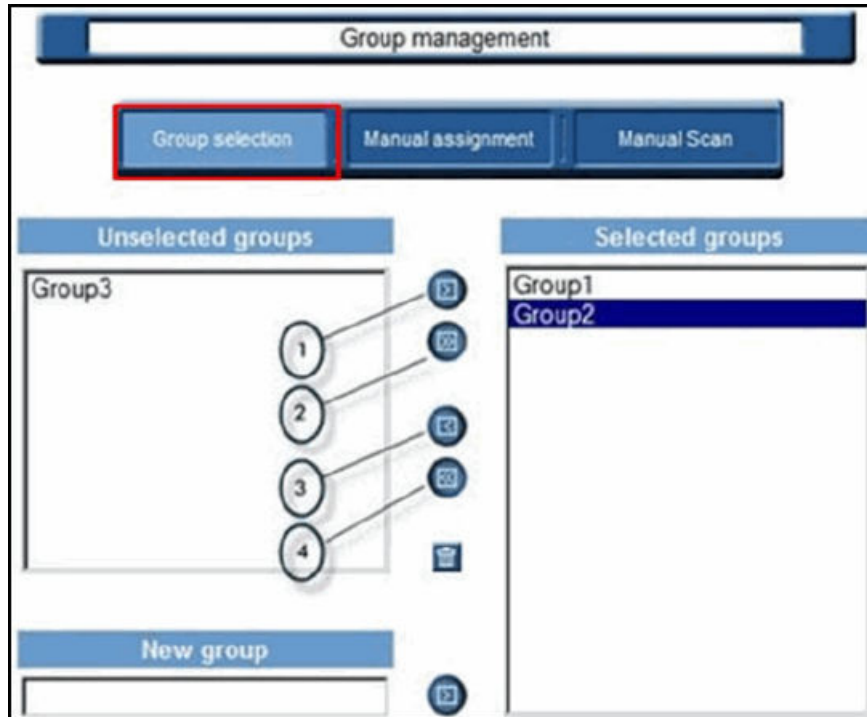


12.5.10 Group management functions

The **Group selection** window displays all the groups that have been automatically detected by HP AC Job Accounting, and new groups that have been created manually. These new groups appear highlighted in light blue.

Use icons to manage groups:

Figure 12-7 Group management icons



¹ The right-arrow icon moves a group from the **Unselected groups** field to the **Selected groups** field. You also can select many groups by holding the Ctrl key while making selections.

² This icon moves all groups from **Unselected groups** to **Selected groups**.

³ The left-arrow icon moves a group from the **Selected groups** field to the **Unselected groups** field. You also can select many groups by holding the Ctrl key while making selections.

⁴ This icon moves all groups from **Selected groups** field to the **Unselected groups**.

The Delete  icon is used to delete the manually created groups.

To remove any automatically-detected groups that are unnecessary, select them and click the left-arrow icon. They are added to the **Unselected groups** field. This action allows them to be retrieved later if needed.

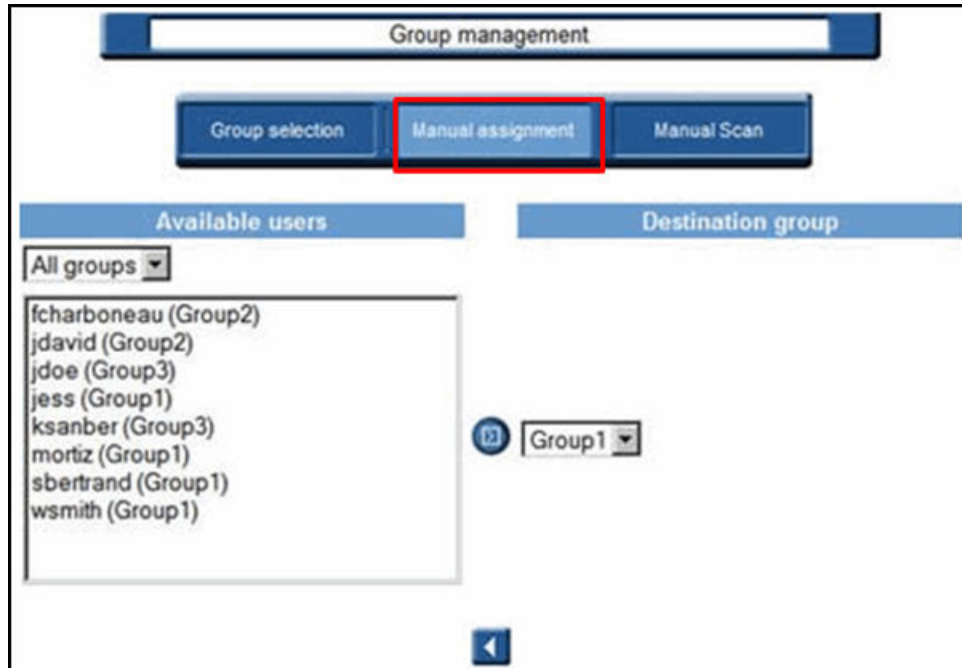
The **New group** field allows the creation of custom groups. Enter the name of the new group and add it to the **Selected groups** window by clicking the right-arrow icon. The new group is highlighted in light blue.

Following are the rules of selection:

- By default, all groups are selected (they appear in the "Selected groups" window).
- You can create and delete groups you have created manually.
- You cannot delete groups detected by the system as active (Active Directory).
- If you delete a group with users still attached, they are moved to the unspecified group.


- To assign users manually, click **Manual assignment** in “Group management”:

Figure 12-8 Manual assignment



A list of users is displayed. You can only reveal the users of one particular group at a time, but it is possible to see all users of all groups. In this case, the current assigned group is indicated between brackets for each user.

You can choose a new destination group for each user. Select one or many users, and then select a new destination group and click the right-arrow icon to assign the selected users to this new group. As a result of selecting a specific group, a query is launched including the users who have just been assigned.

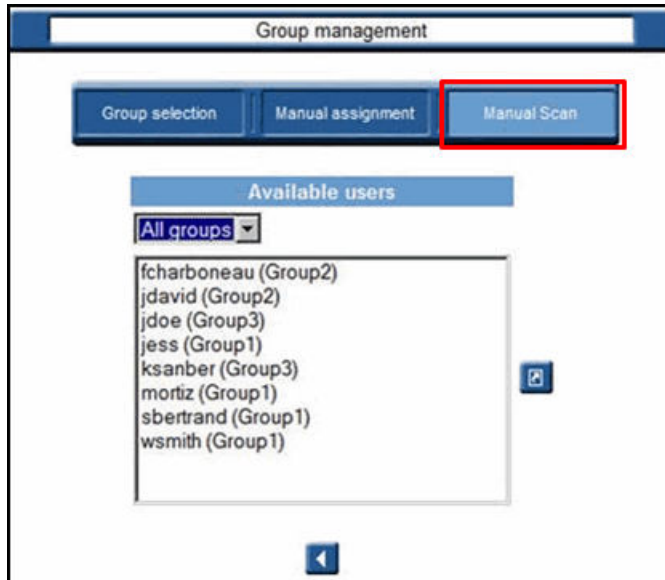
 **NOTE:** This assignment is recommended for environments with a small number of users.

12.5.11 Manual Scan

On large networks, performing scans for new users can be a time-consuming process. After adding a new user or making a change to an existing user, the **Manual Scan** option can quickly update the system.

1. Click **Manual Scan** on the “Group management” page:

Figure 12-9 Manual scan



To limit the list size, use the drop-down menu to confine the results to specific network groups. Use the following steps to perform a “Manual scan”:

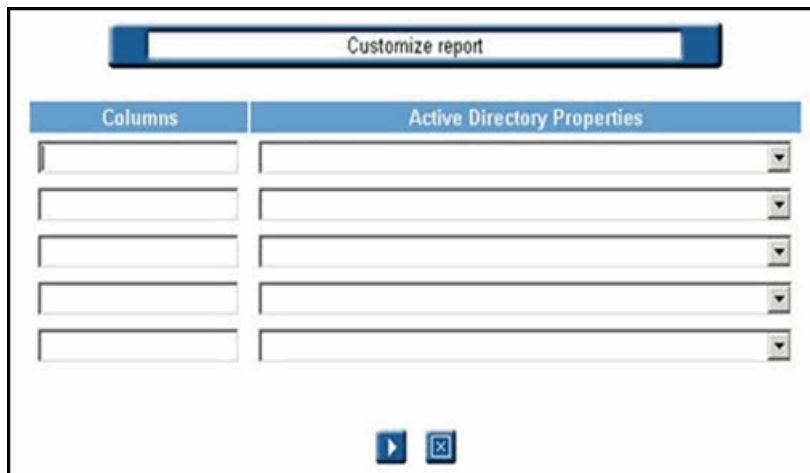
2. Select the new user from the list.
3. Click the Update icon to update the selected user.

12.5.12 Customize reports

Use the **Customize Report** function to add data from any Active Directory field in a column within a user-generated report. Only queries reporting the user name see the additional columns.

1. Click **Customize report** on the “Active Directory” page to add and define new columns in your report.

Figure 12-10 Customize report



2. Define up to five columns:
 - a. Enter the column name in the **Column** field.
 - b. Select from the **Active Directory Properties** drop-down list to define the column. If the drop-down list can be populated, an input field displays (see [Section 12.5.8, Group Organization](#) for more details).

Figure 12-11 Customize report columns option



 **NOTE:** See [Section 12.11.4.7, Modify display parameters](#) to display additional columns in the report.

12.5.13 Email

The email system defines both individual email addresses and distribution lists. The system provides all HP AC Job Accounting users and administrators with a choice of email recipients. An email server should also be configured to send query results using email (a proxy server and the SNMP port associated).

To create addresses and lists and configure the email server, click **Email** on the Administration page.

Figure 12-12 Email configuration




The HP AC Job Accounting email system enables HP AC Job Accounting users to send query results using electronic mail as the delivery mechanism.

Email data (addresses, lists and server), if already defined, appears on the screen. The SMTP address of the email server is displayed. You can create the addresses and distribution lists using the task bar at the top of the page.


 **NOTE:** Query results can only be sent in Comma-Separated Value (CSV) format.

To send your query results using email you will have to have all of the following:

- A properly configured email server.

 **CAUTION:** To configure an email server you need some parameters that may be confidential. Only your network administrator may have access to this information.

- A sender. The sender's address can be defined in the User options. This operation is mandatory. Any HP AC Job Accounting user or administrator can define their address. For more information on this operation, see [Section 12.10, HP AC Job Accounting user options](#).
- Recipients for query results. For more information on this operation, see [Section 12.12, Query results](#).

 **NOTE:** No verification is performed on email addresses (such as access, validity, or entry). These addresses will only be used when results are sent. Contact your system administrator to confirm that email messages have been sent and received. If an error occurs, you will have to correct the HP AC Job Accounting addresses.

HP AC Job Accounting contains an address book, which consists of recipient addresses and recipient lists. You should first define individual addresses, and then create lists with these addresses.

12.5.14 Create an email address



This operation is not mandatory. Email addresses can be defined when launching a query. For more information, see [Section 12.11.3, Parameterize queries](#).


Use the following steps to create an email address:

1. From the Email screen, click **Create an address**.

Figure 12-13 Create an address



2. Enter the email address in the usual format: xxxxxx@xxxxxx.xxx
3. Click the Go  icon to accept the address, or the Cancel  icon to reject it and stop the operation.

 **NOTE:** All fields can contain up to 127 characters, symbols, and figures.

12.5.15 Modify an email address

Use the following steps to modify an existing address:




1. On the Email page, select the email address you want to modify.
2. Click the Modify parameters  icon to display the **Modify an address** page.

Figure 12-14 Modify an address



3. Click the Go  icon to accept the modifications, or the Cancel  icon to reject it and stop the operation.

12.5.16 Delete an email address

To delete an email address, complete the following steps:

1. Select the address you want to delete in the Addresses section.

2. Click the Delete  icon.




 **NOTE:** To avoid an error, confirm that you want to delete the address.

Figure 12-15 Confirm deleted address



3. Click the Go  icon to accept the address deletion, or the Cancel  icon to reject it and stop the operation.

 **CAUTION:** This operation cannot be canceled after it has been accepted.

12.5.17 Distribution lists

A distribution list consists of several email addresses grouped together. You can create a list of addresses, and assign a name to the list. Then to send an email to all addresses contained in the list, you just need to enter the assigned name of this list.

 **NOTE:** This operation is not mandatory. Email addresses can be defined while launching individual queries. For more information, see [Section 12.11.3, Parameterize queries](#).

12.5.17.1 Create a distribution list

To create an email distribution list, complete the following steps:


1. From the Email page, click **Create addresses from lists**.



- At the top of the screen, click **Distribution lists**.

Figure 12-16 Create distribution list



- Enter a name for the list in the **Name** field. All existing individual email addresses appear in the **Email address** field.

 **TIP:** You can enter up to 127 characters, symbols, and figures.

- To create a list, select an email address. To select more than one address, hold down the Ctrl and Shift keys while selecting.
- Click the Go  icon to accept the list creation, or the Cancel  icon to reject it and stop the operation.

12.5.17.2 Modify a list

To modify a Distribution list, complete the following steps:

- Check the box to select the Distribution list you want to modify.

Figure 12-17 Modify Distribution list





Administration		
E-mail server		
intmail.lrsinc.org		
<input checked="" type="checkbox"/>	Distribution lists	Modify parameters
<input type="checkbox"/>	DocTest	
Addresses		
<input type="checkbox"/>	Admin1@domain.com	

2. Check Modify parameters  to open the **Modify a list** page.

Figure 12-18 Modify distribution list content



 **TIP:** You can modify the content of one or several fields by clicking on each field, and then entering the relevant information.

3. Click the Go  icon to accept the distribution list modifications, or the Cancel  icon to stop the operation.

12.5.17.3 Delete a list

To delete a list, complete the following steps:


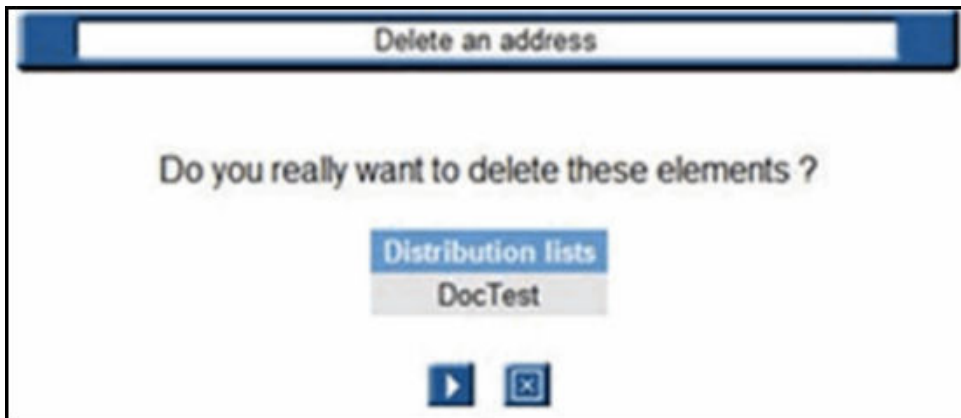
1. Click to select the box next to the Distribution list you wish to delete.
2. Click the Delete  icon in the column heading(s).

Figure 12-19 Verify distribution list deletion



3. Click the Go  icon to accept the list deletion, or the Cancel  icon to stop the operation.

 **CAUTION:** This operation cannot be canceled after it has been accepted.

12.5.18 Configuring the email server

When setting up your email server, you will have to configure the outgoing SMTP mail and the port.

CAUTION: This information may only be known by the network administrator.

NOTE: You can only create one server configuration.

If the email server configuration has been defined, it will appear on your screen with its SMTP outgoing mail and port number. You will be able to create, modify, and delete your server configuration by using the task bar at the top of the page.

12.5.18.1 Configure the server

To configure the server, complete the following steps:



1. Click **Configure the email server**.

At Modify the server configuration,

- a. Enter the **Outgoing mail (SMTP)** information.
- b. Enter the **Outgoing port number (SMTP)**.
- c. Enter the **User name and Password**. This user name and password allows you to validate access to the email server.
- d. If a Domain is required, enter the **NETBIOS Domain** name.

Figure 12-20 Modify server configuration

Modify the server configuration	
Outgoing mail (SMTP)	10.0.0.1
Outgoing port number (SMTP)	25
User name	Admin1
Password	
Domain	domain.com

2. Click the Go  icon to accept the configuration, or the Cancel  icon to stop the operation.

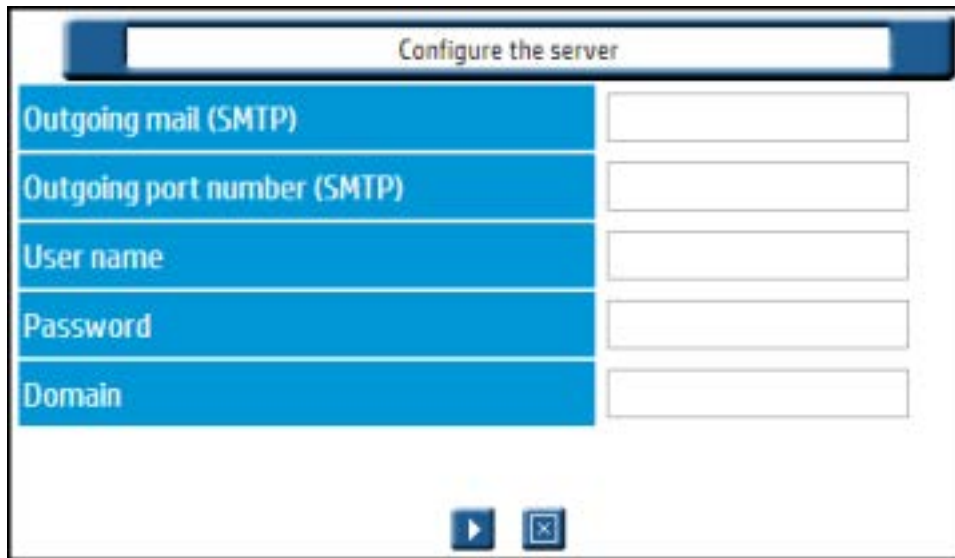
NOTE: All configuration fields can contain up to 127 characters, symbols, and figures.



12.5.18.2 Modify the server configuration

To modify the server configuration, complete the following steps:

1. Click **Configure the email server**.



Figure 12-21 Configure email server




2. On the Configuration screen, modify the content of one or several fields by selecting each field to enter the relevant information.
3. Click the Go  icon to accept the configuration, or the Cancel  icon stop the operation.

12.5.18.3 Delete the server configuration

To delete the server configuration, complete the following steps:

1. Click **Configure the server**.
2. On the **Modify the server configuration** screen, delete the information entered in the fields.
3. Click the Go  icon to accept the configuration, or the Cancel  icon stop the operation.

 **CAUTION:** This operation cannot be canceled after it has been accepted.

12.5.19 Printer templates

With HP AC Job Accounting printer templates, you can define the costs associated with each model of printer and then apply that template to any printers declared on the HP AC Job Accounting print server. Printer costs can be managed and updated from one centralized interface.

HP AC Job Accounting allows you to define custom printer templates. A printer template contains various values related by default to a specific object type. For instance, a template for the HP LaserJet 9050 printer would contain all prices and costs associated with that printer, such as printer price, toner price, total number of printed pages, depreciation period, leasing cost, and maintenance cost.

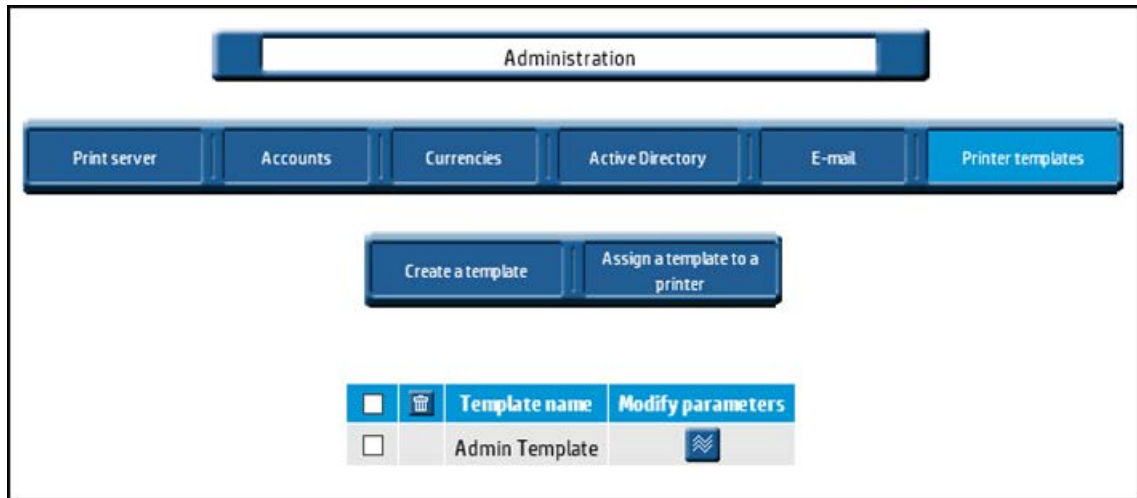
For more information on actual costs, see [Section 12.8, Manage print costs](#).

A template can be allocated to one or several printers. These printers will automatically inherit the values associated with this template as actual costs. You can manage your actual costs by clicking **Page cost management** in the HP AC Job Accounting remote control.

Any printer tracked by HP AC Job Accounting can be associated as the default, with a set of predefined prices and costs that are used when you launch cost queries.

To create a template, assign a template to a printer, modify a template, or delete a template, click **Printer templates** on the Administration page.

Figure 12-22 Printer template selections



The templates management task bar allows you to create a template or assign a template to a printer.

12.5.19.1 Create a printer template

To create a printer template, complete the following steps:

1. To begin template creation, click **Create a template** from the Printer templates page.


Figure 12-23 Create a template

Create a template	
Template name	<input type="text"/>
Printer cost	<input type="text"/>
Planned print volume (pages/year)	<input type="text"/>
Depreciation time (in years)	<input type="text"/>
Black toner cost	<input type="text"/>
Life of black toner cartridge (pages)	<input type="text"/>
Color toner cost	<input type="text"/>
Life of color toner cartridge (pages)	<input type="text"/>
Number of color cartridges	<input type="text"/>
Warranty cost	<input type="text"/>
Maintenance cost	<input type="text"/>
Leasing cost	<input type="text"/>
Miscellaneous cost	<input type="text"/>
Currency	US dollar



2. Enter the template name.


 **NOTE:** This is a required field.

3. Enter the costs in fields provided, as desired.

 **NOTE:** Use a decimal point in costs (such as 20.00) and years as the unit of time.

4. Use the drop-down list in the **Currency** field to define the currency for your costs.

5. Click the Go  icon to accept the data, or the Cancel  icon to stop the operation.

 **NOTE:** You will have to provide information in the **Template name** field.

12.5.19.2 Assign a printer template

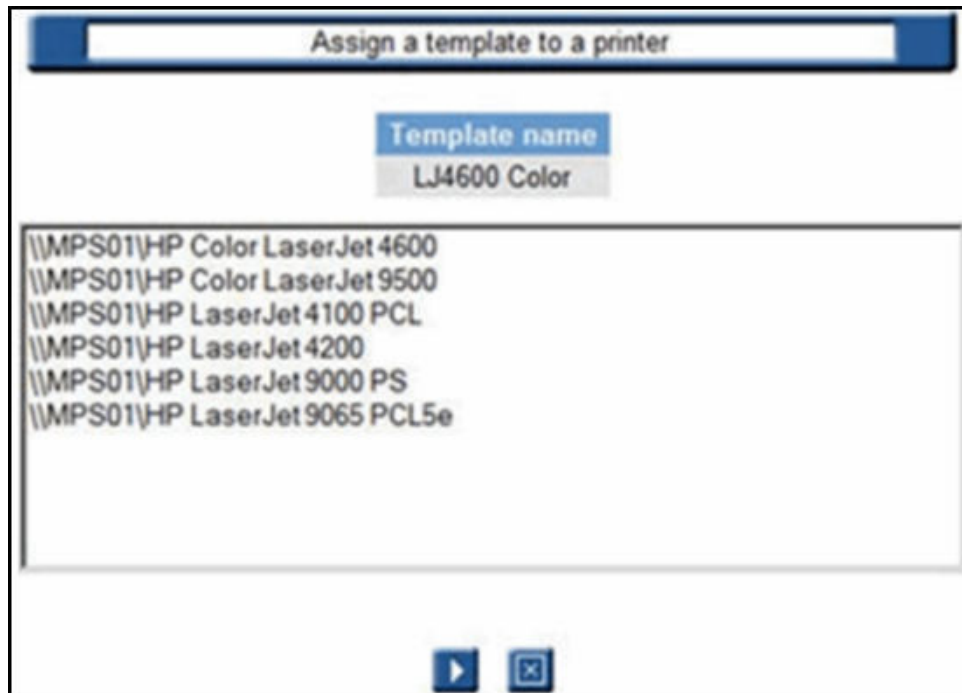
A single template can be assigned to a single printer or to several printers. However, the opposite is not true; several templates cannot be assigned to one printer.

To assign a template to a printer:

1. Select a template to assign.

2. Click **Assign a template to a printer**.



Figure 12-24 Assign a template



This page lists all printers tracked by HP AC Job Accounting on your print network. Each line in this list represents a printer in this format:




\\print server\printer.


The template name appears at the top of the page.

3. To assign the template, select a printer. To select multiple printers, use the Ctrl and Shift keys on your keyboard.
4. Click the Go  icon to accept the assignment, or the Cancel  icon to stop the operation.

12.5.19.3 Modify a printer template

You can modify all costs defined in your printer template. You cannot modify the template name. You can only modify one template at a time.

1. Select the template to modify.
2. Click the Modify  icon.
3. Modify your data as desired.
4. Click the Go  icon to accept the modifications, or the Cancel  icon to stop the operation.

 **NOTE:** If you entered a new printer price, it will dynamically appear in the printer costs. Any modification to a printer template will change the actual costs of this printer. HP AC Job Accounting will automatically re-calculate costs.

12.5.19.4 Delete a template

To delete a template, complete the following steps:

1. From the template management screen, select the template to delete.

Figure 12-25 Select templates to delete

<input type="checkbox"/>	<input type="checkbox"/>	Template name	Modify parameters
<input type="checkbox"/>		LJ4600 Color	
<input checked="" type="checkbox"/>		4100 MFP	
<input type="checkbox"/>		4600DTN	
<input checked="" type="checkbox"/>		Karls Favorite Template	


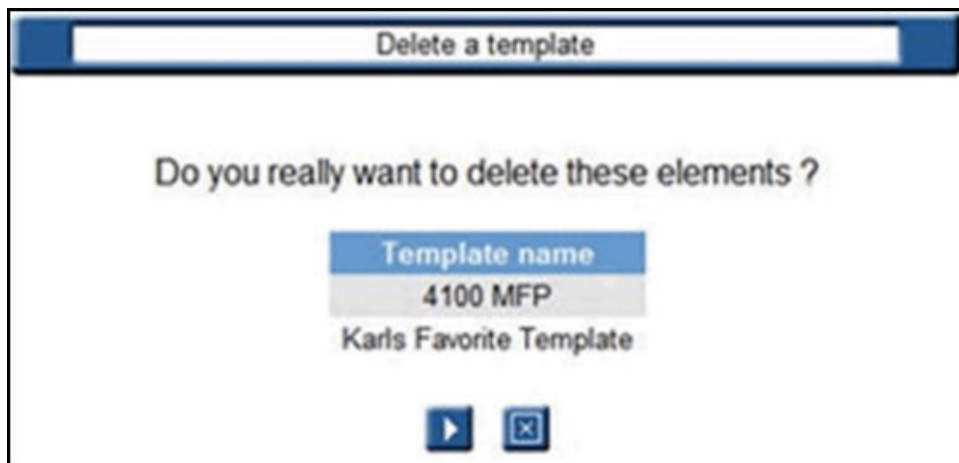


2. Click the Delete  icon in the title bar of the list. The template appears on your screen.

Figure 12-26 Verify template selection



3. Click the Go  icon to accept the modifications, or the Cancel  icon to stop the operation.

 **CAUTION:** This operation cannot be canceled after it has been accepted.


12.6 Configuring data collectors

12.6.1 HP Access Control (HP AC) Agent

The HP Access Control (HP AC) Agent allows you to capture data directly from a network printer, and functions even if the HP AC Job Accounting print server direct tracking module is not installed.

12.6.2 HP Statistics

HP Statistics is a method of capturing data directly from an HP FutureSmart printer.

 **NOTE:** All HP FutureSmart device administrator user names and passwords must match the Device administrator user name and password in the HP Access Control (HP AC) tool. Go to the Settings tile > Pull Print tab, select your server, and then click **Configure**. Under the General tab > Device authentication, enter the Device administrator user name and password.

Alternatively, if the devices have unique passwords, go to the Device tile, select the device, and then go to the Advanced tab to confirm that the correct username and password is in use. Click **Update**.

To select what device information you want to display in HP AC Job Accounting reports, go to the Settings tile > Pull Print tab, select your server, and then click **Configure**. Go to the Advanced tab, and under tracking options choose one of the following:

- Select **Device name** to display the device names in job accounting reports.
- Select **Network name** to display the host names of devices in job accounting reports. Make sure the **Get community name** is entered in the SNMP section to be able to read the network/host names of devices.

Click **Update**.

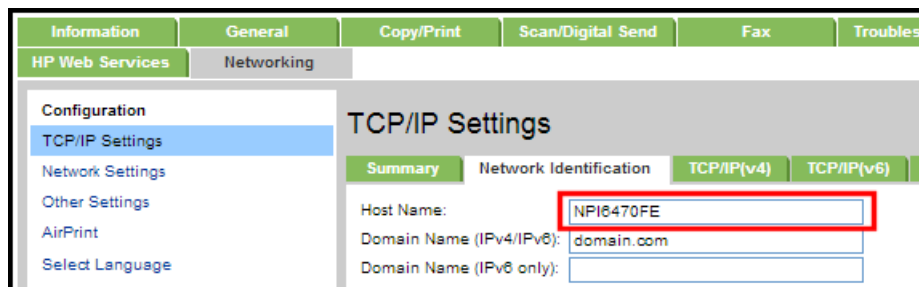
To configure an HP FutureSmart device for tracking, complete the following steps:

1. Go to the **Devices** tile.
2. Select the HP FutureSmart device from the device list, then click Pull Printing > Deploy Workflows.
3. Select **Tracking**. Click **Deploy**. A checkmark displays under the Tracking column, indicating the HP FutureSmart device is configured for tracking.

When multiple FutureSmart devices of the same model have the same device name, only one device is reported in Job Accounting. Therefore, devices of the same model must have unique device names for correct tracking. To change the device's name to be the device's host name, complete the following steps:

1. Go to the **Networking > TCP/IP Settings > Network Identification** page of the device EWS to determine the Host Name of the device.

Figure 12-27 Device Host Name



2. Go to the **General > Device Information** page. In the **Device Name** field, enter the device's Host Name. Click **Apply**.

Figure 12-28 Device Name

After jobs are tracked and the XML files are processed, you will see all your devices listed in Job Accounting.

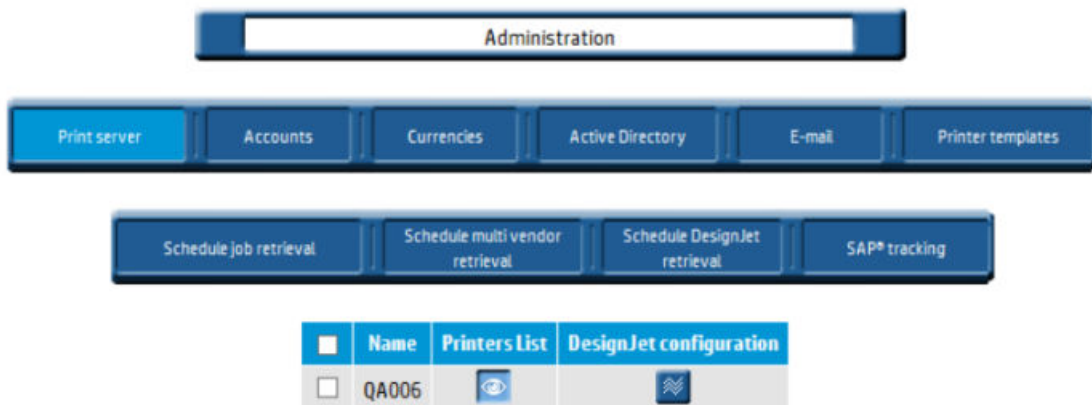
After the XML files are processed, you will see all your devices listed in Job Accounting.

12.6.3 HP Access Control (HP AC) Job Accounting print server

This portion of the Administration Module allows you to view the status of HP AC Job Accounting print server printers, as well as schedule job retrievals for printers configured as tracked printers on a print server, and DesignJet.

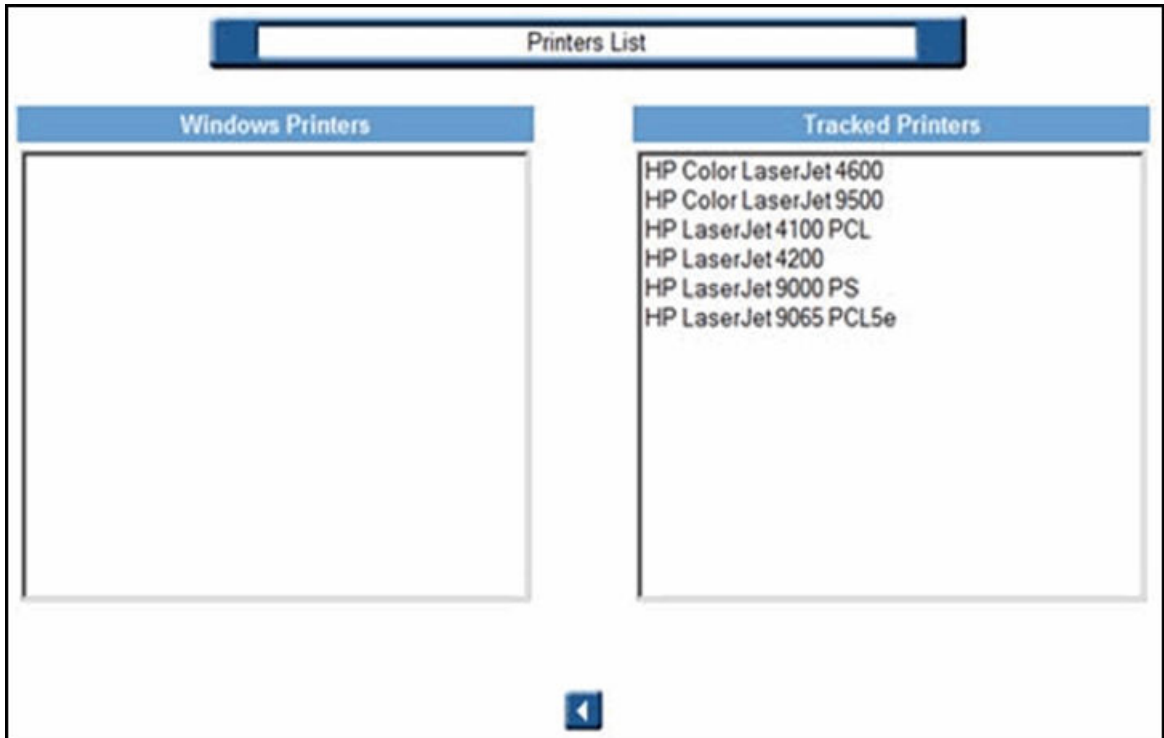
To view a list of both Windows printers and HP AC Job Accounting printers for the selected HP AC Job Accounting print server, from the Printers List column, click **View**.

Figure 12-29 Administration / Print server status



The Printers List screen shows the list of installed Windows printers.

Figure 12-30 Printers list



Before HP AC Job Accounting can track a printer, it must be identified by the Print Server tile.

1. Go to the **Print Server** tile.

Figure 12-31 Print server tile

Name	Port	Tracking	Quota	Add tracking PJI attributes	IPM	IPM Cost	Pause job
P3015	10.96.140.116	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
PWP 77750	10.96.140.4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Microsoft XPS Document Writer	PORTPROMPT:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Microsoft Print to PDF	PORTPROMPT:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
M575	10.96.140.75	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>
EDMCT02 PULLPRINT	10.10.8.65	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ENT	10.10.8.107	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

2. Select a printer from the printer list, then click **Configure**.
3. In the Configure window, select the features you want to configure:
 - Click **Tracking** to enable tracking of print jobs sent to the selected print queue. The print queue tracking method can be either Port Monitor or Print Processor, depending on what is selected in the **Settings** tile > **Print Server** tab.
 - Click **Quota** to enable the enforcement of Job Accounting quotas for printing.
 - Click **IPM** to apply IPM rules and costs to the printer. See [Intelligent Print Management](#).
 - Click **Add tracking PJI attributes** to insert Job Accounting PJI attributes in the data stream. If an application generates a data stream that does not include the PJI header containing the user and job information, the user and job name are reported as UNSPECIFIED in Job Accounting reports.
 - Click **Pause job** to automatically pause print jobs in the print queue. Print jobs must be manually resumed by an administrator. Pause job is only available when Port Monitor is selected in the **Settings**

tile > **Print server** tab. The Windows service HP ACJA Spool Monitor must be started. Go to **Administrative Tools > Services** to start the HP ACJA Spool Monitor service. Click **OK**.

If you installed and are running HP Access Control (HP AC) Configuration Utility on a remote print server, you will have the following options to configure printers:

1. From the print server, open **HP AC Configuration Utility** and go to the **Settings** tile.
2. Select your server and click **Configure**. Go to the Advanced tab and go to HP Agent push mode.

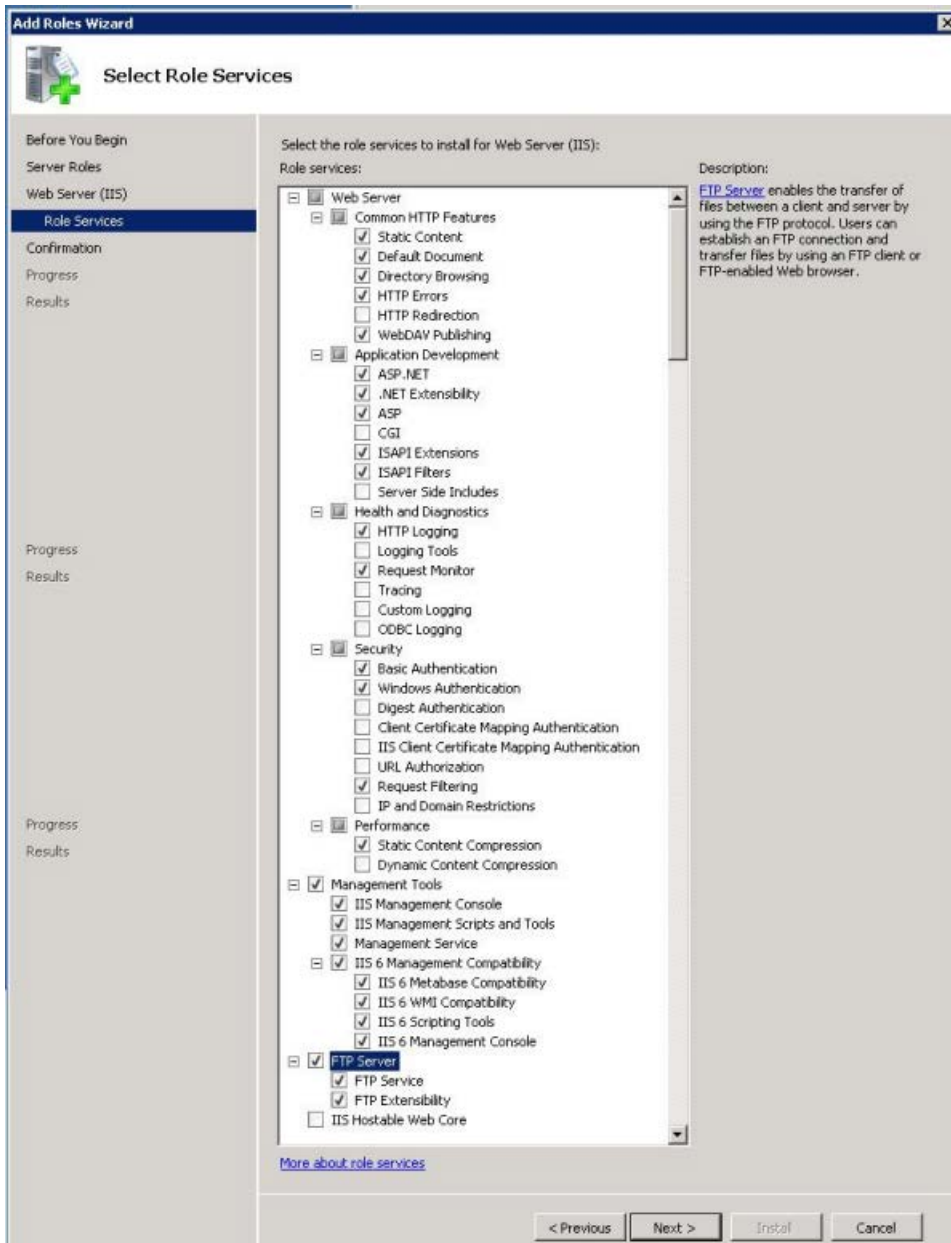
If desired, printer data can be auto-loaded (pushed) to the HP AC Job Accounting server through HTTP.

- Hypertext Transfer Protocol (HTTP) connections are usually terminated after a particular request (or series of requests) has been completed.

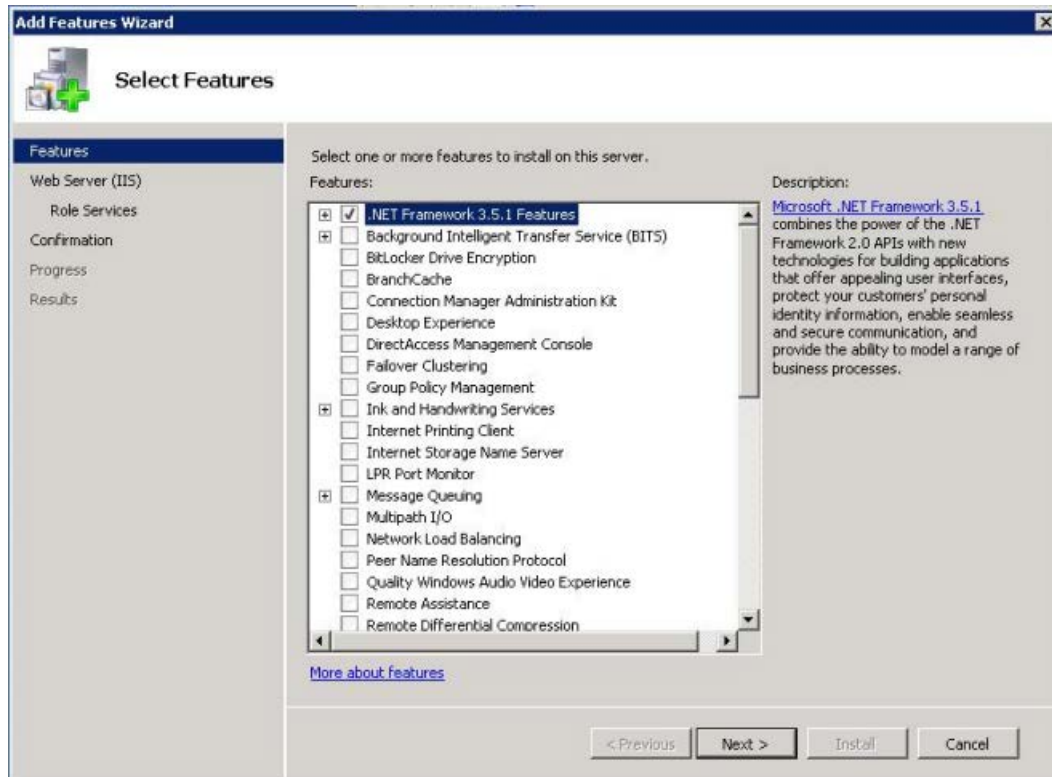
Additional settings include *Server Name*, which *Server Port* to use when transferring the data, server *Login name*, *Password*, and an *Initial Folder* in which to store the uploaded data.



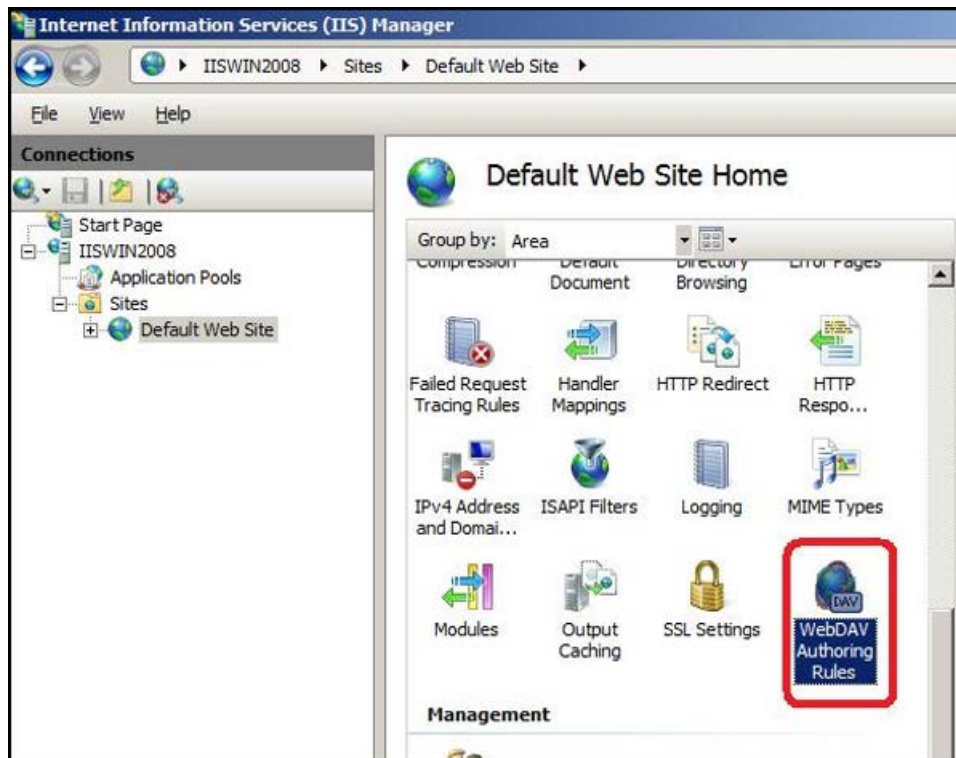
IMPORTANT: In order for the push mode settings to work properly on Windows Server 2008, WebDAV must be enabled on the server. This allows tracking data to be sent to Job Accounting. Add the Web Server (IIS) role to your server and select all the IIS components showed in the image below. The WebDAV Publishing component is not included on IIS 7 and needs to be installed separately as an additional IIS 7 component on your 2008 server.



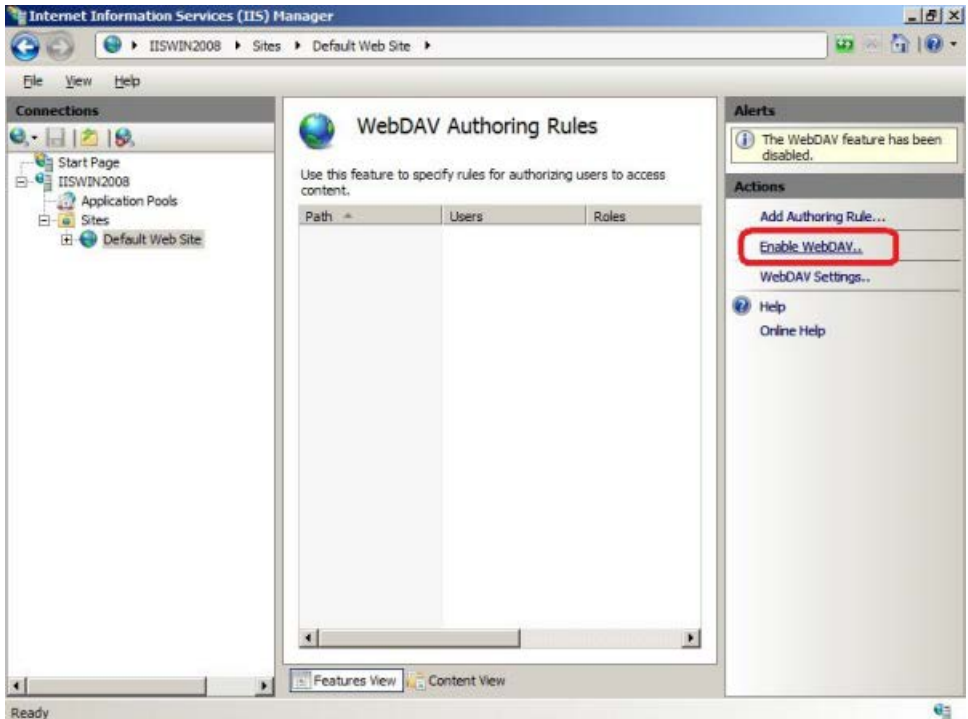
Then enable Microsoft .NET Framework Features.



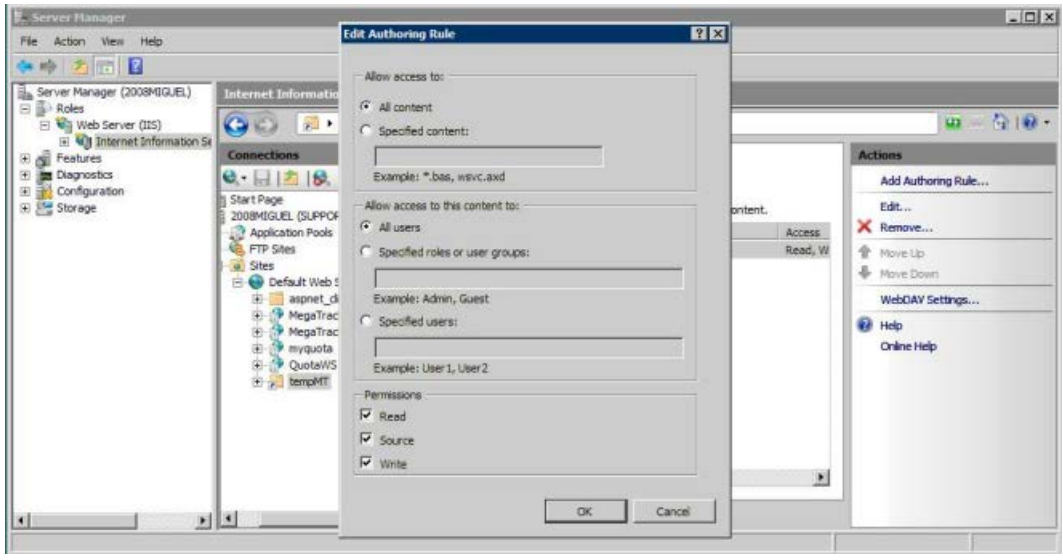
If you are planning to use HTTP, you need to enable the WebDAV component. In IIS Manager, in the Connections pane, expand the Sites node in the tree, then click the Default Web Site. As shown in the image below, double-click the WebDAV Authoring Rules feature.



When the WebDAV Authoring Rules page is displayed, click the Enable WebDAV task in the Actions page.

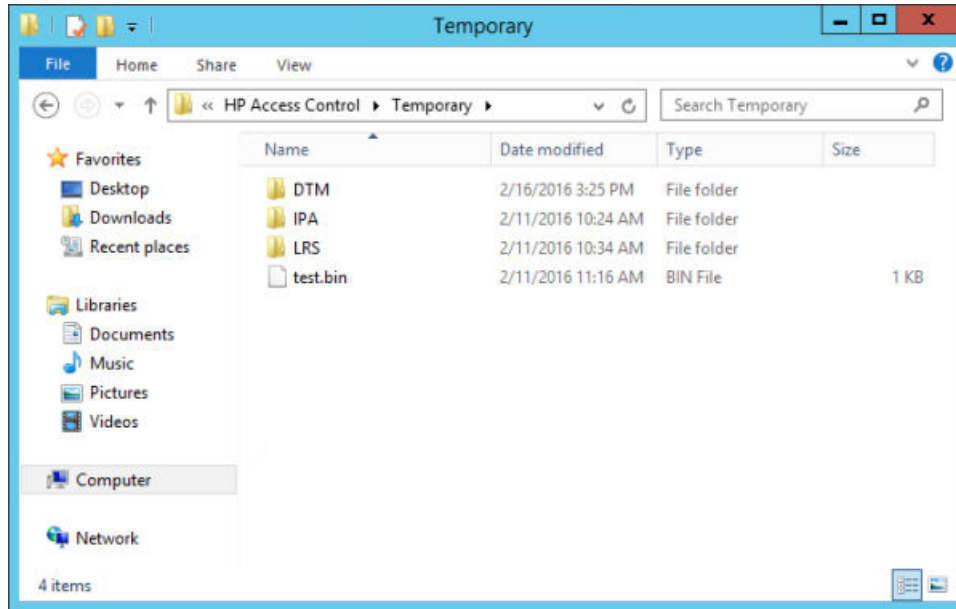


Once in the WebDAV Authoring Rules section, click **Add Authoring Rule..** (from the Actions menu on the right). From Add Authoring Rule, select **All users**, and for Permissions select **read, source, write**. Click **OK**.



TIP: To validate that a device is pushing files correctly, navigate to the folder in the directory where HP Access Control (HP AC) is installed, and locate the Temporary DTM for HTTP push. The Temporary folder should contain a set of folders for each device that has successfully pushed a tracking file (.xml) to HP AC Job Accounting. The folders are identified by the device IP address. The following figure shows the default installation directory Program Files\HP\HP AC\Temporary.

Figure 12-32 Device folder



HTTP and HTTPS modes push files in .\HP AC\Temporary\DTM folder. The file name starts with the printer IP address.

TIP: The push interval can be set to 0 for real-time push.

1. Click the **Snmp** tab. The default SNMP setting is “public” for Set and Get. If values are changed on the devices, all devices must have the same value or no value (public).
The default Trap level is Printer Confirmation traps. In the default mode, only printed job traps are sent. This is used to reduce the network traffic with unwanted traps. Some versions of HP Jetdirect require that All traps mode is selected.
2. Click **Save** to save the new configuration information.

12.6.4 DesignJet configuration

NOTE: This section applies only to DesignJet printers with built-in Job Accounting.

Some DesignJet models have a built-in tracking function which allows HP AC Job Accounting to parse the XML accounting file. Please consult the product documentation to see if this feature is available on your model. To enable this feature, the DesignJet must be installed and configured locally on an HP AC Job Accounting print server, allowing HP AC Job Accounting to retrieve the IP address and the queue name.


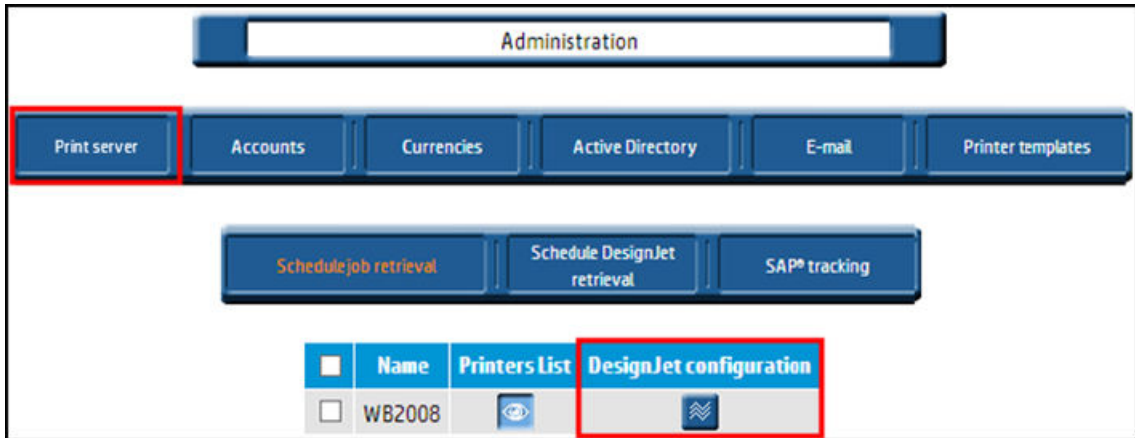
Configure networked DesignJet printers by clicking the Modify  icon in the DesignJet configuration column on the HP AC Job Accounting print server Administration screen.

Figure 12-33 DesignJet configuration



To start tracking a DesignJet printer, simply select the DesignJet from the list on the left and click the right arrow between the columns:


Figure 12-34 Add or remove DesignJet printers



To stop tracking a DesignJet printer, select it from the right list and click the left arrow between the columns.

12.6.5 Schedule job retrieval

The HP AC Job Accounting administrator can use the Schedule job retrieval function to determine precisely when, how frequently, and by what method (pull or push) HP AC Job Accounting retrieves job data.

 **NOTE:** For large networks, it is recommended that job retrieval be performed outside of regular business hours.

To access the schedule parameters, click **Schedule job retrieval** on the HP AC Job Accounting print server Administration page.

Figure 12-35 Schedule job retrieval

Schedule parameters	
Days	<input checked="" type="checkbox"/> s <input checked="" type="checkbox"/> m <input checked="" type="checkbox"/> t <input checked="" type="checkbox"/> w <input checked="" type="checkbox"/> t <input checked="" type="checkbox"/> f <input checked="" type="checkbox"/> s (all)
Start time	hh <input type="text" value="00"/> mm <input type="text" value="00"/>
End time	hh <input type="text" value="23"/> mm <input type="text" value="59"/>
Interval	<input type="text" value="1"/> hour(s)
Retrieval Method	<input type="radio"/> Pull <input checked="" type="radio"/> Auto-Upload (requires configuration on remote print server)

 **NOTE:** If **Auto-Upload** is selected, the interval may be set to **0** for real-time processing.


12.6.6 Schedule DesignJet retrieval

DesignJet retrieval can be scheduled to occur at a designated start time on one or more days of the week, or regularly at a specific time interval.

To access the schedule parameters, click **Schedule DesignJet retrieval** on the HP AC Job Accounting print server Administration page.

Figure 12-36 Schedule DesignJet retrieval

Schedule parameters	
Days	<input checked="" type="checkbox"/> s <input checked="" type="checkbox"/> m <input checked="" type="checkbox"/> t <input checked="" type="checkbox"/> w <input checked="" type="checkbox"/> t <input checked="" type="checkbox"/> f <input checked="" type="checkbox"/> s (all)
Start time	hh <input type="text" value="00"/> mm <input type="text" value="00"/>
End time	hh <input type="text" value="00"/> mm <input type="text" value="00"/>
Interval	<input type="text"/> hour(s)
User name	<input type="checkbox"/> Use AccountID as user name



If Account ID is enabled in the driver, HP AC Job Accounting can report the account ID as the User name. By default, the login name is reported.

12.6.7 SAP tracking

SAP must be configured to report the user name in the job name (consult SAP for more details on how to configure SAP queues).

To access the SAP user name tracking parameters, click **SAP tracking** on the HP AC Job Accounting print server Administration page.

Figure 12-37 SAP tracking

User name tracking parameters	
Enabled	No
User name	SYSTEM
User name position in job name	8
User name length	8

If **Yes** is selected from the **Enabled** drop-down list, HP AC Job Accounting will search for the user name in the job name for all jobs printed by the SAP user name that is defined (the default user name is SYSTEM).

HP AC Job Accounting will extract the user name at the selection position and extract only the number of characters selected.

If default parameters are used for all jobs printed by the user SYSTEM, HP AC Job Accounting extracts 8 characters from the job name, starting at position “8” — and uses this as the user name for the job.

Example: If the job name is “Job_abc_USER1234_xyz” and is printed by user SYSTEM, HP AC Job Accounting will report this job printed by user USER1234.

12.7 Viewing the print server

This HP AC Job Accounting function allows you to view the organization of your print system—all HP AC Job Accounting print server and all printers linked to each HP AC Job Accounting print server tracked by HP AC Job Accounting. This module also automatically corrects print job errors and only tracks actual output.

Click **Print organization** in the HP AC Job Accounting remote control panel:

Figure 12-38 Print organization

Print organization													
Print server		WB2003											
Name	Status	Local name	Shared name	Port	IP	Type	Driver	Comment	Location	Duplex	Color	Serial Number	Last print job
WB2003	✓	CM3530	CM3530	10.0.0.53	10.0.0.53	HP Color LaserJet CM3530 MFP	HP LaserJet 4 Plus			✓	✓	CNDLD02956 (CC520A)	2012-04-04 14:00:00
		VM 4015 PCL	VM4015PC	IP_10.0.0.112	10.0.0.112	Unspecified	HP LaserJet 4100 Series PCL			?	?	Unspecified ()	
		HP Color LaserJet 4730mfp	HP Color LaserJet 4730mfp	IP_10.0.0.113	10.0.0.113	HP Color LaserJet 4730mfp	HP Universal Printing PCL 5 (v5.4)			✓	✓	JPBLH00247 (Q7519V)	
		HP Color LaserJet CP5520 Series (10.0.0.156)	CP5525	IP_10.0.0.156	10.0.0.156	HP LaserJet 500 color MFP M575	HP Universal Printing PCL 5			✓	✓	XXXXXXXXXXXX (C0000A)	
		HP LaserJet 4345mfp	HP LaserJet 4345mfp	IP_10.0.0.118	10.0.0.118	hp LaserJet 4345 mfp	HP LaserJet 4 Plus			✓	✗	C8KYF22408 (Q3942A)	
		HP LaserJet 4200	HP LaserJet 4200	IP_10.0.0.94	10.0.0.94	hp LaserJet 4200	HP LaserJet 4 Plus			✗	✗	USDRP00652 (Q2426A)	2012-04-04 09:28:20

This page is divided into two parts:

The left lists all print servers. Click the printer name in this column will display all individual printers connected to that server on the right.

On **the right** are all printers managed by the print server selected on the left. If you click on another print server, the printer list and the server name on the right will dynamically change.

The following icons may appear on this page:

- ✓ When displayed in the Status column, this indicates the HP AC Job Accounting print server is currently running. The Duplex or Color columns show if the printer is capable of duplex or color printing.
- ✗ The Status column shows that the HP AC Job Accounting print server is not installed; and is also used to indicate simplex or black and white printers.
- ? Indicates that the HP AC Job Accounting is unable to determine the printer's duplex or color capabilities, and should be manually configured by the user.

12.7.1 Print servers

Print servers are displayed on the left side of the screen. These servers appear in the order in which they were created in HP AC Job Accounting.

Click a print server in this column, and all printers managed by this server will be listed in the right column. This list provides the printer's local name, port name, driver name, and all available functionalists for each printer (color, duplex printing). The columns **Local name** and **Sharing name** can be sorted in ascending or descending alphabetical order if you click on the titles of the columns.

Figure 12-39 Print server column

Print organization							
Print server		MPS01					
Name	Status	Local name	Shared name	Port	IP	Type	Driver
MPS01	✓	HP LaserJet 9065 PCL5e	LJ9065	192.168.1.104	192.168.1.104	Laser Jet Series 9065	HP LaserJet 9065 Series PCL5e
		HP LaserJet 9000 PS	LJ9000	192.168.1.100	192.168.1.100	Laser Jet Series 9000	HP LaserJet 9000 Series PS
		HP LaserJet 4200	LJ4200	192.168.1.102	192.168.1.102	Laser Jet Series 4200	HP LaserJet 4200 Series PCL6
		HP LaserJet 4100 PCL	LJ4100	192.168.1.101	192.168.1.101	Laser Jet Series 4100	HP LaserJet 4100 Series PCL5e
		HP Color LaserJet 9500	CLJ9500	192.168.1.105	192.168.1.105	Laser Jet Series 9500	HP Color LaserJet 9500 PCL 6
		HP Color LaserJet 4600	CLJ4600	192.168.1.103	192.168.1.103	Laser Jet Series 4600	HP ColorLaserJet 4600 Series PCL6

12.7.1.1 Printers

Click a printer port to get the characteristics of this printer. This reaches the internal web site of the printer, allowing you to determine its status and administer its configuration.

Figure 12-40 Printer internal website

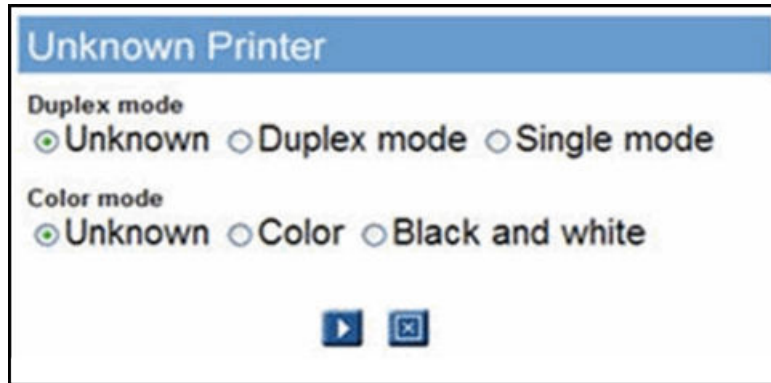
The screenshot displays the HP Color LaserJet CM3530 MFP Series internal website. The page is titled "HP Color LaserJet CM3530 MFP Series" and shows the user as "admin" with a "Log Off" option. The main content area is divided into several sections:



- Device Status:** Shows "Sleep mode on" with "Pause/Resume" and "Continue" options. The "Continue" option is selected.
- Supplies:** Displays the status of four cartridges: Black Cartridge (16%), Cyan Cartridge (53%), Magenta Cartridge (40%), and Yellow Cartridge (40%). Each cartridge has a corresponding color bar and a percentage indicator.
- Media:** Shows the status of three trays: Tray 1 (Empty, 100 Sheets, Any Size, Any Type), Tray 2 (OK, 250 Sheets, Letter, Plain), and Standard Output Bin (OK, 250 Sheets, N/A, N/A).

HP AC Job Accounting has an auto-detect feature that determines the type of printer connected and configures accordingly. However, it may be unable to auto-detect the printer under the following conditions:

- If the printer is not manufactured by HP, Inc.
- If the printer is offline.
- If the printer is installed locally (LPT1 or USB) and not on the network.

Figure 12-41 Manually define printer



After specifying the type of printer, click the Go  icon to accept the information, or the Cancel  icon to stop the operation.


12.8 Manage print costs

12.8.1 Cost control overview

One of the main HP AC Job Accounting benefits is its ability to produce extremely accurate printing cost information and employ enterprise-level print cost control solutions in your organization. The cost of a printer is linked to many factors:

- Accessories
- Maintenance
- Technology (such as whether it is a laser printer)
- Color
- Quality
- Speed
- Depreciation time

Each of these factors involves a cost, which determines the cost of each printed page. To secure accurate billing, the exact number of printed pages and associated costs must be determined. After this information is compiled, the cost of a print job can be calculated. If the cost of any printer, media, or other element is updated or modified, the resulting cost of all print jobs related to this printer, media, or other element will also be dynamically updated.

 **CAUTION:** The cost of media is independent of the printer. Media cost depends on the price of the paper in this particular format and quality. HP AC Job Accounting automatically calculates the cost of a print job according to the defined costs and the number of printed pages.

In addition to calculating the actual price of each print job or page, HP AC Job Accounting also enables you to assign a fixed cost to a print job or to a printed page. These user-defined costs do not take into account the real price involved in the print process, but rather printing characteristics, such as the media or the color mode. For more information on these fixed costs, see [Section 12.8.4, Define fixed costs](#).

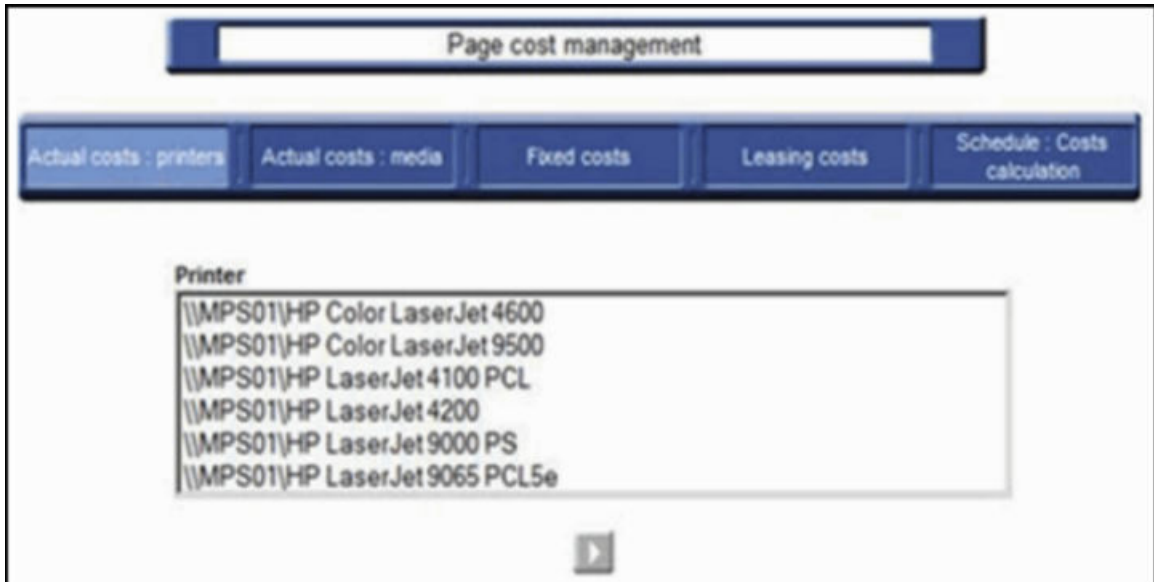
You must enter the cost of all printers and media if you want to launch queries related to costs. If any of this information is missing, all your query results containing cost information will be inaccurate.

CAUTION: If a printer's purchase price has been defined for a printer using a printer template, it is not necessary to redefine this cost, since it automatically becomes the real purchase price for this printer.

12.8.2 Cost management page

Click **Page cost management** in the HP AC Job Accounting Remote control panel to reach the printer selection page. This page allows the selection of a print server and printer, for which cost information must be entered:

Figure 12-42 Page cost management



The print server/printer list is a dynamic list of all print servers and printers used at least once in your print system since the initial HP AC Job Accounting installation. You can select one or more printers, to which common costs apply. Hold the Ctrl or Shift keys while clicking to select a range of choices.

The printer selection page appears by default when you click **Actual Costs: printers** in the task bar at the top of the page.

An icon may appear between the task bar and the printer list, as follows:

Figure 12-43 Processing icon



This icon indicates that HP AC Job Accounting is calculating costs. This can happen when new costs are entered, or when defined costs are modified or entered.

12.8.3 Actual costs: printers

There are often several costs associated with printers; such as toner/ink, media, maintenance, and warranty. The actual cost of a printer is determined by a combination of these variables. These costs are different than templates, where a default cost is associated to one or several printers without taking into account the actual costs of each printer. These costs are also opposed to fixed costs, where only one of these actual cost components is taken into account—for instance, when only the media format of the paper is used to determine a document printing charge.

12.8.3.1 Manual actual costs

To manage your actual costs:

1. Select one or several print servers or printers on the **Page cost management** screen selection page.
2. Click the Go to open Page cost management page. Actual printer costs may be viewed here.

Figure 12-44 Actual printer costs

The screenshot shows the 'Page cost management' interface. At the top, there is a search bar containing the text '\\WB2008\HP Color LaserJet CM3530 MFP PCL6'. Below the search bar is a 'Create a cost' button. Underneath is a navigation bar with five tabs: 'Actual costs : printers' (selected), 'Actual costs : media', 'Fixed costs', 'Leasing costs', and 'Schedule : Costs calculation'. The main area displays a table of printer costs.

<input type="checkbox"/>		Name	Type	Purchase / subscription cost	Currency name	Depreciation start date	Depreciation time (in years)	Planned print volume (pages/year)	Modify parameters
<input type="checkbox"/>		Black Cartridge HP CE250A	Toner	0	USD	11/12/2013	0	1	
<input type="checkbox"/>		Cyan Cartridge HP CE251A	Color toner	0	USD	11/12/2013	0	1	
<input type="checkbox"/>		Magenta Cartridge HP CE253A	Color toner	0	USD	11/12/2013	0	1	
<input type="checkbox"/>		Yellow Cartridge HP CE252A	Color toner	0	USD	11/12/2013	0	1	

The print server and printer you selected appear at the top of the page. Any costs defined for these printers appear in the list.


From this screen, you may:

- Create the actual costs attached to a printer by clicking **Create a cost**.
- Modify the actual cost attached to a printer. Select the cost to modify and click the Modify parameters icon.
- Delete the actual cost attached to a printer. Select the cost to delete and click the Delete icon.

12.8.3.2 Create actual printer costs

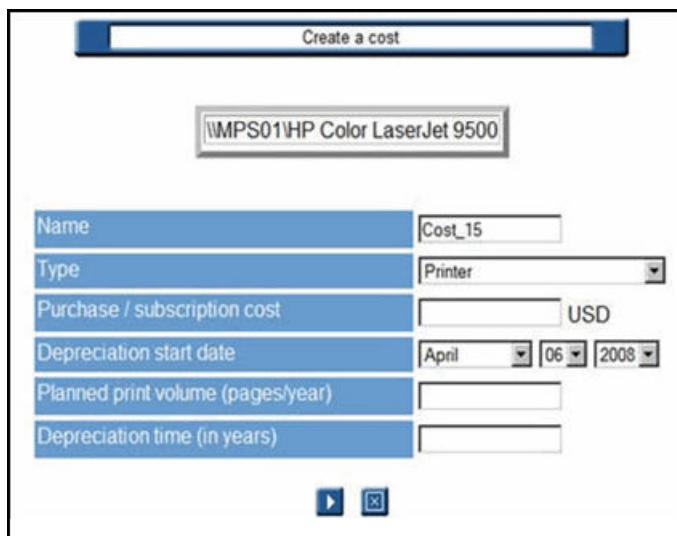
To create an actual cost, enter the appropriate information in **Create cost** as follows:

1. Choose a name for the cost. The default name is Cost_(the cost number). Enter up to 15 characters, symbols, or figures.
2. Choose a cost Type from the drop-down menu: Printer, Toner, Color toner, Warranty, Maintenance, Leasing, or Miscellaneous.
3. Enter the Purchase / subscription cost to apply. You can enter up to 8 values. The currency used appears next to the cost entry field. This currency is defined in your user options. See [Section 12.10, HP AC Job Accounting user options](#).
4. Choose the Depreciation start date. By default, it is today's date. You can choose a date between 01/01/1990 and 12/31/2100.

 **NOTE:** Do not enter depreciation start date or period for toners. Only the number of printed pages is relevant to depreciation allowances. The printer manufacturer provides this information.

5. Enter the Planned print volume (pages/years). You can enter up to 15 figures. The HP AC Job Accounting administrator must estimate this number, except for toner.
6. Enter the Depreciation time (in years). Year is the only available time unit. You can enter up to 15 figures. The HP AC Job Accounting administrator must estimate this number.

Figure 12-45 Create a cost



For the first year, enter an accounting evaluation of the depreciation time of your printer. You must also evaluate the number of pages to be printed over this depreciation period. For the following years, you will be able to enter values based on the information provided by HP AC Job Accounting. The currency used to express this cost is defined in your user options.

HP AC Job Accounting defines the cost of your printing jobs according to the number of printed pages per job. The cost of a printing job depends on:

- The page-printing mode: is this page printed in duplex or simplex mode? The duplex mode reduces your printing cost, since you need less paper to print a document.
- Ink price and the color or black and white printing mode.
- Depreciation time of the various components and costs associated with the printer such as purchase price or guaranty.
- Printing quality (such as standard vs. fine quality printing, or ink coverage defined by the user) and the media used.


The following limitations apply when calculating these costs:

- HP AC Job Accounting does not include the ink coverage on the page. A one-line page will be charged at the same price as an entire printed page.
- The cost of electricity is not included.

 **NOTE:** HP AC Job Accounting recognizes when a print job is canceled.

12.8.3.3 Modify a printer actual cost

After selecting the cost to modify and clicking the Modify parameters  icon, you reach the cost entry page. This page contains all information you previously entered regarding this cost.

 **NOTE:** If you already defined a template for your printer and want to modify your data, you must use this section and not add a new cost using Create a printer cost. When you modify any cost, HP AC Job Accounting calculates all print job costs in its database. If a toner cartridge must be replaced you should not create a new toner cost, which would add to the total toner cost, but modify the cost of the former toner.

To modify costs, as desired, click the Go  icon to accept the modifications, or the Cancel  icon to stop the operation.

12.8.3.4 Delete a printer actual cost

You should delete the cost of any component or option which will not be used again, or which is obsolete.

 **NOTE:** All print jobs in the HP AC Job Accounting database will be recalculated when there is any cost deletion.

To delete a printer actual cost:




1. Select the cost to delete and click the Delete  icon.
2. Click the Go  icon to accept the cost deletion, or the Cancel  icon to stop the operation.

Figure 12-46 Delete printer cost

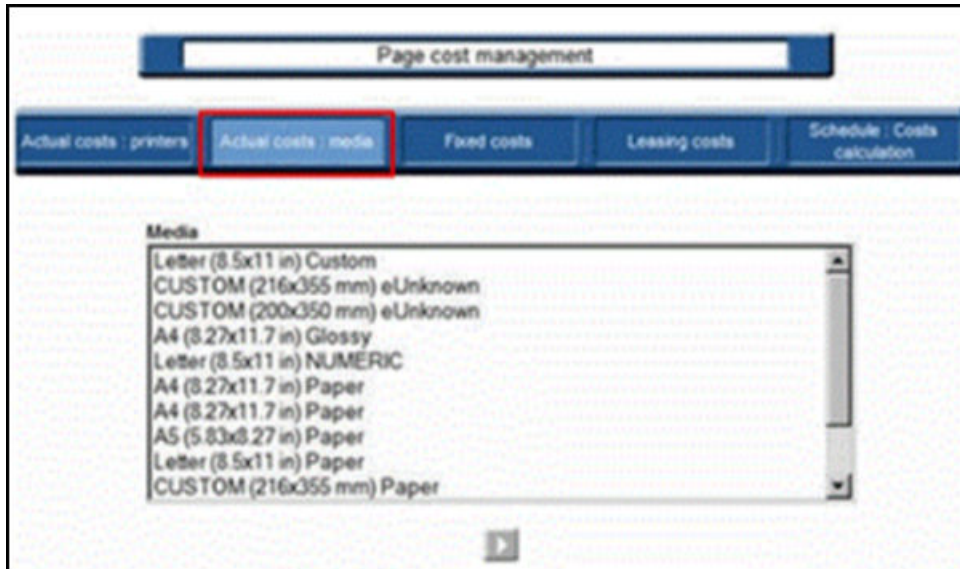


12.8.3.5 Actual costs: media

The price of a media depends on the paper size and type (for instance glossy, transparent paper, and weight). Use the following steps to enter a media price.

1. Click **Actual costs: media**.

Figure 12-47 Actual costs: media



The media list which displays consists of all combinations of media size and type used at least once since HP AC Job Accounting installation.


2. Choose a combination and then click the Go  icon.
3. Enter the desired amount on the Media page.

Figure 12-48 Media costs



 **CAUTION:**

- If a printer's purchase price has been defined for a printer with a printer template, it is not necessary to redefine the cost, since it automatically becomes the real purchase price for this printer.
- The price of media is calculated using the price of one sheet of paper in this particular format. It does not depend on the printer, or print organization.

All costs are expressed in the currency defined in [Section 12.10.1.1, User options](#). To change the currency type in which these costs are expressed, see [Section 12.10, HP AC Job Accounting user options](#).

12.8.4 Define fixed costs

This feature allows you to set a fixed price per page or for an entire document according to its characteristics, without taking into account the actual cost of this document.

For example, assume you want to monitor your company's printing expenditure. You want every A4 document to be charged \$0.2, regardless the number of printed pages or the mode used. This price should be set in the fixed cost management page.

12.8.4.1 Fixed costs

The Fixed costs management screen contains all defined fixed costs: name, amount of each fixed cost, and currency used. Click **Fixed costs** to open the Fixed costs management page:

Figure 12-49 Fixed costs management



From within Fixed costs you can **Create a fixed cost** or **define the Costs priority rules**

Create a fixed cost:

Select one or more elements in one or more criteria. You can combine several criteria by holding the Ctrl or Shift keys—an A4 document can cost \$0.2, a color document \$0.4, and an A4 color document \$0.6.

Enter the price for all selected criteria. You can enter up to 8 figures in this field. The currency used appears next to the entry field. This currency is defined in your user options.

When your selections and prices are entered, click the Go  icon to accept the information, or the Cancel  icon to stop the operation.

Actual costs will be assigned to all criteria for which no fixed cost is entered. These actual costs are those associated to printers, media, and trays.

As soon as HP AC Job Accounting detects a new element of a criteria (such as a new user or a new printer), this element is automatically added to the criteria list. If you want to associate your fixed cost to this new element, you should modify your fixed cost by reselecting this element in your criteria. However, if you select All for this criteria, it is not necessary to re-select it. All means that all elements in these criteria are automatically considered.

NOTE:


- The **Name** field is required.
- If you define two fixed costs for the same criteria and elements the latest cost is considered.

Figure 12-50 Create a fixed cost

The screenshot shows a dialog box titled "Create a fixed cost". It includes a "Name" field, a "Printer" list box with several HP printer models, a "Media" list box with various paper sizes and types, a "Users" list box with "All users" and several individual user names, and three sections of radio buttons for "Color mode", "Duplex mode", and "Economode". At the bottom, there is a "Page price" field followed by "USD" and "OK" and "Cancel" buttons.

Costs priority rules: A problem may arise when several costs for a combination of common criteria have been defined.

Example: Document A printed in letter format costs \$ 0.2, document B printed in color mode costs \$ 0.3, and document C printed in letter format and color mode costs \$ 0.5. At this point, priority must be assigned to these fixed costs.

 **NOTE:** The priorities defined in this section apply to all fixed costs. You cannot specifically define a priority order to some of your fixed costs.

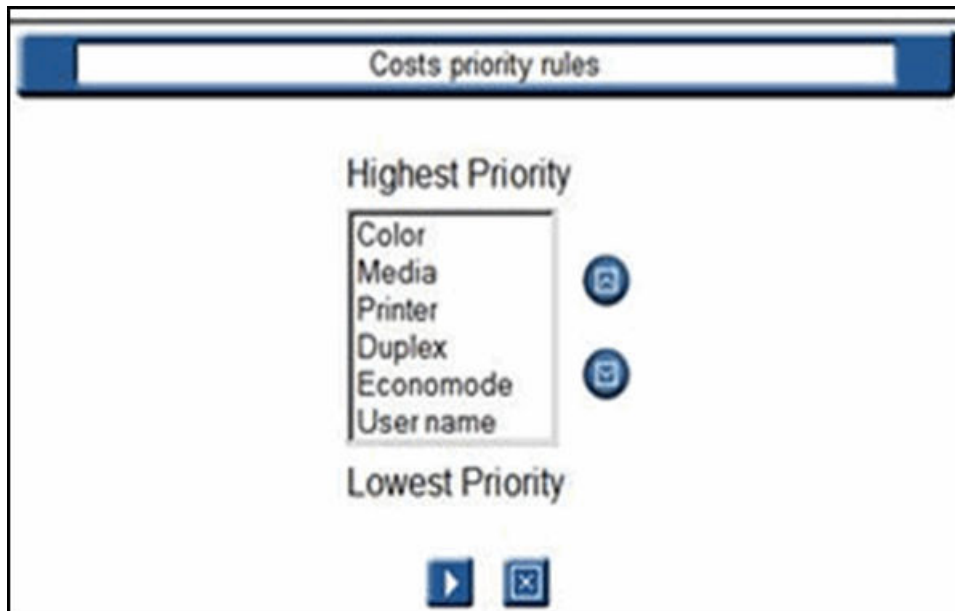
After fixed costs are defined, click **Costs priority rules**.

Figure 12-51 Costs priority rules



The list of criteria appears in default priority order. The criterion at the bottom of the list contains the lowest priority. The criterion with the highest priority is at the top of the list. If these priorities do not suit your own priority order, you can modify by clicking on a criteria, then by clicking **Increase priority** or **Decrease priority** icons to move the selected criteria up or down as desired. Repeat this operation for all relevant criteria.

Figure 12-52 Costs priority rules defined



When you launch a cost query, the fixed cost that is first selected corresponds to the criteria with the highest priority.

NOTE:

- You must enter priorities when you have more than one fixed cost.
- All criteria have a default priority.
- All criteria for which **ALL** is selected have the lowest priority.
- Any priority change involves recalculating your costs. Depending on the size of the print jobs database, this operation may take several minutes.

HP AC Job Accounting analyzes the three documents described at the beginning of this section according to their characteristics and the priority assigned to these characteristics.

Table 12-2 Media priority

Document	Media	Printing Mode	Cost
C	Letter	Color	\$0.5
B	All	Color	\$0.3
A	Letter	All	\$0.2

As document C matches two criteria, it will be assigned \$0.5 as cost. Then the priority is given to the color-printed document. If no other criterion matches a priority, the document is charged according to its media cost.

12.8.4.2 Modify a fixed cost

Complete the following steps to modify a fixed cost:




1. Select the cost to modify, and click the Modify parameters  icon. The **Modify a fixed cost** page contains information already entered regarding this cost.

Figure 12-53 Modify a fixed cost

2. After you have modified the desired data, click the Go  icon to accept the modification, or the Cancel  icon to stop the operation.

⚠ CAUTION: For any modification of your fixed costs, HP AC Job Accounting will recalculate any cost related to the modifications. This operation, depending on the quantity of jobs tracked in the database, can take several minutes.

12.8.4.3 Delete a fixed cost


1. Select the fixed cost to delete and click the Delete  icon. The name of the cost appears at the top of the page.

Figure 12-54 Delete a fixed cost



2. Click the Go  icon to accept the cost deletion, or the Cancel  icon to stop the operation.

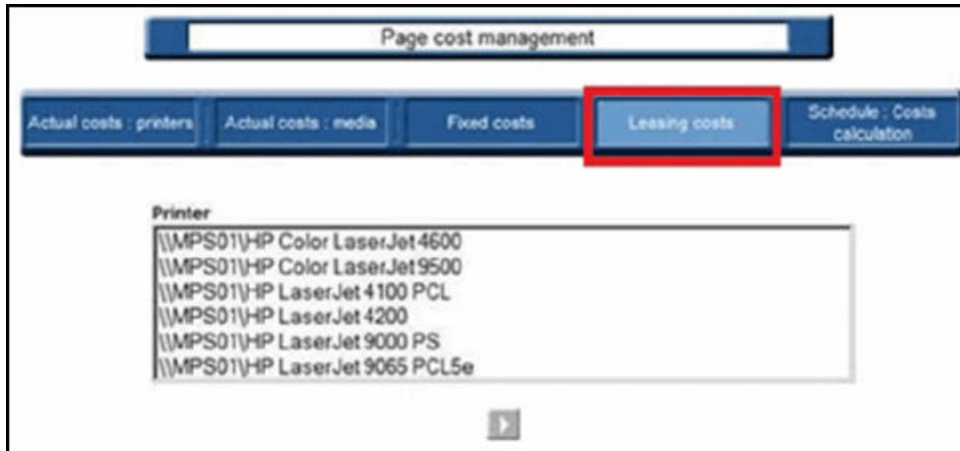
📝 NOTE: After a fixed cost has been deleted, the actual cost of each printed page is used to calculate printing costs. When fixed costs are deleted, HP AC Job Accounting recalculates any cost concerned with these deletions. This operation, depending on the quantity of jobs tracked in the database, can take several minutes.

12.8.4.4 Lease costs

The cost of leasing can depend on a monthly lease rate or a per-page rate for color or black-and-white printing, faxing, or copying. Use the following steps to manage the lease costs for a printer:

1. Click **Leasing costs** in the bar at the top of the page.

Figure 12-55 Leasing costs




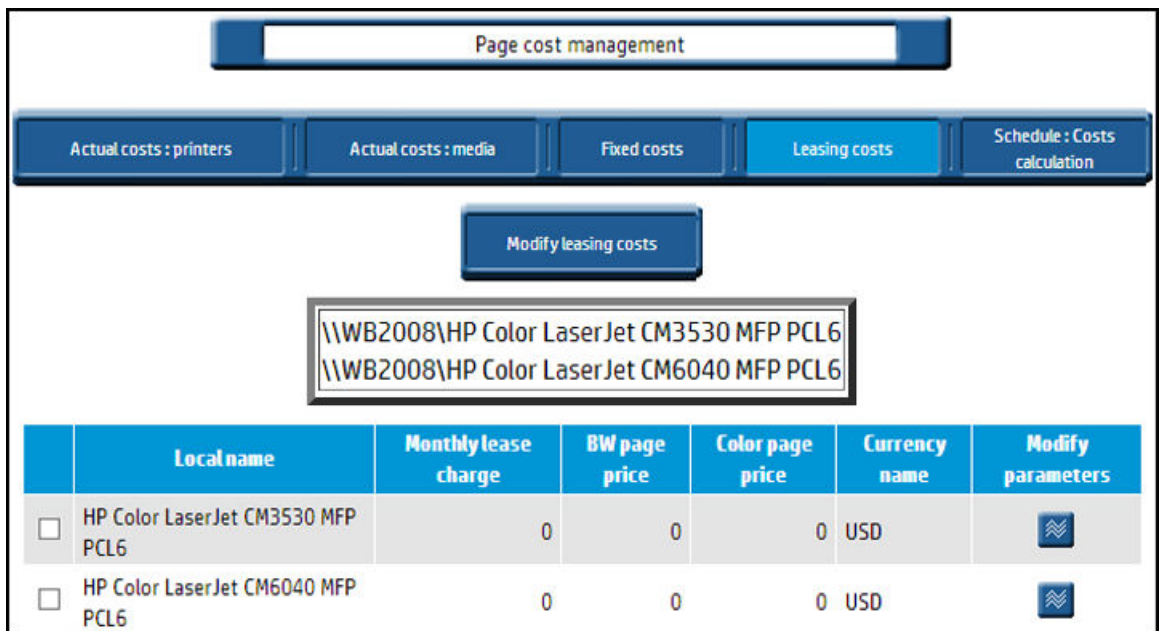
2. Choose a Printer from the list. You can select one or more printers to which common costs apply. Hold the Ctrl or Shift keys while clicking to select a range of choices, and then click the Go  icon to open the table displaying current leasing cost parameters for the selected printer.

Figure 12-56 Modify leasing costs






- To set or change the leasing costs for an entire group of printers, click **Modify leasing cost**.
- To set or change the leasing costs for a single printer, click the box to the left of the printer name, and then click the Modify  icon.

Figure 12-57 Modify a cost

The screenshot shows a window titled "Modify a cost" for the printer "HP LaserJet 9000 PS". It contains three rows of input fields:

Field Name	Value	Currency
Monthly lease charge	0	USD
BW page price	0	USD
Color page price	0	USD

At the bottom of the window, there are two buttons: a "Go" button (represented by a right-pointing arrow) and a "Cancel" button (represented by a square with an 'X').

Add or change monthly lease and per-page costs for the printer in the fields provided. Click the Go  icon to accept the changes, or the Cancel  icon to stop the operation.

All costs are expressed in the currency defined in User options. To change the currency type in which these costs are expressed, see [Section 12.10, HP AC Job Accounting user options](#).

 **NOTE:** The **Cost Calculation** does not need to be enabled if only Leasing costs is used. The calculation is performed when the query is processed.

12.8.4.5 Schedule: Costs calculation

1. Click **Schedule costs calculations** on the navigation bar.

Figure 12-58 Schedule: Costs calculation

The screenshot shows a web interface for 'Page cost management'. At the top, there are five tabs: 'Actual costs : printers', 'Actual costs : media', 'Fixed costs', 'Leasing costs', and 'Schedule : Costs calculation'. The 'Schedule : Costs calculation' tab is active. Below the tabs, there are three main sections:

- Statistic:** A table with one row: 'Remaining costs to calculate' with a value of '204358'.
- Schedule parameters:** A form with the following fields:
 - Days:** Radio buttons for 's', 'm', 't', 'w', 't', 'f', 's' (all) are checked.
 - Start time:** 'hh' dropdown set to '00', 'mm' dropdown set to '00'.
 - End time:** 'hh' dropdown set to '00', 'mm' dropdown set to '00'.
 - Enabled:** A dropdown menu set to 'Yes'.
- Recalculate costs from:** A form with the following fields:
 - Start date:** 'Month' dropdown set to 'June', 'Day' dropdown set to '01', 'Year' dropdown set to '2005', followed by '(Today)'.
 - Enabled:** A dropdown menu set to 'Yes'.

At the bottom center of the interface, there is a play button icon.

2. Select **Schedule parameters**:

Days

Start time

End time

Enabled Allows you to toggle the scheduling feature on or off. When checked, the process is started and calculation is done. When unchecked, the calculation is disabled.

If **Recalculate costs from** is enabled, all the jobs printed after the selected date will be recalculated with the current cost information. Jobs printed before the date will not be affected if a cost is changed.

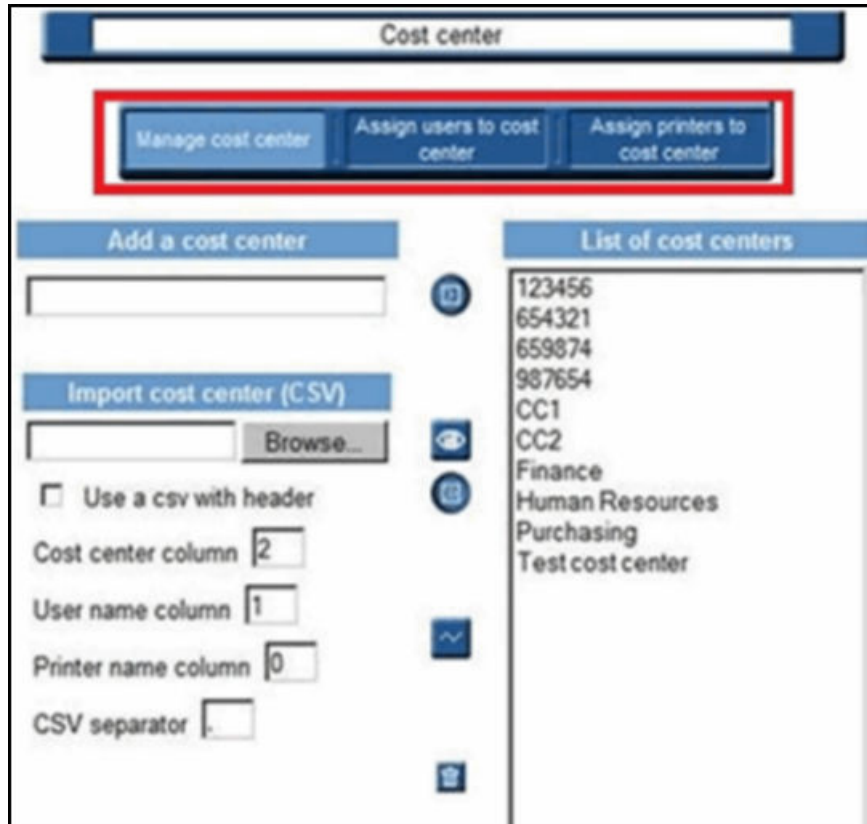
12.9 Cost center

12.9.1 Managing or creating

Cost centers are another method the administrator can use to organize, group, and track output of printers or users. After cost centers are created and assigned, you can perform queries to determine individual or collective use of cost centers.

To either manage or create cost centers, click **Cost center** in the HP AC Job Accounting remote control:

Figure 12-59 Cost center — manage or create



12.9.1.1 Manage a cost center

Cost centers must be created before users or printers can be assigned to them. This process can be performed manually by the administrator, or automatically by importing a CSV file. The steps for creating cost centers are explained in the following sections.

12.9.1.1.1 Add a cost center

To add a cost center manually:

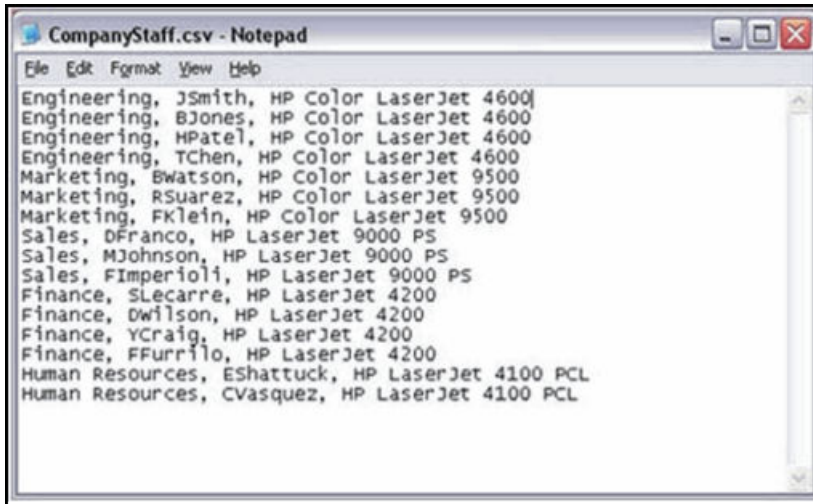
1. Enter a name for the cost center in the **Add a cost center** field.
2. Click **Add a cost center** button to add a new cost center to the list.


12.9.1.1.2 Import a cost center

When adding a large number of cost centers, printers, or users, it is quicker and more efficient to import a standard CSV file containing the data. This method also allows for both cost center creation and user/printer assignment to occur in a single step.

CSV files can be generated through a spreadsheet program, or simply typed with a text editor and saved as shown below:

Figure 12-60 Import cost center data



 **NOTE:** When importing a CSV file, user names and printer names **MUST** match those being tracked by HP AC Job Accounting.

To import cost centers,

1. Enter the path of the CSV file in the field or click **Browse** and locate it.
2. Specify whether to use a CSV with header.
3. Indicate in the field which column of the CSV file contains the names of the cost centers you wish to create.

To assign users or printers to the imported cost center automatically, enter the column number that contains the user name or printer in the appropriate field.

 **NOTE:** You can assign either a user name or printer to imported cost centers – not both.

12.9.1.1.3 Delete a cost center

Use the following steps to delete a cost center:




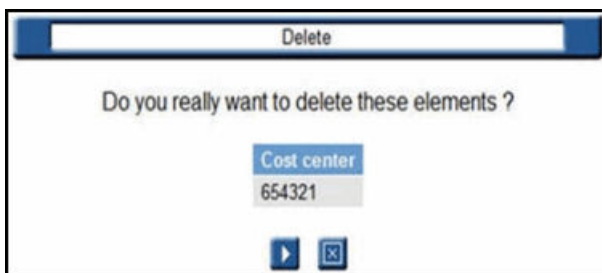
1. From the **Manage cost center** page, select the desired cost center from the list on the right and then click the Delete  icon.
2. Click the Go  icon to accept the deletion, or the Cancel  icon to stop the operation.

Figure 12-61 Delete a cost center



12.9.1.2 Assign users to a cost center

After cost centers have been created or imported, use the following steps to assign user names to them.

1. Click **Assign users to cost center** to access the following page:

Figure 12-62 Assign users to cost center



2. Select from the list of **Available users** in the left column.

 **TIP:** The list of available users can be filtered by using the drop-down menu above it.

3. Choose a cost center from the drop-down menu on the right.
4. Click the **Assign** icon to assign the user to the desired cost center.

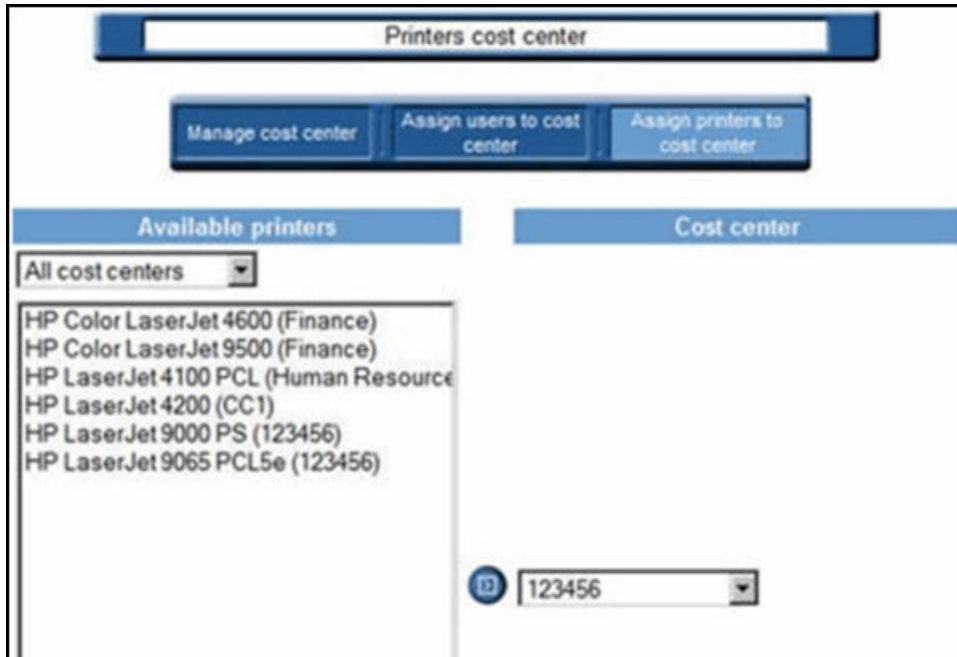
To remove all users, click the **Delete** icon to delete the all users from the list and then automatically import all users tracked by HP AC Job Accounting.

12.9.1.3 Assign printers

Assigning printers to a cost center is very similar to assigning users. After cost centers have been created or imported, printer names can be assigned to them.

1. Click **Assign printers** to cost center to display the following page:

Figure 12-63 Assign printers to cost center



2. Select from the list of **Available printers** in the left column.

 **TIP:** The list of available printers can be filtered by using the drop-down menu above it.

3. Choose a cost center from the drop-down menu on the right.
4. Click the **Assign** icon to assign the printer to the desired cost center.

12.10 HP AC Job Accounting user options

12.10.1 Options

During the initial installation of HP AC Job Accounting, some options are set by default, such as the language and the currency used in the application. These default options are set according to the language defined by your operating system. When using HP AC Job Accounting you can change the following options:

- Language
- Currency
- Date format
- Number of lines displayed in HP AC Job Accounting lists
- Password
- Email address

The columns of the query table can be accessed by clicking **User options** in the HP AC Job Accounting remote control.

Any modifications performed to these options are only valid for the user whose login is currently being used.

Click **User options** in the remote control to reach the general user summary for all user options: language, currency, interface, and date format, as well as your electronic address and the number of lines displayed in the HP AC Job Accounting lists.

Figure 12-64 User options



From **User options** you can modify the following:

- Options appearing in the general options page
- HP AC Job Accounting account password
- Information provided for all launched queries



Use the task bar located at the top of the screen to make any of the changes listed above.

12.10.1.1 User options

Click **User options** in the task bar and the following page appears:

Figure 12-65 Define user options



Your user name appears at the top of the page. To accept one or several modifications performed on this page, click the Go  icon, or click the Cancel  icon to stop the operation.

12.10.1.1.1 Language/currency


Choose a language and a currency from the pull-down menus. The languages already defined in HP AC Job Accounting are:

Table 12-3 Language/currency

Czech	Korean
Dutch	Polish
English	Portuguese
Finnish	Simplified Chinese
German	Spanish
Hungarian	Swedish
Italian	Turkish
Japanese	Traditional Chinese

Currencies already defined in HP AC Job Accounting are:


- US Dollar
- Euro
- British Pound

 **CAUTION:** You can add currencies, but you cannot add languages. For more information regarding currency management, see [Section 12.5.2, Currencies](#).

12.10.1.1.2 Number of lines in lists

You can modify the number of lines displayed in all HP AC Job Accounting lists such as the query table, the results list of a recurring query, or the list of print servers and printers in the Print Organization menu. The default number of display lines in one list is 10.

To change the number of display lines, enter the number you want in the Number of lines in lists lines field.

 **NOTE:** Your data is not affected by this change.

For example, a query table with 10 display lines appears as follows:

Figure 12-66 Query table with 10 lines

	Themes	Query name	Status	Schedule date	Result date	Schedule parameters	Result display	Other display types	Previous results	Edit results
<input type="checkbox"/>	Printers	Printers_4	✓	04/17/2012 10:01:07	04/17/2012 10:01:07					
<input type="checkbox"/>	Costs	Costs_6	---	04/17/2012 10:00:59					2	
<input type="checkbox"/>	Costs	Costs_5	---	04/17/2012 10:00:50					2	
<input type="checkbox"/>	Printers	Printers_3	✓	04/17/2012 10:00:01	04/17/2012 10:00:01					
<input type="checkbox"/>	Users	Users_3	✓	04/17/2012 09:55:55	04/17/2012 09:55:56					
<input type="checkbox"/>	Users	Users_2	✓	04/17/2012 09:55:52	04/17/2012 09:55:56				2	
<input type="checkbox"/>	Quota	Quota_1	✓	04/17/2012 09:54:44	04/17/2012 09:54:45					
<input type="checkbox"/>	Costs	Costs_1	✓	04/17/2012 09:54:34	04/17/2012 09:54:38				2	
<input type="checkbox"/>	Printers	Printers_1	✓	04/17/2012 09:53:45	04/17/2012 09:53:46					
<input type="checkbox"/>	Users	Users_1	✓	04/17/2012 09:53:07	04/17/2012 09:53:10					

The same query table with 5 display lines appears as follows:

Figure 12-67 Query table with 5 lines

	Themes	Query name	Status	Schedule date	Result date	Schedule parameters	Result display	Other display types	Previous results	Edit results
<input type="checkbox"/>	Users	Users_2	✓	04/17/2012 09:55:52	04/17/2012 09:55:56				2	
<input type="checkbox"/>	Quota	Quota_1	✓	04/17/2012 09:54:44	04/17/2012 09:54:45					
<input type="checkbox"/>	Costs	Costs_1	✓	04/17/2012 09:54:34	04/17/2012 09:54:38				2	
<input type="checkbox"/>	Printers	Printers_1	✓	04/17/2012 09:53:45	04/17/2012 09:53:46					
<input type="checkbox"/>	Users	Users_1	✓	04/17/2012 09:53:07	04/17/2012 09:53:10					

NOTE: You can sort all queries in the query table by ascending, descending, or alphabetical order by clicking the column title. To sort all your queries, and not only the queries displayed on the current page, all queries must be displayed on one single page. To display all queries on one page, enter 0 in this field.

12.10.1.1.3 Email address

You can forward query results to a specified email address. Any HP AC Job Accounting user or administrator can define their email address.

Use the following steps to define an email address:

1. Click in the Email address entry field.
2. Enter/modify your address as desired. You can enter up to 127 characters, symbols, and figures. Your email address appears each time you reach this page.

12.10.1.1.4 Data format

Date formats differ depending upon the country/region in which you reside. HP AC Job Accounting allows you to configure the date format displayed in the application.

1. Click on the preferred format.
2. Click the Go icon to accept the configuration, or the Cancel icon to stop the operation.

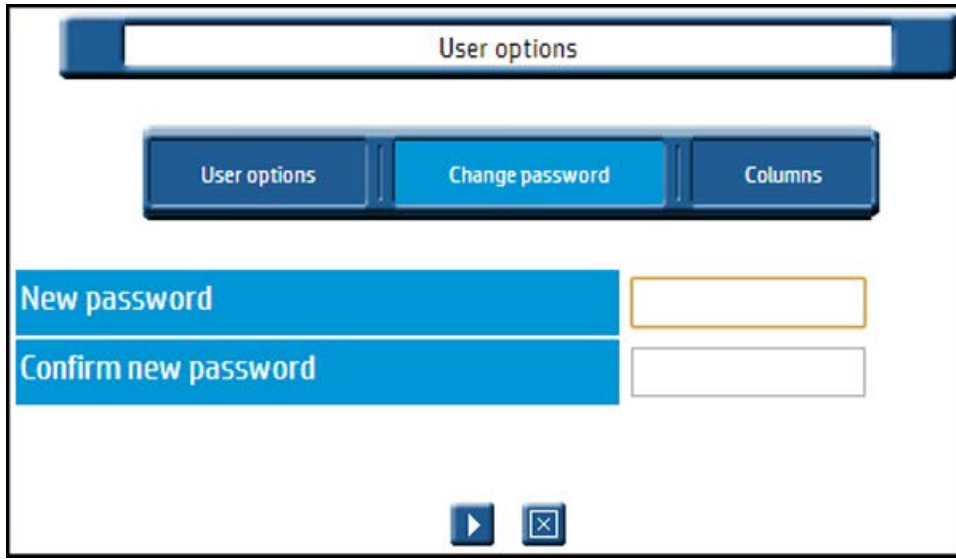
12.10.1.2 Set passwords

The HP AC Job Accounting administrator defines your password when the HP AC Job Accounting account is initially created.

Use the following steps to reset the password:

1. Click **Change password**.
2. Enter the new password in both fields.

Figure 12-68 Change password



The screenshot shows a dialog box titled "User options". It has three tabs: "User options", "Change password", and "Columns". The "Change password" tab is selected. Below the tabs, there are two input fields: "New password" and "Confirm new password". At the bottom of the dialog, there are two buttons: a "Go" button (represented by a right-pointing triangle) and a "Cancel" button (represented by an 'X' in a square).

CAUTION: Passwords are case-sensitive.

3. Click the Go  icon to accept the new password, or the Cancel  icon to stop the operation.

NOTE: It is highly recommended that you change the password of the Admin account.

12.10.1.3 Queries in progress

Columns

To modify content within the table, from **Users options**:



1. Go to **Queries in progress** and select the desired columns.

2. Click **Columns** on the User options page to get the list of all displayed columns:

Figure 12-69 Query columns



By default, all options are highlighted.

3. Uncheck the title of the columns you want to hide.
4. Click the Go  icon to accept the selections, or the Cancel  icon to stop the operation.



12.10.1.4 Print organization

To generate a list of all displayed columns, complete the following steps:

1. Go to **Print organization**.

Figure 12-70 Print organization columns



2. Uncheck the title of the column(s) you wish to hide.
3. Click the Go  icon to accept the selections, or the Cancel  icon to stop the operation.

12.11 Perform a query

12.11.1 Queries

Use HP AC Job Accounting's tracking function to get statistical data related to your printed documents, printing system, or costs. HP AC Job Accounting only manages print jobs processed by HP AC Job Accounting print servers. They are created by end users and can be of any format: text, spreadsheet, word processing, or databases.

While the print job is being processed, the HP AC Job Accounting print server analyzes its characteristics, which are then sent to the HP AC Job Accounting Database Server to be stored. This data includes the following characteristics:

- End users (name, login)
- Printers (name, model, driver, characteristics)
- Print jobs (document title, printer, number of printed pages, color media, costs per page and per printer model)
- Total print number per user, per printer and per day
- Workload for each printer to determine the printer's efficiency
- Statistics for each printer
- Statistics for each time period
- Statistics for each end user

These characteristics are easily retrieved by running queries. The data is then presented in one or more formats (table, chart, or spreadsheet).

12.11.1.1 Initiate a query

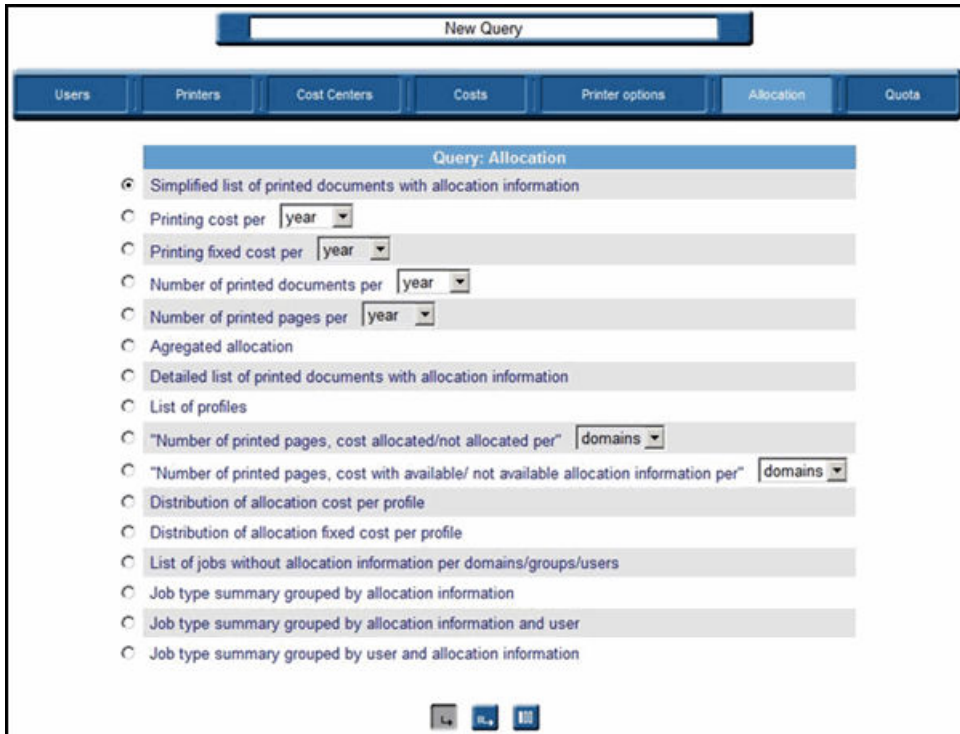
Queries can be initiated by clicking **New Query** on the HPAC Job Accounting remote control. This chapter describes the following:

- The various types of queries.
- How to run a query.
- How to modify your query parameters.

12.11.2 HP Access Control (HP AC) Job Accounting queries

The New Query page can be accessed by clicking **New Query** on the HP AC Job Accounting remote control.

Figure 12-71 New query



This page is divided into three main areas:

- The query navigation bar at the top of the page.
- The query types in the middle of the page.
- The task icons at the bottom of the page.

The query navigation bar allows queries to be initiated on:

- **Users** who have printed at least once since HP AC Job Accounting installation.
- **Printers** that have processed at least one print job since HP AC Job Accounting installation.
- **Cost Centers** that have been defined and assigned (to printers or users) by the administrator.
- **Printing costs** generated by the end users or by the printers in your print system.
- **Printer options**, or the frequency of use per user or per printer of the various printing modes: duplex, color, and Economode.
- **Allocation** information stored in the database.

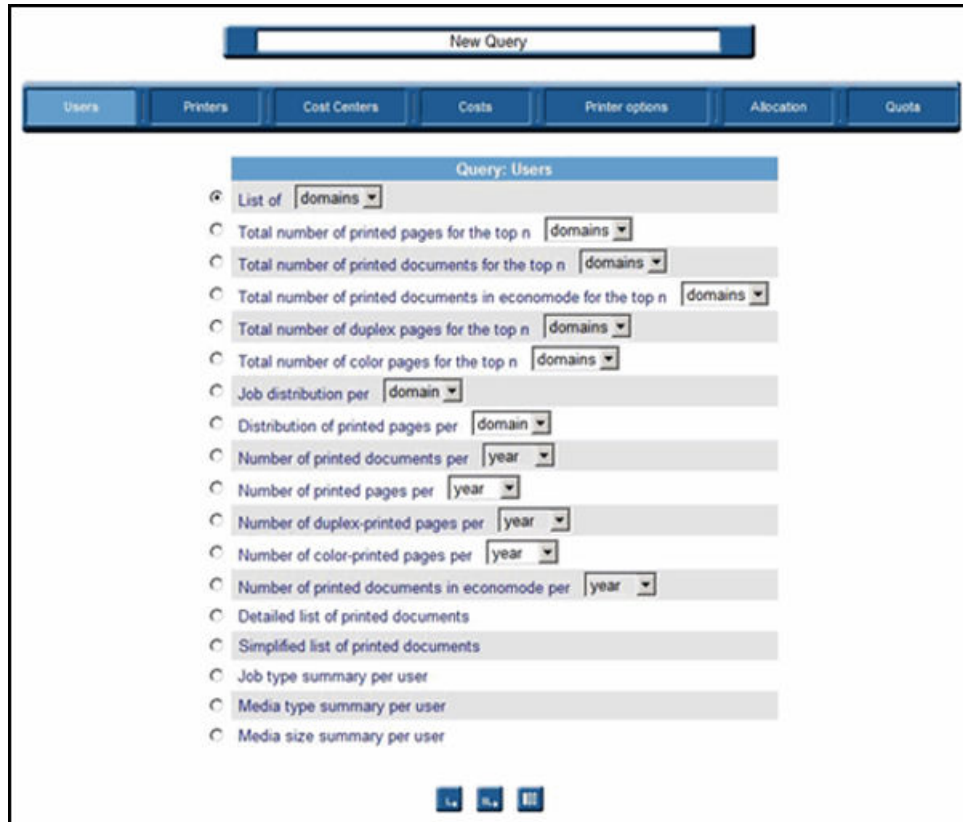
Click the appropriate icon to choose the type of query you would like to perform. The list of all queries related to this theme appears within the general display window. A description of each query type is provided in the following section.

12.11.2.1 Query types

12.11.2.1.1 Users

The queries contained within this theme pertain to the printer users. Search restrictions can be any of the following: print periods (start date, end date), the user's name, their groups, their domain, the date when they first printed, the document title, and cost. Some queries are limited to only the first n users matching the specified criteria. A single user can belong to one domain, and to several groups.

Figure 12-72 New query — users



Lists of users, groups, or domains

Before launching this query, choose user/domain/group from the pull-down menu. By default, all domains from which print jobs were processed since HP AC Job Accounting installation are considered.

Total number of printed pages for the top n users/domains/groups

Lists the first n users/domains/groups for which the greatest number of pages was printed. Before launching your query, choose user/domain/group in the pull-down menu. This query allows the greatest number of printed pages to be obtained, as well as the total number of pages printed in duplex and in color mode. By default, this query provides the 10 domains for which the greatest number of pages was printed since HP AC Job Accounting installation. This list allows you to audit your print system, and target the print volume per user.

Total number of printed documents for the top n users/ domains/groups

Lists the first n users/domains/groups for which the greatest number of documents was printed. Before launching your query, choose user/domain/group in the pull-down menu. The query then considers all print jobs. By default, this query provides the 10 domains for which the greatest number of documents was printed since HP AC Job Accounting installation. This list allows you to audit your print system and analyze print volumes.

Total number of documents printed in Economode for the top n users/ domains/groups

Lists the first n users/domains/groups for which the greatest number of documents was printed in Economode. Before launching your query, choose user/domain/group in the pull-down menu. This query considers only the documents printed in this particular mode. By default, this query provides the 10 domains for which the greatest number of documents was printed in Economode since HP AC Job Accounting installation.

Total number of duplex pages for the top n users/ domains/groups

Lists the first n users/domains/groups for which the greatest number of duplex pages was printed. Before launching your query, choose user/domain/group in the pull-down menu. Both short-side and long-side printed

pages are taken into account. By default, this query provides the 10 domains for which the greatest number of duplex pages was printed since HP AC Job Accounting installation. This query also allows the user to obtain the total number of printed pages, as well as the total number of pages printed in color mode. This list allows audits to be conducted on the print system, and to determine if a duplex printer is being properly used.

Total number of color pages for the top n users/ domains/groups

Lists the first n users/domains/groups for which the greatest number of color pages was printed. Before launching your query, choose user/domain/group in the pull-down menu. By default, this query provides the 10 domains for which the greatest number of color pages was printed since HP AC Job Accounting installation. This query also allows the user to obtain the total number of printed pages, as well as the total number of pages printed in color mode. This list allows audits to be conducted on the print system, and to determine the frequency of the color mode usage per group. It also enables easy identification of how a color printer is being used (such as if a color printer is used as a black and white printer).

Job distribution per domain/group/user

Charts the distribution of print jobs per user, group, or domain in percentage. Before launching your query, choose user, group, or domain in the pull-down menu. This query generates a comparison of the total print volume for all your users, groups, or domains. By default, all documents printed from all domains since HP AC Job Accounting installation are considered. This query highlights the usage frequency of your printers per user group (departments).

Distribution of printed pages per domain/group/user

Charts the distribution of printed pages per user, group, or domain, in percentage. Before launching your query, choose user, group, or domain in the pull-down menu. This query generates a comparison of the total printed page volume for all your users, groups, or domains. By default, all pages printed from all domains since HP AC Job Accounting installation are included. This query highlights the usage frequency of printers per user group (departments).

Number of printed pages per year/month/day/hour

Charts the total number of printed pages per year, month, day, or hour. This query also provides printing dates. Before launching this query, choose year/month/day/hour in the pull-down menu. By default, all pages printed by all users of all domains since HP AC Job Accounting installation are included.

Number of duplex-printed pages per year/month/day/hour

Charts the total number of pages printed in duplex mode per year, month, day, or hour. This query also provides printing dates. Before launching this query, choose year/month/day/hour in the pull-down menu. By default, all pages printed in duplex mode by all users of all domains since HP AC Job Accounting installation are included.

Number of color-printed pages per year/month/day/hour

Charts the total number of pages printed in color mode per year, month, day, or hour. This query also provides printing dates. Before launching this query, choose year/month/day/hour in the pull-down menu. By default, all pages printed in color mode by all users of all domains since HP AC Job Accounting installation are included.

Number of documents printed in Economode per year/ month/day/hour

Charts the total number of documents printed in Economode per year, month, day, or hour. This query also provides printing dates. Before launching this query, choose year/month/day/hour in the pull-down menu. By default, all documents printed in Economode by all users of all domains since HP AC Job Accounting installation are included.

Simplified list of printed documents

Lists all printed documents. This query provides a result regarding general characteristics: document name, total/printed number of pages. With this query, all documents are listed according to the user who printed the

document. By default, all users of all domains, who printed at least once since HP AC Job Accounting installation, are included.

This query allows information to be generated on printed documents and their characteristics: the printing launch date, the printer driver, the document title, the total number of printed pages and sheets in duplex and color mode, the copy number, the domain, the print job cost related to the print server, printer and the currency used, the job size and media. You can refine your query by defining a document title (all documents whose title starts with a specific string). By default, all print job characteristics are taken into account. Documents whose printing is complex can be analyzed and the document cost as near as possible to its actual costs. Results are provided in a table.

Detailed list of printed documents

Lists all printed documents. This query provides a detailed result concerning the page: color and duplex pages, trays, and media used for printing. With this query, all documents are listed according to the user who executed the print spool. By default, all users of all domains, who printed at least once since HP AC Job Accounting installation, are included.

This query concerns the printed documents helps you control printing costs. The query also allows generation of printed document characteristics: the printing launch date, the printer driver, the document title, the total number of printed pages and sheets in duplex and color mode, the copy number, the domain, the print job cost related to the print server, printer and the currency used, the job size and media. You can refine your query by defining a document title (all documents whose title starts with a specific string). By default, all print job characteristics are taken into account. Documents whose printing is complex can be analyzed and the document cost as near as possible to its actual costs. Results are provided in a table.

Job type summary per user

Lists use information for each user, including user name, number of color printed pages, number of b/w printed pages, number of color copied pages, number of b/w copied pages, number of faxed pages, and number of scanned pages. Results are provided in a table.

Media type summary per user

Lists for each user the number of pages printed for each media type along with a sum of total cost and fixed cost information.

Media size summary per user

Lists for each user the number of pages printed for each color media size and b/w media size along with a sum of total cost and fixed cost information.

12.11.2.1.2 Printers

The queries of this theme concern all printers in your print system tracked by HP AC Job Accounting. The default search filter is servers. Other search parameters can be:

Printer queues: Printers declared on a print server with a specific monitor port or driver. A single physical printer can be declared several times on the same print server with different ports or drivers.

Printer models: Consist of all printers of the same model. For instance, all HP 4500 LaserJet have the HP 4500 model.

Devices: Refers to the actual, physical printers. Several printer queues can refer to a single device.

Serial numbers: Refers to printer serial numbers.

Depending on the query, results are displayed in tables or charts.

Figure 12-73 Query printers

List of servers, printer queues, printer models, devices, or serial numbers

Lists servers, printer queues, printer models or printers tracked since HP AC Job Accounting installation. Before launching this query, choose servers, printer queues, printer models, serial numbers, or printers in the pull-down menu. This query informs you of the date when the device was used and therefore declared in HP AC Job Accounting, as well as the supported options (such as color or duplex). By default, all printers used since HP AC Job Accounting installation are included.

Total number of printed pages for the top n servers, printer queues, printer models, printers, or serial numbers

Lists the first n servers, printer queues, printer models, printers, or serial numbers on which the greatest number of pages was printed. Before launching this query, choose servers, printer queues, printer models, serial numbers, or printers in the pull-down menu. This query examines the total number of printed pages, color-printed pages, duplex-printed pages, and printed sheets. By default, this query provides the 10 printers on which the greatest number of pages was printed since HP AC Job Accounting installation. This list is part of your print system audit, and allows you to target print volume per server or per printer, and to highlight peaks as well as bottlenecks.

Total number of printed documents for the top n servers, printer queues, printer models, printers, or serial numbers

Lists the first n servers, printer queues, printer models, printers, or serial numbers on which the greatest number of documents was printed. Before launching this query, choose servers, printer queues, printer models, printers, or serial numbers in the pull-down menu. By default, this query provides the 10 printers on which the greatest number of documents was printed since HP AC Job Accounting installation. This list is part of your print system audit, and allows you to target print volume per server or per printer and to highlight peaks or bottlenecks.

Total number of documents printed in Economode for the top n servers, printer queues, printer models, printers, or serial numbers

Lists the first n servers, printer queues, printer models, printers, or serial numbers on which the greatest number of documents were printed in Economode. Before launching this query, choose servers, printer queues, printer models, printers, and serial numbers in the pull-down menu. This query only includes the documents printed in this mode. By default, this query provides the 10 printers on which the greatest number of documents was printed in Economode since HP AC Job Accounting installation.

Total number of duplex-printed pages for the top n servers, printer queues, printer models, printers, or serial numbers

Lists the first n servers, printer queues, printer models, printers, or serial numbers on which the greatest number of pages were printed in duplex mode. Before launching this query, choose servers, printer queues, printer models, printers, and serial numbers in the pull-down menu. Both short-side and long-side printing is considered in this query. By default, this query provides the 10 printers on which the greatest number of pages was printed since HP AC Job Accounting installation. It also provides the total number of printed pages. This list is part of your print system audit, and allows you to verify whether a duplex printer is being properly used.

Total number of color-printed pages for the top n servers, printer queues, printer models, printers, or serial numbers

Lists the first n servers, printer queues, printer models, printers, or serial numbers on which the greatest number of pages were printed in color mode. Before launching this query, choose servers, printer queues, printer models, printers, and serial numbers in the pull-down menu. By default, this query provides the 10 printers on which the greatest number of pages was printed since HP AC Job Accounting installation. It also provides the total number of printed pages, as well as the total number of duplex-printed pages. This list is part of your print system audit, and allows you to validate the use frequency of a printer's color mode.

Job distribution per server/printer queue/printer model/ device/serial number

Charts the distribution of print jobs per server, printer queue, printer model, device, or serial number. Before launching your query, choose server, printer queue, printer model, device, or serial number in the pull-down menu. This query generates a comparison of the total print volume for all servers and printers. By default, all printers used since HP AC Job Accounting installation are included. This query highlights the usage frequency of your printers.

Distribution of printed pages per server/printer queue/ printer model/device/ serial number

Charts the distribution of printed pages per server, printer queue, printer model, device, or serial number. Before launching your query, choose server, printer queue, printer model, device, or serial number in the pull-down menu. This query generates a comparison of the total printed page volume for all your servers and printers. By default, all pages printed from all printers since HP AC Job Accounting installation are included. This query highlights the usage frequency of all printers.

Number of printed documents per...

Charts the total number of print jobs per year, month, day, or hour. Before launching this query, choose a technical item (server, printer model, printer queue, device, serial number) and time unit (per year/ month/day/ hour) in the pull-down menu. This query provides the total number of printed documents, as well as printing dates. You can select a specific server, printer queue, printer model, or device. By default, all documents printed since HP AC Job Accounting installation are included.

Number of printed pages per...

Charts the total number of printed pages per year, month, day, or hour. Before launching this query, choose a technical item (server, printer model, printer queue, device, serial number) and time unit (per year, month, day or hour) in the pull-down menu. You can select a specific server, printer queue, printer model, or device. This query also provides printing dates. By default, all pages printed by all users of all domains since HP AC Job Accounting installation are included.

Number of duplex-printed pages per...

Charts the total number of pages printed in duplex mode per year, month, day, or hour. Before launching this query, choose a technical item (server, printer model, printer queue, device, serial number) and time unit (per year, month, day or hour) in the pull-down menu. You can select a specific server, printer queue, printer model, device, or serial number. This query provides the total number of duplex-printed pages, as well as printing dates. By default, all pages printed in duplex mode since HP AC Job Accounting installation are included.

Number of color-printed pages per...

Charts the total number of pages printed in color mode per year, month, day, or hour. Before launching this query, choose a technical item (server, printer model, printer queue, device, serial number) and time unit (per year, month, day, or hour) in the pull-down menu. You can select a specific server, printer queue, printer model, device, or serial number. This query provides the total number of color-printed pages, as well as printing dates. By default, all pages printed in color mode since HP AC Job Accounting installation are included.

Number of documents printed in Economode per...

Charts the total number of documents printed in Economode per year, month, day, or hour. This query also provides printing dates. Before launching this query, choose a technical item (server, printer model, printer queue, device, serial number) and time unit (per year, month, day, or hour) in the pull-down menu. You can select a specific server, printer queue, printer model, device, or serial number. This query provides the total number of documents printed in Economode, as well as printing dates. By default, all documents printed in Economode since HP AC Job Accounting installation are included.

Simplified list of printed documents

Lists all printed documents. Before launching your query, choose server, printer queue, printer model, device, or serial number in the pull-down menu. This query provides a synthetic result regarding general characteristics such as document name and total/printed number of pages. With this query, all documents are listed according to the printer that processed the print job. By default, all printers used at least once since HP AC Job Accounting installation are included.

This query concerns printed documents and helps with your printing costs control. It allows information to be gathered on printed documents and their characteristics: the print launching date, the printer driver, the document title, the total number of printed pages and sheets in duplex and color mode, the copy number, the domain, the print job cost related to the print server, printer and the currency used, the job size and media. You can refine your query by defining a document title (all documents whose title starts with a specific string). By default, all print job characteristics are included. Documents whose printing is complex can be analyzed and the document cost as near as possible to its actual costs. Results are provided in a table.

Detailed list of printed documents

Lists all printed documents. Before launching your query, choose the server, printer queue, printer model, device, or serial number in the pull-down menu. This query provides a detailed result concerning the page: color and duplex pages, trays, and media used for printing. With this query, all documents are listed according to the printer that processed the print job. By default, all printers used at least once since HP AC Job Accounting installation are included.

This query concerns the printed documents and helps with your printing costs control. It allows information to be gathered on printed documents and their characteristics: the printing launching date (the date and time, when the user launched the print job and was not handled by the print server), the printer driver, the document title, the total number of printed pages and sheets in duplex and color mode, the copy number, the domain, the print job cost related to the print server, printer and the currency used, the job size and media. You can refine your

query by defining a document title (all documents whose title starts with a specific string). By default, all print job characteristics are taken into account. Documents whose printing is complex can be analyzed and the document cost as near as possible to its actual costs. Results are provided in a table.

Media type summary

Provides a summary of media used by servers, printer queues, devices, printer models, or printer serial numbers.

Media size summary

Provides a summary of media sizes used by servers, printer queues, devices, printer models, or printer serial numbers.

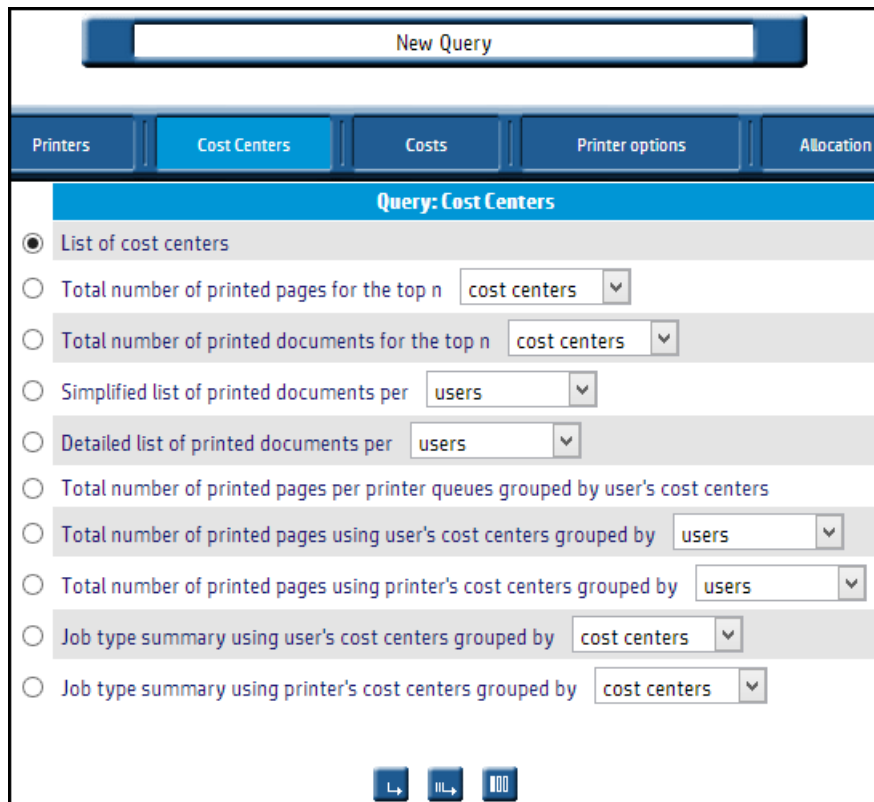
List of inactive queues, devices, models, or serial numbers

Provides a list of inactive printer queues, devices, printer models, or printer serial numbers.

12.11.2.1.3 Cost centers

This type of query determines the usage and costs associated with users or printers assigned to a specified cost center. For more information on creating and assigning cost centers, see [Section 12.11.2.1.3, Cost centers](#).

Figure 12-74 Query cost centers



List of cost centers

Lists all the existing cost centers currently defined within HP AC Job Accounting.

Total number of printed pages for the top n cost centers/users/print queues

Lists the first n cost centers/users/print queues for which the greatest number of pages was printed. Before launching your query, choose cost center/user/print queues from the drop-down menu. This query allows the

greatest number of printed pages to be obtained, as well as the total number of pages printed in duplex and in color mode.

Total number of printed documents for the top n cost centers/users/print queues

Lists the first n cost center/users/print queues for which the greatest number of documents was printed. Before launching your query, choose cost center/users/print queue from the drop-down menu. The query considers all print jobs. This list allows you to audit your print system and to analyze print volumes.

Simplified list of printed documents per users/print queues

Lists all printed documents. This query provides a simplified result regarding the document's general characteristics: document name, total/printed number of pages. With this query, all documents are listed according to the cost center that printed. This query allows information to be generated on printed documents and their characteristics.

Detailed list of printed documents per users/print queues

Lists all printed documents. This query provides detailed results concerning the page: color and duplex pages, trays, and media used for printing. With this query, all documents are listed according to the cost center executing the print spool. This query concerns the printed documents and helps with controlling printing costs.

The query also allows generation of printed document characteristics: the printing launch date, the printer driver, the document title, the total number of printed pages and sheets in duplex and color mode, the copy number, the domain, the print job cost related to the print server, printer and the currency used, the job size and media. You can refine your query by defining a document title (all documents whose title starts with a specific string). By default, all print job characteristics are taken into account. Documents whose printing is complex can be analyzed and the document cost as near as possible to its actual costs. Results are provided in a table.

Total number of printed pages per printer queues grouped by user's cost centers

Provides the total number of pages printed by each cost center.

Total number of printed pages using user's cost centers grouped by users/ print queues

Lists total pages printed by each user's cost centers, grouped by either users or print queues.

Total number of printed pages using printer's cost centers grouped by users/ print queues

Lists total pages printed by each printer's cost centers, grouped by either users or print queues.

Job type summary using user's cost centers grouped by cost centers, users, or printer queues

Provides summary of jobs using user's cost centers; grouped by cost centers, users, or printer queues.

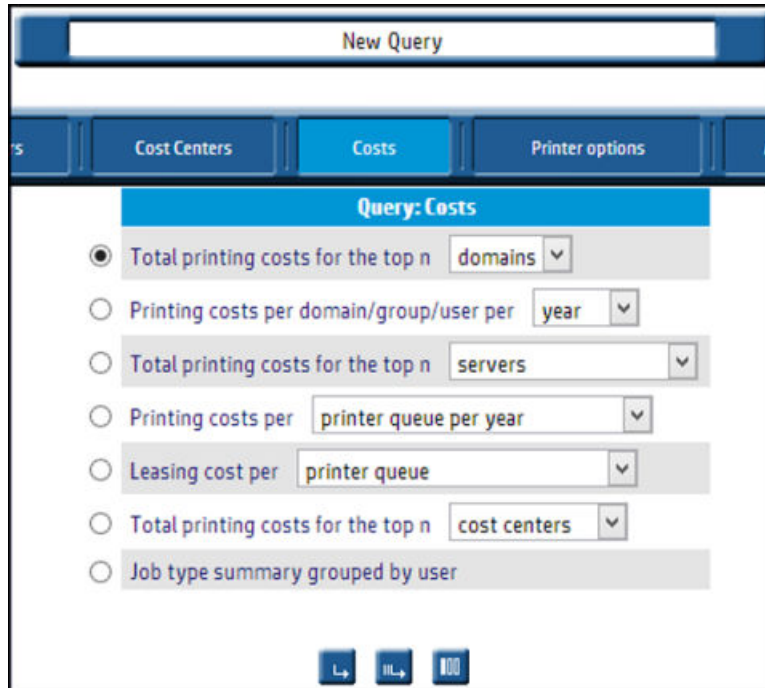
Job type summary using printer's cost centers grouped by cost centers, users, printer queues, or printer models

Provides summary of jobs using printer's cost centers; grouped by cost centers, users, printer queues, or printer models.

12.11.2.1.4 Costs

This group of queries reports the printing costs of all jobs processed between two dates. The query results are displayed in tables. The reports include the total number of jobs, their total size, the total number of printed pages and sheets in duplex and color mode, the total costs, and the total printing time. You can also compare the actual costs (the amount closest to the real costs) and the fixed costs that you define (this allows you to include, for example, consumable expenditures and maintenance). You can also set a limit on the printing time, the number of printed pages, and the printing costs. The HP AC Job Accounting queries 93 limit types are: >, =, >=, < and <=. They are used to help you define the information queried more accurately.

Figure 12-75 Query costs



Total printing costs for the top n domains/groups/users

Lists the top n users, domains, or groups whose printing costs are the highest in a given period. Before launching your query, choose user/group/domain in the pull-down menu. This query takes into account the number of printed pages, the printing mode, the printer, and the media. By default, this query provides the 10 domains best matching these criteria since HP AC Job Accounting installation. This query helps with your costs management, by informing you of the costs involved in printing documents between two dates.

Total printing costs for the top n servers/printer queues/printer models/ devices/printer serial numbers

Lists the top n servers, printer queues, printer models, devices, or printer serial numbers whose printing costs are the highest on a given period. Before launching your query, choose servers, printer queues, printer models, devices, or printer serial numbers in the pull-down menu. This query takes into account the number of printed pages, the printing mode, the printer, and the media. By default, this query provides the 10 devices best matching these criteria since HP AC Job Accounting installation. You can specify the currency in which to express your costs. The default currency is defined in your user options. For more information on this setting, see [Section 12.10, HP AC Job Accounting user options](#). This query helps with your costs management, by informing you of the costs involved in printing documents between two dates.

Evolution of printing costs per domain/group/user per year, month, day, or hour

Charts the total real cost of all printed documents per hour, per day, per month, or per year. Before launching your query, choose domains, groups, or users in the pull-down menu. Select a specific domain, group, user, or currency. By default, all documents printed by any user of all domains since HP AC Job Accounting installation are included. The default currency is defined in your user options. For more information, see [Section 12.10, HP AC Job Accounting user options](#).

Printing cost per printer queue, device, model, or serial number

Provides information on the cost of printed documents per hour, per day, per month, or per year. Before launching this query, choose a technical item (printer queue, device, printer model, serial number) and time unit (per year, month, day, or hour) in the pull-down menu.

Leasing cost per printer queue or printer serial number

Provides information on the leasing costs per printer queue or serial number, based on the monthly lease charge, b/w page price, and color page price defined. For more information, see [Section 12.8, Manage print costs](#).

Total printing costs for the top n cost centers, users, or printer queues

Lists the top n cost centers, users, or printer queues whose printing costs are the highest in a given period.

Job type summary grouped by user

Provides a detailed table of use information for each user, including: user name, number of color printed pages, number of b/w printed pages, number of color copied pages, number of b/w copied pages, number of faxed pages, and number of scanned pages.

12.11.2.1.5 Printer options

The queries for this theme enable you to get information on the use frequency of printer options: color, duplex, and Economode.

Figure 12-76 Query printer options

The screenshot shows a 'New Query' dialog box with a tabbed interface. The 'Printer options' tab is selected. Below the tabs, there is a section titled 'Query: Printer options' with six radio button options, each followed by a dropdown menu. The first option, 'Frequency of duplex mode use per', is selected and has 'domain' in the dropdown. The other options are 'Frequency of color mode use per', 'Frequency of economode use per', 'Frequency of duplex mode use per', 'Frequency of color mode use per', and 'Frequency of economode use per', all with 'servers' in their dropdowns. At the bottom of the dialog are three buttons: a left arrow, a double left arrow, and a right arrow.

Frequency of duplex mode use per domain/group/user

Charts the percentage of sheets printed in duplex mode compared with the number of simplex-printed pages per domain, group, or user. By default, all users of all domains since HP AC Job Accounting installation are considered.

Frequency of color mode use per domain/group/user

Charts the percentage per domain, group, or user of sheets printed in color mode compared with the number of pages printed in black and white. By default, all users of all domains since HP AC Job Accounting installation are considered.

Frequency of Economode use per domain/group/user

Charts the percentage per domain, group, or user of sheets printed in Economode compared with the number of pages printed in normal mode. By default, all users of all domains since HP AC Job Accounting installation are considered.

Frequency of duplex mode use per server/printer queue/printer model/ device/serial number

Charts the percentage per server, printer queue, printer model, device, or serial number of sheets printed in duplex mode compared with the number of simplex-printed pages. By default, all printers used since HP AC Job Accounting installation are considered.

Frequency of color mode use per server/printer queue/printer model/device/ serial number

Charts the percentage per server, printer queue, printer model, device, or serial number of sheets printed in color mode compared with the number of pages printed in black and white. By default, all printers used since HP AC Job Accounting installation are considered.

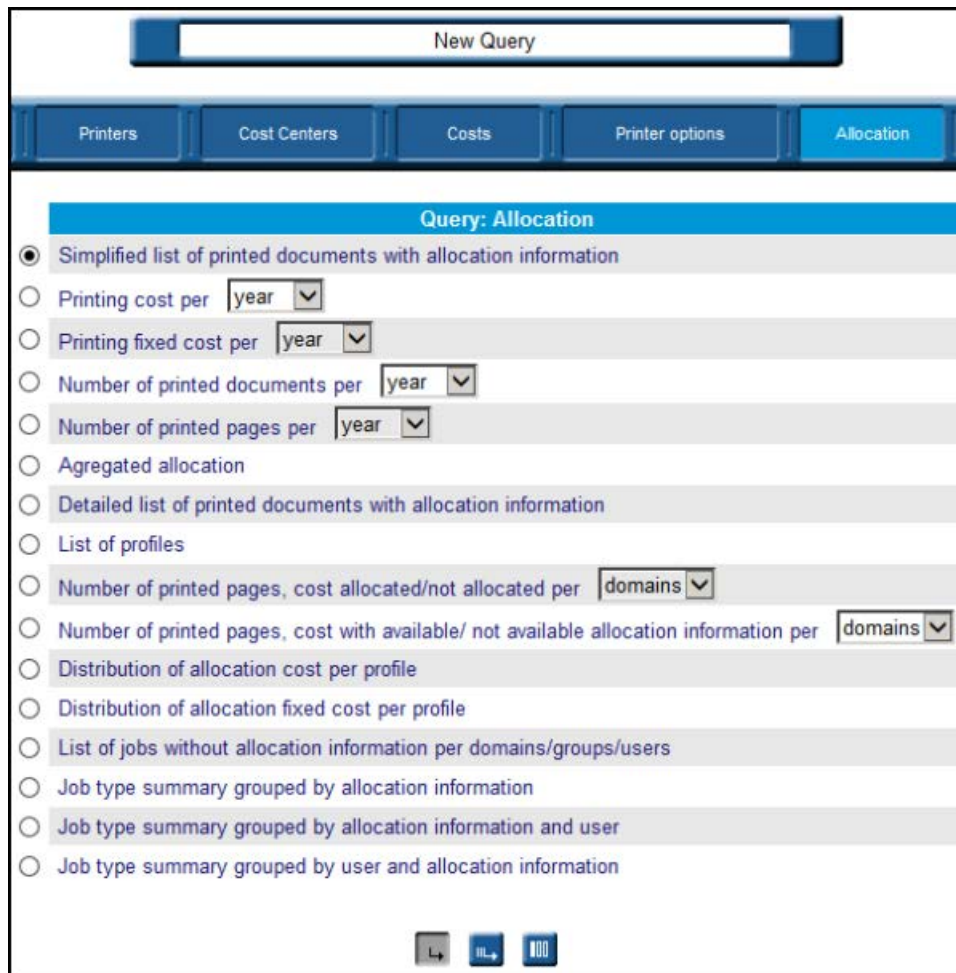
Frequency of Economode use per server/printer queue/printer model/device/ serial number

Charts the percentage per server, printer queue, printer model, device, or serial number, of sheets printed in Economode compared with the number of pages printed in normal mode. By default, all printers used since HP AC Job Accounting installation are considered.

12.11.2.1.6 Allocation

The queries for this theme enable information to be gathered on allocation capability. For instance, you will have the ability to research using various criteria such as the allocation profile and the time period.

Figure 12-77 Query allocation



Simplified list of printed documents with allocation information

Lists all printed documents having a link with an allocation profile.

This query provides a simplified result with information such as the field values of the allocation profile, the domain, the user, and the number of printed pages. Before launching your request, select a profile.

Detailed list of printed documents with allocation information

Lists all printed documents having a link with an allocation profile. This query provides a detailed result with information such as the field values of the allocation profile, the domain, the user, the number of printed pages, simplex/duplex pages, and the number of printed color pages. Before launching your request, select a profile.

Printing costs per year/month/day/hour

Provides graph and table with total of the real costs of all printed documents that have a link with an allocation profile. Before launching your request, select a profile.

Printing fixed costs per year/month/day/hour

Provides graph and table with total of the fixed costs of all the printed documents that have a link with an allocation profile. Before launching your request, select a profile.

Number of printed documents per year/month/day/hour

Provides graph and table illustrating the number of printed documents that have a link with an allocation profile. Before launching your request, select a profile.

Number of printed pages per year/month/day/hour

Provides graph and table illustrating the number of printed documents that have a link with an allocation profile. Before launching your request, select a profile.

Aggregated allocation

Lists all information included in the fields of a specific allocation profile. This query provides a synthetic result regarding the printings related to a profile. Before launching your request, select a profile. This query allows you to generate statements on the selected allocation profile.

List of profiles

Lists all allocation profiles. This query provides a table with detailed descriptions of the fields of each allocation profile that has been used at least once.

Number of printed pages, cost allocated/not allocated/ per domains/groups/ users

Provides a table indicating billed printings versus non-billed printings, for all printings related to an allocation profile. It also provides detailed information on the user/group/domain, number of documents, number of pages, and real and fixed costs. This query may allow you to check the correct use of the allocation module.

Number of printed pages, cost with available/not available allocation information per domains/groups/users

Provides a table indicating the printings with allocation information available versus the printings without allocation information available. It also provides detailed information on the user/group/ domain, number of documents, number of pages, and real and fixed costs. This query may allow you to check the correct use of the allocation module.

Distribution of the allocation cost per profile

Graphs the percentage of the real costs in each profile. The result can also be displayed in a table with the total amount.

Distribution of the allocation fixed cost per profile

Graphs the percentage of the fixed costs in each profile. The result can also be displayed in a table with the total amount.

List of jobs without allocation information per domains/groups/users

Lists all printed documents without allocation information; all printed jobs that are not linked to an allocation profile.

This query provides a simplified result with information such as the domain, the user, and the number of printed pages.

This query displays all jobs without allocation information.

Job type summary grouped by allocation information

Lists job types grouped by allocation information provided.

Job type summary grouped by allocation information and user

Lists job types grouped by allocation information and user information.

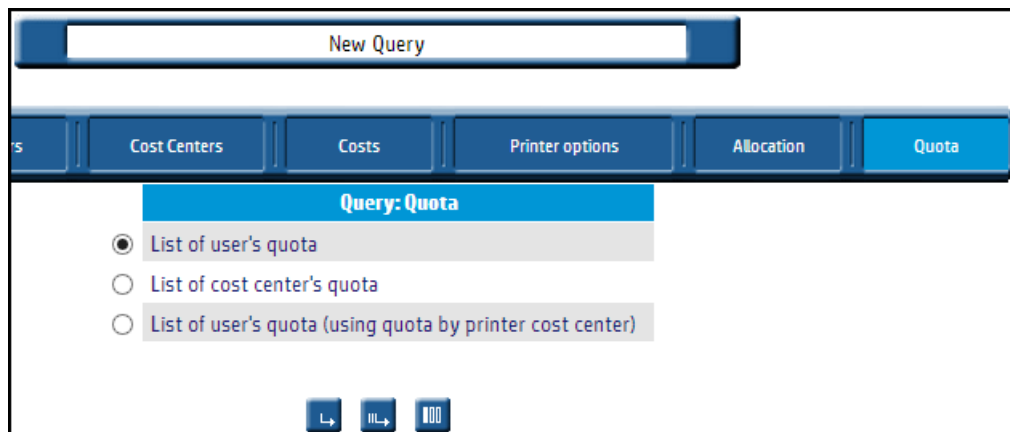
Job type summary grouped by user and allocation information

Lists job types grouped by user information and allocation information.

12.11.2.1.7 Quota

The queries for this theme enable information to be gathered on allocation capability. For instance, you will have the ability to research using various criteria such as the allocation profile and the time period.

Figure 12-78 Query quota



List of user's quota

Lists all values relative to each user.

List of cost center's quota

Lists all values relative to each cost center.

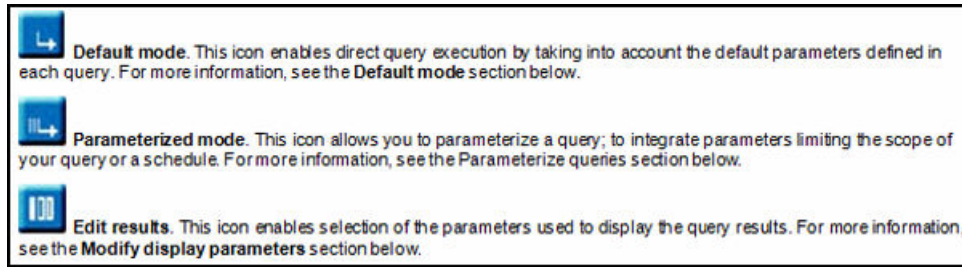
List of user's quota (using quota by printer cost center)

Lists all values relative to each user by printer cost center.

12.11.2.2 Launch a query

Launched queries can be in one of these two modes: default or parameterized. When viewing the New Query page, note the three icons at the bottom of the page:

Figure 12-79 New Query page



12.11.2.3 Default mode

With the Default mode icon, you will be able to launch a query immediately. This mode is mostly used for queries for which few resources (such as CPU or memory) are required, or for which an immediate result is necessary. The default mode will launch a query with the default parameters. This means the printing date will be between 1/1/2000 and 12/31/2020, and it will run for all users, printers, and print servers.

This mode must be used for very simple queries such as “list of users,” “list of printers,” or “total number of pages printed by...” For complex queries, it is recommended to filter on a date range, a specific user, or a specific printer; and the parameterized mode must be used.

For more information on how to view your query results, see [Section 12.12.4, Display results](#).

⚠ CAUTION: Some update processes are not synchronized to avoid penalizing printing times and servers—therefore some results can have incomplete or erroneous data. Wait a short while and then run the query again, and your data should be corrected. By launching a query in this mode, you will take all default parameters into account. For more information on default parameters, see [Section 12.11.3, Parameterize queries](#).

Use the following steps to perform a query using the Default mode:

1. Select a query.
2. Click the **Default mode** icon.

A progress message appears to verify that the query is running. The query table appears.

12.11.2.4 Parameterized mode

The Parameterized mode icon provides search parameters that focus the scope of returned information. You will also be able to schedule your query so that its launch does not burden processors during peak hours (such as at night) or at regular periods (for example, daily or monthly). This mode allows you to benefit from synchronized information, using the most recent data available. It is also an advantage for queries that are complex or lengthy to perform, or that require a lot of CPU and memory resources.

For more information on query types, see [Section 12.11.2, HP Access Control \(HP AC\) Job Accounting queries](#).

To perform a parameterized query, complete the following steps:

1. Select a query.
2. Click the **Parameterized mode** icon.

Figure 12-80 Parameterized mode

The screenshot shows a web interface titled "List of devices". At the top, there are three buttons: "Query", "Schedule", and "Go". Below these buttons, the interface is divided into several sections. The first section is "List of devices" with a "Name" field containing "Printers_3". The second section is "Recipient e-mail address" with an empty text input field and a small icon to its right. The third section is "Print server" with a dropdown menu currently showing "All print servers". Below this are two radio buttons: "Date" (which is selected) and "Time lapse". The final section is for date and time selection, labeled "Printing date from ... (Today)" and "To ... (Today)". The "from" date is set to January 01, 2000, and the "to" date is set to December 31, 2020. Time selection fields are also present, with the "to" time set to 23:59:59.

12.11.2.5 Edit results

The various fields (parameters) in this page depend on the query launched. For more information on these parameters, see [Section 12.11.3, Parameterize queries](#).

The buttons along the top enable you to:

- Schedule your query by clicking **Schedule**. For more information, see [Section 12.11.4, Schedule queries](#).
- Launch your query by clicking **Go** after having parameterized or scheduled your query. For more information, see [Section 12.12.4, Display results](#).

12.11.3 Parameterize queries

This page lists parameters used to limit your search scope, to obtain a more precise result that is closer to your search objectives. If no parameters are defined, the query will utilize default values.

CAUTION: If you use the default launching mode, only the default parameters will be considered. If no Start Date and Start time are specified, the data queried encompasses all documents printed since HP AC Job Accounting installation. If no End Date and End Time are specified, the data queried encompasses all documents printed until the most recent date (the current date/hour).

The following rules apply to time periods:

- For the *year* unit, all months for the years specified in the Date fields.
- For the *month* unit, all weeks for the months specified in the Date fields.


- For the *week* unit, all days for the weeks specified in the Date fields.
- For the *day* unit, all days specified in the **Date** fields.


12.11.3.1 Name a query

Each user maintains a unique query name in order to initiate queries. By default, the query name consists of the query theme followed by the _ symbol and the number of queries you have already launched.

12.11.3.2 Recipient email addresses

Transmitting query results to one or several recipients is accomplished by specifying email addresses or distribution lists of recipients.

Click in the field and enter an email address, or click the Recipient email address  icon to open the address book containing all predefined addresses and lists (see [Section 12.5, HP AC Job Accounting administration](#)). You can specify several addresses or lists, which will automatically be separated by a semicolon. This field may contain a maximum of 499 characters, symbols, and figures.

 **NOTE:** Lists appear at the bottom of the pull-down menu, in the gray area. Individual addresses appear at the top of the pull-down menu, in the white area.

Error messages may appear for the Recipient email address field under the following conditions:

- No sender address defined: no sender address has been specified in the User options section. Any message must be identified by a sender.
- No mail server defined: no email server has been configured in the Email system section of the Administration menu, which means that no email message can be sent. This message only appears if you have administrator rights.

These errors do not prevent a query from being executed, but they highlight the fact that the results will not be sent.

12.11.3.3 Select the domain

This parameter enables you to select several users belonging to the same domain to query. Click the arrow to get the list of all domains from which documents have already been printed. If you select a particular domain, the End user field will automatically be filled with the names of all end users attached to this domain. By default, this includes all domains detected by HP AC Job Accounting.

12.11.3.4 Group

Since a domain may contain several groups, users can refer to any end user group attached to the same network. Click the arrow to get the list of all groups from which documents have already been printed. If you select a particular group, the End user field will automatically be filled with the names of all end users attached to the group. By default, all groups are included.

12.11.3.5 End user

Choose which particular end user to query. If you select an end user, the domain to which the user is attached appears in the Domain/group fields. By default, all end users that have executed a print command since HP AC Job Accounting installation will be considered.

12.11.3.6 Document titles starting with..

Enables users to select documents whose title starts with a specified string. You can enter up to 64 characters, symbols, and figures. If this field is empty, the default returns all documents printed since the original HP AC Job Accounting installation.

12.11.3.7 Print server

Choose which HP AC Job Accounting Print Server (HP ACJA PRINT SERVER) you want to query. By default, all print servers are included.

12.11.3.8 Printer queue

Choose a printer queue in the list provided by HP AC Job Accounting. A printer queue is a printer declared on a server using a specific port monitor or driver. A physical printer can be declared several times on the same server using different ports or drivers.

12.11.3.9 Set printer models

A printer model consists of all printers of the same model; for instance, all HP 4500 LaserJet printers. By default, all printer models are included.

12.11.3.10 Printer

Choose one printer to query.

12.11.3.11 Date

The Date field enables you to specify a time interval during which documents were printed. This time interval is limited by precise start and end dates. Date is the default value for defining a time interval during which documents were printed.

12.11.3.12 Printing date from

This parameter enables you to define the start of a time interval—your query will only focus on the documents printed from the date and time defined in this field. The possible dates range from 01/01/2000 at 00:00:00 to 31/12/2020 at 23:59:59. The default date is the current date and time.

Parameterize queries 103 of the database server. All documents printed since HP AC Job Accounting installation are taken into account.

12.11.3.13 To

This parameter enables you to define the end of a time interval—your query will only focus on the documents printed up to the date and time defined in this field. The date range is identical to the field Printing date from. The default date and time in this field are the current date at 23:59:59. All documents printed up to the current date are included.

12.11.3.14 Time lapse

This option enables you to collect data related to documents printed during a certain time interval. Date is the default value for defining a time interval during which documents were printed.

12.11.3.15 Printing for the last..

This option enables you to define a time interval in days, months or years, during which documents were printed. The last interval day is always the day, when you are launching your query. By default, all documents printed up to the current date are included. This parameter appears only if you select the Time Lapse parameter.

12.11.3.16 First n..

This option enables you to define the maximum number of a query parameter (such as user, printer, or printer model). The default value in this field is 10. This parameter does not affect all queries.

12.11.3.17 Number of printed pages

Sets a limit (greater than, less than, or equal) regarding the number of printed pages. By default, all documents printed since HP AC Job Accounting installation are included.

12.11.3.18 Printing cost

Sets a limit (greater than, less than, or equal) to the actual printing cost (not the fixed cost). By default, all documents printed since the HP AC Job Accounting installation are included.

 **CAUTION:** The decimal symbol is a period (.).

12.11.3.19 Currency

Enables you to choose your cost currency in the pull-down menu. The default currency is the currency defined in the user options. For more information on user options, see [Section 12.10, HP AC Job Accounting user options](#).

12.11.4 Schedule queries

From this page, you can perform the following actions:

- Change the way you launch queries to obtain more correct and precise results, by benefiting from all updates. These updates, for optimization and performance reasons, are not all executed in real time. You can also change the way queries are launched so that you do not overload your server.
- Plan your query so that it is launched regularly (such as every week or every month).
- You can reach the schedule page by clicking **Schedule**. The following prompt appears:

Figure 12-81 Schedule queries

The screenshot shows a web interface titled "List of devices". At the top, there is a navigation bar with three buttons: "Query", "Schedule", and "Go". Below this, the "List of devices" section contains three main input areas: "Frequency" with a dropdown menu set to "Once"; "Start date" with three dropdown menus for month ("April"), day ("07"), and year ("2008"); and "Start time" with three dropdown menus for hours ("19"), minutes ("58"), and seconds ("26").

The following page enables you to schedule your query in detail. The default frequency is **Once**. You can choose among the following frequencies:

Figure 12-82 Query frequencies

This screenshot shows the "List of devices" page with the "Frequency" dropdown menu open. The menu lists the following options: "Once", "Daily", "Weekly", "Monthly", "Monthly, with relative interval", and "Run when the computer is idle". The "Once" option is currently selected and highlighted in blue.

When choosing a particular frequency, new fields will appear on the page. The appearance of these fields depends on your selection.

12.11.4.1 Once

Use this value to launch your query once, at a time specified by the **Start date** and **Start time** fields. By default, both fields are defined to the date and time on which you are launching your query. If the query is scheduled to be launched at a date and time before the current date (defined in the Start date and Start time fields), the query is immediately launched. The parameters are defined in the parameter page.

12.11.4.2 Daily

This query will run once or several times a day, every day or at a regular interval, during a certain time interval as specified in the Start/End Date/Time fields.

Figure 12-83 Query frequency: daily

The screenshot shows a configuration window with a blue header 'List of devices'. Below the header are several sections:

- Frequency:** A dropdown menu set to 'Daily'.
- Frequency interval:** A text input field containing '1' followed by 'day(s)'.
- Daily frequency:** A dropdown menu set to 'At the specified time'.
- Start date:** Three dropdown menus for month ('April'), day ('07'), and year ('2008').
- End date:** Three dropdown menus for month ('December'), day ('31'), and year ('2020').
- Start time:** Three dropdown menus for hours ('hh' 19), minutes ('mm' 58), and seconds ('ss' 26).
- End time:** Three dropdown menus for hours ('hh' 23), minutes ('mm' 59), and seconds ('ss' 59).

Frequency interval

Define the day interval—for example by entering 2 in this field, your query will run every 2 days. The default value in this field is 1, meaning that your query will run every day.

Daily frequency

Choose how often within one day the query will run. With the default option, at the specified time the query will be launched at the time defined in the Start time field. You can also choose to launch your query regularly every n minutes or hours.

Daily interval

Specify the actual minute or hour interval. This field only appears if you selected minutes or hours in the Daily frequency field. The default value is 1, meaning that your query will generate statistics every minute or every hour.

Start/End Date/Time

Specify the actual minute or hour interval. This field only appears if you selected minutes or hours in the Daily frequency field. The default value is 1, meaning that your query will generate statistics every minute or every hour.

12.11.4.3 Weekly

This query will run once or several times a day, on one or several days, during one or several weeks.

Figure 12-84 Query frequency: weekly

List of devices	
Frequency Weekly	Frequency interval <input checked="" type="checkbox"/> s <input type="checkbox"/> m <input type="checkbox"/> t <input type="checkbox"/> w <input type="checkbox"/> t <input type="checkbox"/> f <input type="checkbox"/> s
Daily frequency At the specified time	
	Reccurence 1
Start date April 07 2008	End date December 31 2020
Start time hh 19 mm 58 ss 26	End time hh 23 mm 59 ss 59

Daily frequency

Choose how often within one day the query will run. With the default option, the query will be launched at the time defined in the Start time field. You can also choose to launch your query regularly every n minutes or hours.

Daily interval

Specify the minute or hour interval. This field only appears if you selected minutes or hours in the Daily frequency field. The default value is 1, meaning that your query will generate statistics every minute or every hour.

Recurrence

Define the number of weeks between each query launch. The default value is 1, which means that your query will generate statistics every week. To generate statistics every 2 weeks, for example, enter 2 in this field.

Start/End Date/Time

Define the date and time the query will start and end. By default, Start date is the current date and Start time is the current time. When no End date is specified, the query will generate statistics until 31/12/2020 at 23:59:59.

12.11.4.4 Monthly

This setting will schedule a query to run once or several times a day, on one day, during one or several months.

Figure 12-85 Query frequency: monthly

List of devices	
Frequency Monthly	Frequency interval on the 1 day(s) of the month
Daily frequency At the specified time	
	Recurrence 1
Start date April 07 2008	End date December 31 2020
Start time hh 19 mm 58 ss 26	End time hh 23 mm 59 ss 59

Frequency interval

Select the day of the month when the query is launched. The default value is 1, meaning that your query will run on the first day of every month.

Daily frequency

Choose how often within one day the query will run. With the default option, at the specified time the query will be launched at the time defined in the Start time field. You can also choose to launch your query regularly every n minutes or hours.

Daily interval

Specify the actual minute or hour interval. This field only appears if you selected minutes or hours in the Daily frequency field. The default value is 1, meaning that your query will generate statistics every minute or every hour.

Recurrence

Define the number of months between each launching of your query. The default value is 1, which means that your query will generate statistics every month. To generate statistics every 2 months, for example, enter 2 in this field.

Start/End Date/Time

Define the lapse time (date and time) during which the query is launched. By default, Start date is the current date and Start time is the current time. When no End date is specified, the query will generate statistics until 31/12/2020 at 23:59:59.

12.11.4.5 Monthly with relative interval

This setting is the same as the monthly frequency, except you can specify an actual day for the query to run.

Figure 12-86 Query frequency: monthly, with relative interval

List of devices	
Frequency Monthly, with relative interval	Frequency interval Sunday
Daily frequency At the specified time	
Relative interval First	Reccurence 1
Start date April 07 2008	End date December 31 2020
Start time hh 19 mm 58 ss 26	End time hh 23 mm 59 ss 59

Frequency interval

Select one day (such as Monday or Friday). You can also select the Day, Weekday, or Weekend day options.

Relative interval

Choose the week of the month; such as the first week.

Daily frequency

Choose how often within one day the query will run. With the default option, at the specified time the query will be launched at the time defined in the Start time field. You can also choose to launch your query regularly every n minutes or hours.

Daily interval

Specify the minute or hour interval. This field only appears if you selected minutes or hours in the Daily frequency field. The default value is 1, meaning that your query will generate statistics every minute or every hour.

Recurrence

Define the number of months between each launching of your query. The default value is 1, which means that your query will generate statistics every month. To generate statistics every 2 months, for example, enter 2 in this field.

Start/End Date/Time

Define the lapse time (date and time) during which the query is launched. By default, Start date is the current date and Start time is the current time. When no End date is specified, the query will generate statistics until 31/12/2020 at 23:59:59.

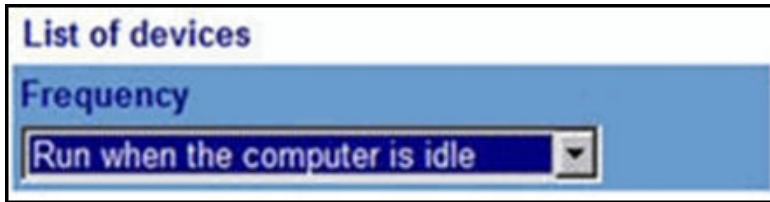
12.11.4.6 Run when idle

When utilizing this process, queries are launched when no other processes are being performed on the database server—such as during off hours.



NOTE: This mode is valid only if SQL Server Agent is used. This query frequency helps you manage statistical reports requiring a lot of information.

Figure 12-87 Query frequency: run when computer dies



12.11.4.7 Modify display parameters

Before launching a query, you can get the list of all information returned by your query. You can also hide some of this information, such as the columns of the tables in which your results are displayed.

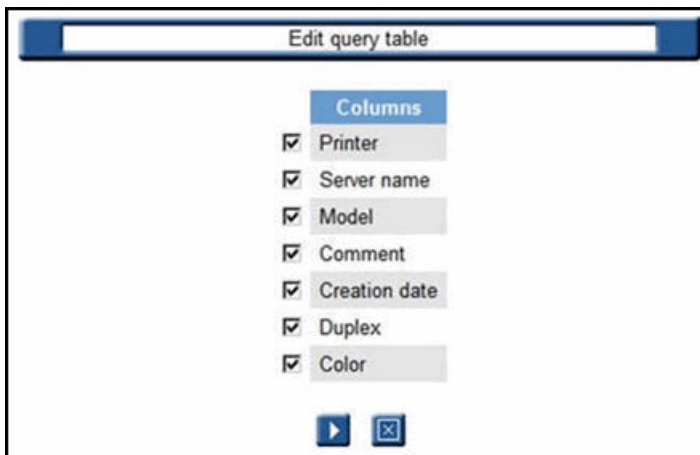
 **NOTE:**


- This function only affects your results display, not the parameters used to obtain these results.
- Although this function is available for all display types (tables, spreadsheets, diagrams) it is not very useful when applied to diagrams (pie charts, line charts, columns).


In the **Queries in Progress** page:

1. Select the query to modify.
2. Click the **Edit results** icon of the selected query. The information returned by this query appears:

Figure 12-88 Edit query table



By default, all information elements are selected. Click the box in front of any elements you want to hide to unselect it. You can unselect multiple elements. Click the Go  icon to accept the selections, or the Cancel

 icon to stop the operation. When this query is subsequently launched, the results will be displayed without including the deselected columns.

12.12 Query results

After a query is launched, the statistics related to that query are pulled from the database. The information is retrieved and transmitted back to the HP AC Job Accounting administrator or user in various display formats (such as a chart, table, or spreadsheet) available for each query.

The statistical reports generated by launching queries are referred to as “results.” Each query result, whatever its format, contains:

- The query name
- The date and time the query was launched
- Parameters
- The number of pages if the spreadsheet or table contains more than one page

The level of detail you will obtain in your query results depends on the printers managed by HP AC Job Accounting, particularly on the printer model, its sophistication level, and the communication language (PCL 5, 5e, 6).

You can modify the display of your query results by hiding some parameters. For more information, see [Section 12.11.4.7, Modify display parameters](#).

You can also change the number of lines displayed in your lists. For more information, see [Section 12.10, HP AC Job Accounting user options](#).

12.12.1 Query table

To obtain the list of the queries you launched or queries in progress and access their results, click **Queries in progress** in the HP AC Job Accounting remote control. All launched queries are displayed in a table containing several columns:

Figure 12-89 Queries in progress

Themes	Query name	Status	Schedule date	Result date	Schedule parameters	Result display	Other display types	Previous results	Edit results
Printers	Printers_4	✓	04/17/2012 10:01:07	04/17/2012 10:01:07	...	...	...		...
Costs	Costs_6	---	04/17/2012 10:00:59		...			2	...
Costs	Costs_5	---	04/17/2012 10:00:50		...			2	...
Printers	Printers_3	✓	04/17/2012 10:00:01	04/17/2012 10:00:01	...	...	...		...
Users	Users_3	✓	04/17/2012 09:55:55	04/17/2012 09:55:56	...	...	...		...

NOTE: You can only view queries attached to your HP AC Job Accounting account.

This table lists the type, status, and schedule of your queries, the date and time when they were launched, the date and time when the result was obtained, and various ways to display their results.

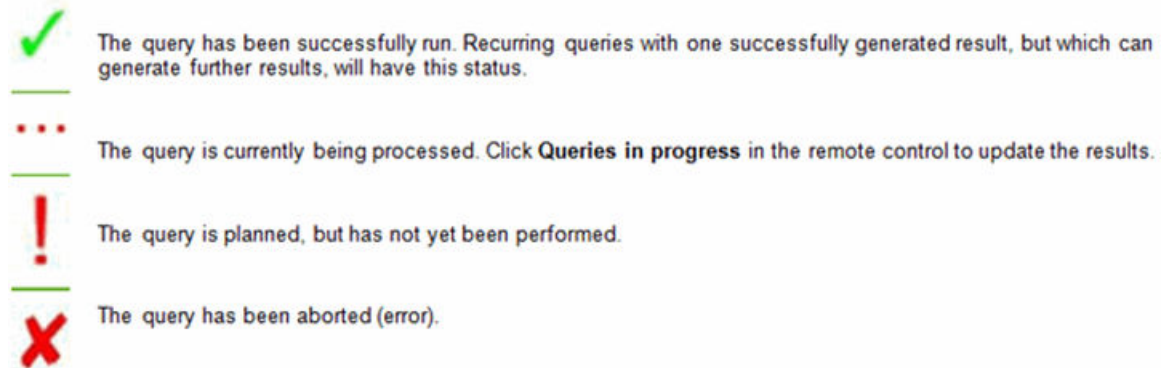
The date format in the charts and in the query table is the format defined in your regional settings. To modify this format, see [Section 12.10, HP AC Job Accounting user options](#).

You can sort the **Themes**, **Query name**, and **Status columns** in alphabetical order by clicking the column title. You can also sort the schedule and result dates by ascending or descending order.


12.12.2 Query status

The **Status** column displays the status of your queries. The possible status results follow:

Figure 12-90 Query status — possible results



12.12.3 Viewing schedule parameters

By keeping your mouse cursor on the Modify  icon, all details related to your query schedule and the **Schedule Parameters** page appears and offers the following options:

- The name you gave to the query (or its default name).
- All details concerning its schedule frequency, such as if it is launched only once or regularly, how often, and for how long. If the **Once frequency** appears in these details without any other parameter, it means that no schedule is specified for this query.

To modify the query parameters or schedule, see [Section 12.12.5.2, Modify parameters](#).

12.12.4 Display results

You can display your results by clicking on one icon in the **Result display** or **Other display types** columns.

These columns are part of the query table, which you access by clicking the **Queries in progress** icon in the HP AC Job Accounting remote control.

Using the icons in these columns, you will be able to display your results in a table or a spreadsheet. To display your results in a spreadsheet or a chart, Excel must be installed on your machine. When sending results by email, only the results in the spreadsheet format are sent. Your results recipients should have Excel installed on their machine.

 **NOTE:** If Microsoft Excel is not installed on the system, the icon will not appear.

12.12.4.1 Information provided

All display types provide you with the following information:

- the name and type of the query
- the date, when the query result was generated
- the parameters (including the printing time range)

This information is listed as in the frame below:

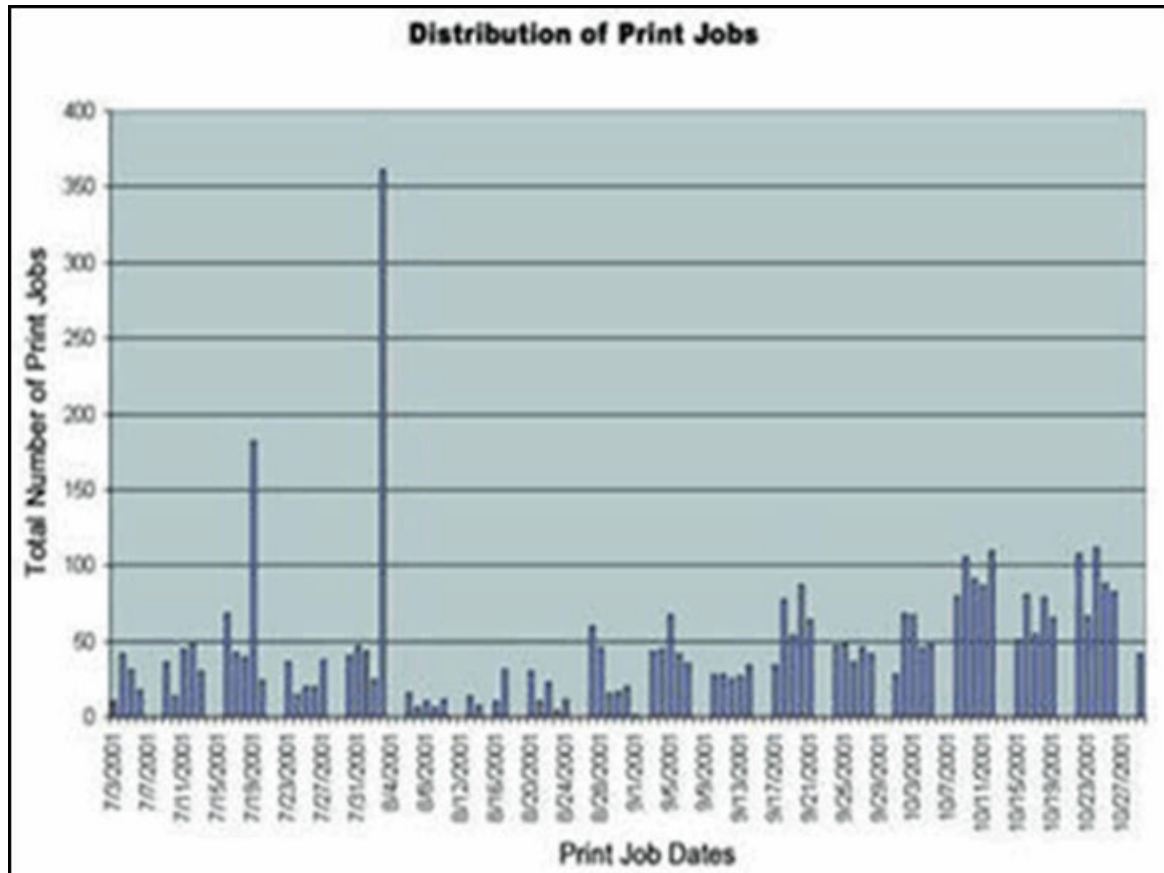
Figure 12-91 Query information

Printing List	
Detailed list of printed documents per domain/group/user	
Result date : 05/11/2004 13:24:24	
Domain :	all
Group :	all
End user :	all
Printing date from :	01/01/2000 00:00:00
To :	12/31/2020 23:59:59
Number of printed pages :	all
Printing cost :	all
Currency :	USD

12.12.5 Display types

Click one icon in the **Result** display and **Other** display types columns to display your results. Each icon corresponds to a specific display type (such as table, graph, or spreadsheet). The various display types follow:

Figure 12-92 Chart display



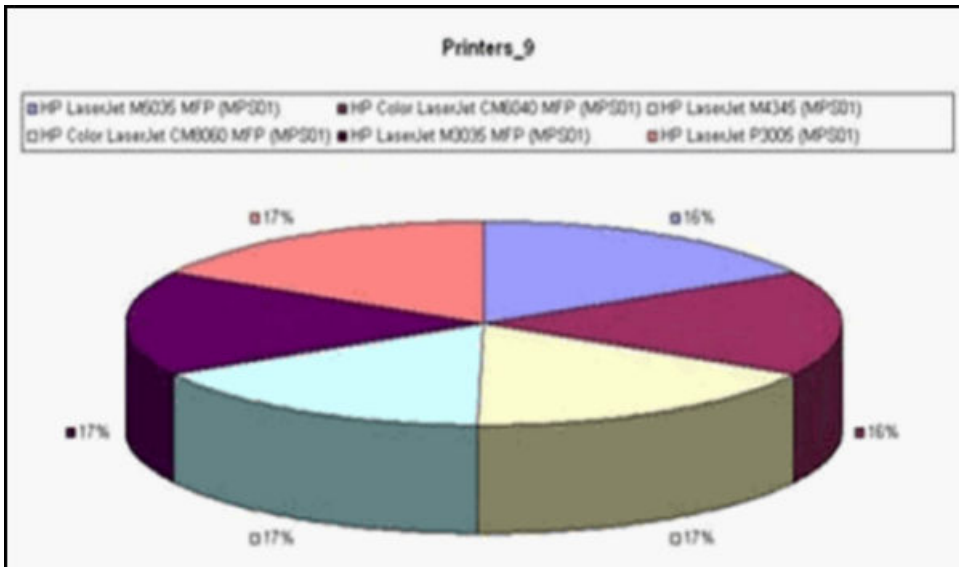
The task bar at the top of the page allows you to choose another chart to display your results. Click directly on the display desired, and it will automatically change.

Figure 12-93 Chart display task bar



Click the **Pie chart** icon to present information in a traditional pie chart, as shown in the figure below:

Figure 12-94 Pie chart



The task bar at the top of the page allows you to choose another type of pie chart to display results. Click directly on the display desired and it will automatically change.

Figure 12-95 Pie chart task bar



Click the Table chart icon to present the information in a table.

Figure 12-96 Table chart

Queries in progress										
	Themes	Query name	Status	Schedule date	Result date	Schedule parameters	Result display	Other display types	Previous results	Edit results
<input type="checkbox"/>	Printers	Printers_4	✓	04/17/2012 10:01:07	04/17/2012 10:01:07					
<input type="checkbox"/>	Costs	Costs_6	---	04/17/2012 10:00:59					2	
<input type="checkbox"/>	Costs	Costs_5	---	04/17/2012 10:00:50					2	
<input type="checkbox"/>	Printers	Printers_3	✓	04/17/2012 10:00:01	04/17/2012 10:00:01					
<input type="checkbox"/>	Users	Users_3	✓	04/17/2012 09:55:55	04/17/2012 09:55:56					

Figure 12-97 Result display

Result display

Costs_1

Printing costs per server/printer model per year
Result date : 02/01/2006 23:01:36

Print server : all
Printer model : all
Printing date from : 01/01/2000 00:00:00
To : 12/31/2020 23:59:59
Currency : USD

Printing date	Total cost
2000	0
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0

1 / 3

You can modify the number of lines displayed in a table in your User options. For more information on how to modify this number, see [Section 12.10, HP AC Job Accounting user options](#).

 **NOTE:**

- If **Copy job** appears in the **Document name** column, the job is a copy job, not a print job.
- The Pull Printing column allows the administrator to view the type of print job (such as if it went via a pull print queue or if it went via a direct print queue).


Document	Location	Estimated black pixels	Estimated yellow pixels	Estimated magenta pixels	Estimated cyan pixels	Pull printing
-	-	0	0	0	0	1
-	-	0	0	0	0	1
-	Unspecified	0	0	0	0	0

Clicking the Excel icon formats the information into a standard Microsoft Excel spreadsheet. This is the only option that allows you to save your query results. To save, use the **Save As** command in Excel.

Figure 12-98 Excel spreadsheet

	A	B	C	D
1	Printers_2			
2	Job allocation, per user			
3	Chart detailing the allocation of printing jobs, per domain			
4	10/4/00 17:52			
5				
6	Domain	=	all	
7	Printing date from ...	=	1/1/90 0:00	
8	To ...	=	12/31/00 23:59	
9	User name	Total jobs		
10	cat ()	18		
11	cat ()	23		
12	Admin (BLUEMEGA)	22		
13	Cindy (BLUEMEGA)	31		
14	John (BLUEMEGA)	36		
15	Paul (BLUEMEGA)	20		
16	Robert (BLUEMEGA)	32		
17				








 **NOTE:** To view your results in a spreadsheet, Excel must be installed on your computer.

 **TIP:** You may have to resize some columns to view the complete contents of a cell, such as when ##### appears in a cell.

Clicking the **Query results** icon lists all results generated by a recurring query. The number next to this icon represents the number of results generated by this recurring query.

When clicking this icon, a new list containing all results and display icons for this query appears, as shown in the figure below:

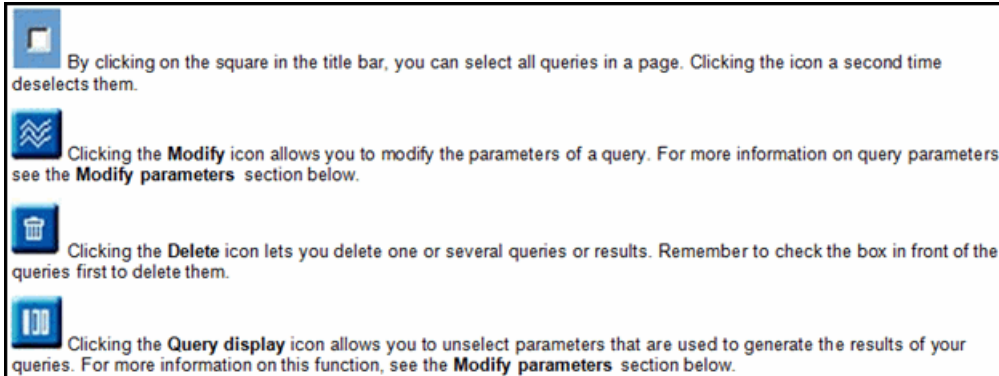
Figure 12-99 Query results


Themes		Queries		Query name	
Users		Detailed list of printed documents per domain/group/user		Usuarios_83	
					
<input type="checkbox"/>	Result date	Result display	Other display types	Edit results	
<input type="checkbox"/>	07/01/2004 11:27:22				
<input type="checkbox"/>	06/25/2004 11:31:11				


12.12.5.1 Manage results


By clicking the **Query in progress** icon in the HP AC Job Accounting remote control, you reach the query table. This table contains the same icons as any HP AC Job Accounting lists.


Figure 12-100 Manage results



 By clicking on the square in the title bar, you can select all queries in a page. Clicking the icon a second time deselects them.

 Clicking the **Modify** icon allows you to modify the parameters of a query. For more information on query parameters, see the **Modify parameters** section below.

 Clicking the **Delete** icon lets you delete one or several queries or results. Remember to check the box in front of the queries first to delete them.

 Clicking the **Query display** icon allows you to unselect parameters that are used to generate the results of your queries. For more information on this function, see the **Modify parameters** section below.

12.12.5.2 Modify parameters

Launching parameters can be modified. This function will be used by recurring queries for which you want to modify or stop the launching mode. The only parameter you cannot change is the query name.

Click the **Modify** icon for this query to bring up the parameters page, as shown in the figure below:

Figure 12-101 Modify query parameters

All parameters (default or defined) appear. For more information on parameters, see [Section 12.11.3, Parameterize queries](#).

Modify your parameters as desired. Click **Schedule** to modify your schedule parameters.


For more information on scheduling your query, see [Section 12.11.4, Schedule queries](#)

Click the Go  icon to launch your query with its new parameters or schedule. You directly reach the query table.


Your new parameters take effect even though the query name stays the same.

12.12.5.3 Modify the display

When you view your query results, you may decide some information is not relevant. You can deselect this information by checking the box in front of a query result in the query table and then clicking the **Query display** icon. The list of the display columns appears. By default, all columns are selected.

Uncheck the box in front of the parameter to remove it, then click the Go  icon to accept your choice. You directly reach the query table.

Unlike the result modification available from the **New query** page as described in [Section 12.11.4.7, Modify display parameters](#), this modification only applies to the selected result. In the case of a recurring query, all results of this query are modified.

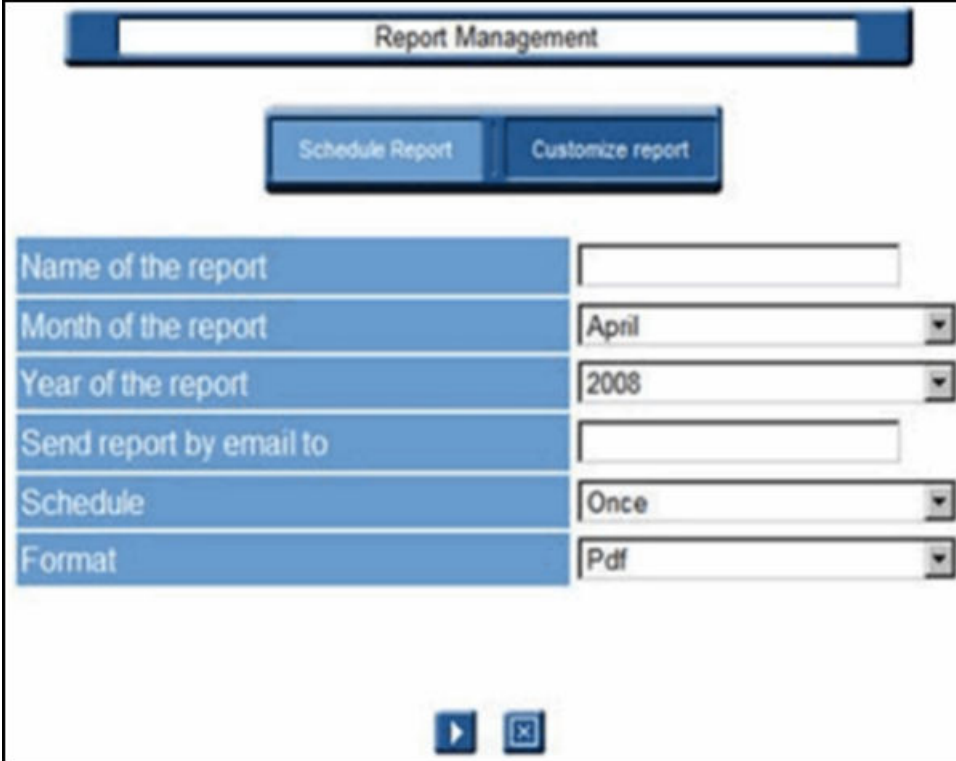
 **CAUTION:** You can only modify the results of one query at a time.

12.13 Report management

12.13.1 Report management page

Click **Summary Report** on the HP AC Job Accounting remote control to access the Report Management page:

Figure 12-102 Report management screen



The screenshot shows a web interface titled "Report Management". At the top, there are two buttons: "Schedule Report" and "Customize report". Below these are several form fields:

Name of the report	<input type="text"/>
Month of the report	April
Year of the report	2008
Send report by email to	<input type="text"/>
Schedule	Once
Format	Pdf

At the bottom of the form, there are two small icons: a play button and a document icon.

Through the **Report Management** page, you can quickly generate comprehensive, all-encompassing reports to illustrate print usage. Since reports have only a few, basic settings, they are much more convenient and easier to run than full queries. Reports can be manually run at any time, or can be scheduled to occur either weekly or monthly.

After a report has been requested and compiled, it can be saved in Adobe Acrobat (PDF), Microsoft Excel (.xls), or Microsoft Word (.doc) format and can be automatically forwarded through email to a designated individual.

12.13.1.1 Create a report

To create a report:

1. In the field **Name of the report**, enter the name you wish to appear on the title page of the report.
2. Choose a month from the **Month of the report** drop-down menu.

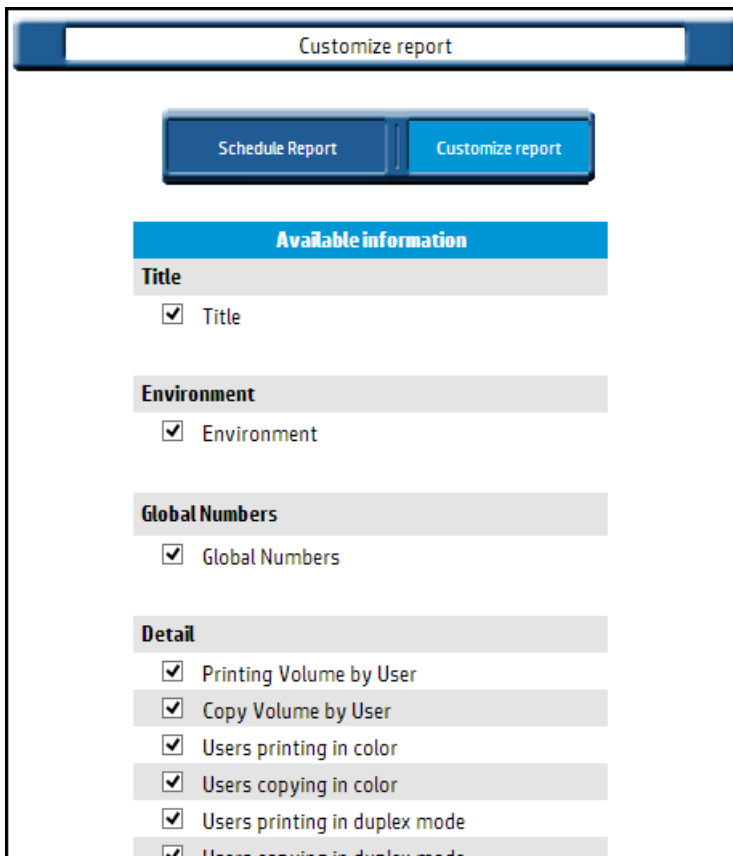


NOTE: Reports contain data from a three-month period ending on the requested month.

3. Select a year from the **Year of the report** drop-down menu.
4. If you wish to forward a copy of the report to someone automatically, enter their email address in the **Send report by email to** field.
5. Schedule the report. Choose an option from the drop-down list:

- **Once** — The report will be generated only once, when validated (Step 7).
 - **Weekly** — The report will be generated weekly, according to the **Day** and **Start time** parameters selected before validation.
 - **Monthly** — The report will be generated monthly, according to the **Day** and **Start time** parameters selected before validation.
6. Format the report. Choose an option from the drop-down list.
 - **PDF** - The report will be generated in a format compatible for reading with Adobe Acrobat Reader.
 - **Excel** - The report will be generated as a Microsoft Excel spreadsheet.
 - **Word** - The report will be generated as a Microsoft Word document.
 7. Click **validate** to generate the report.
 8. Schedule a report. If you choose the **Weekly** or **Monthly** option, click **Schedule Report** after setting schedule parameters.
 9. Customize a report. Click **Customize Report** to set specific parameters for your report.

Figure 12-103 Customize report



The amount of time it takes to generate the report depends on the number of jobs printed over the three-month period. If you wish reports to run automatically in the future, select either **Weekly** or **Monthly** from the **Schedule** drop-down list.

After the report is generated, a link appears on the page.

Figure 12-104 View report link

Report Management

Schedule Report Customize report

Name of the report Tryout

Month of the report April

Year of the report 2008

Send report by email to

Schedule Once

Format Pdf

View the report (4/7/2008 10:46:01 PM)

Click the link to view and print the report using Adobe Acrobat (.pdf), Microsoft Word (.doc), or Microsoft Excel (.xls); or right-click the link and save the report to a location of your choosing.

NOTE: Each new report is saved to the same location with the same name. If you wish to keep a report, save the file to another location before requesting a new report.

12.14 Allocation

The allocation feature allows additional information to be linked to print jobs. This can be useful for determining billing and expenses.

Figure 12-105 Allocation screen

Allocation

Profile Edition Job allocation

Create Profile

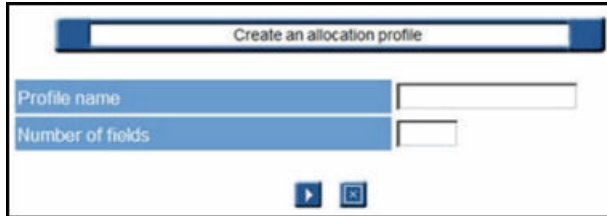
	Profile name	Change profile structure	Modify field values
	Webinar Demo		
	Client		

12.14.1 Create allocation profiles

Use the following steps to create an allocation profile:

1. From the Allocation page, click **Create Profile**.

Figure 12-106 Create allocation profile





2. Name the profile you want to create. Be aware that all profiles must have unique titles; two profiles cannot share the same name.
3. Enter number of fields you want to attach to the profile. This number must be less than or equal to 5.
4. Click the Go  icon to accept the information, or the Cancel  icon to stop the operation.

Figure 12-107 Allocation profile information



Training		
Field name	Data type	Input type
<input type="text"/>	Numeric	Free
<input type="text"/>	Numeric	Free
<input type="text"/>	Numeric	Free
<input type="text"/>	Numeric	Free

5. Give a name to the fields of the profile and specify their data type and their input type.



Possible data types:

- Numeric
- Text
- Date (day/month/year or month/day/year)
- True/False

Possible input types:

- Free (free input in the field when the popup window appears)
- List (predefined list of values)
- Fixed (a value can be fixed by default)

 **NOTE:** The names of the fields must be different. You cannot choose the input type for Boolean.

6. Click the Go  icon to accept the information, or the Cancel  icon to stop the operation.

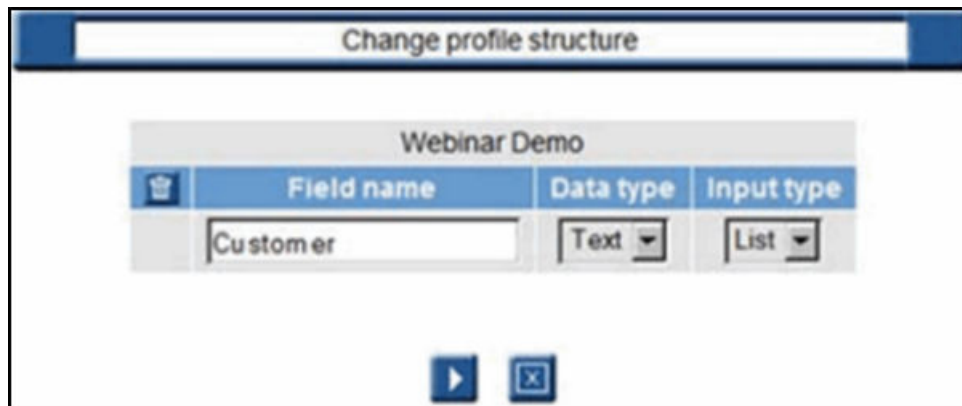
12.14.2 Modify profile structure

You can change the structure of an allocation profile only if it has not been linked to a printed job. Otherwise, the structure cannot be modified.

To edit a profile, select any of the following:

- Click **Change profile structure**:

Figure 12-108 Change profile structure





- Change the **Field name**, **Data type**, or **Input type** of a profile
You can modify a **Field name**, the **Data type**, or the **Input type**.
 - Delete one or more fields in a profile
If no job is linked to the allocation profile, you can delete one or more fields.
1. Click the **change profile structure** icon.
 2. Select the field you want to delete, then click the Delete  icon.

Figure 12-109 Verify delete fields



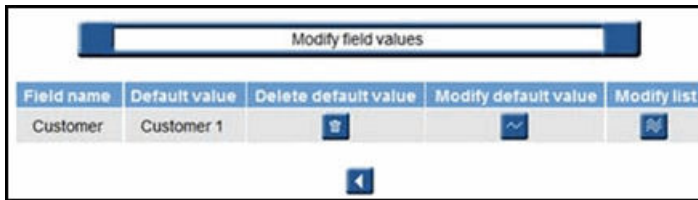
3. Click the Go  icon to accept the deletion, or the Cancel  icon to stop the operation.

12.14.3 Modify field values

In this section we will assign a default value in the fields of a profile.

1. Click **Allocation** on the HP AC Job Accounting remote control.
2. Click **Modify field values**.

Figure 12-110 Modify field value

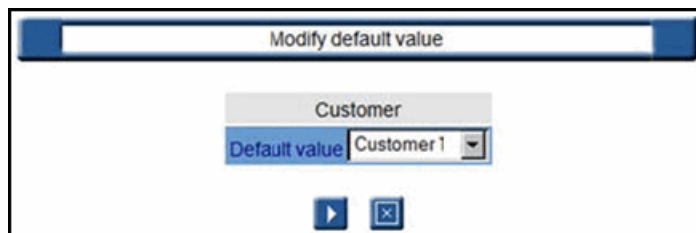


12.14.4 Modify default value

Complete the following steps to modify default values:

1. Click **Modify default value** to assign a default value.

Figure 12-111 Modify default value



NOTE: The appearance of this window may vary according to the input type you previously defined in the field (Free, List, or Fixed).

2. Select your default value and validate. The selected default value will be displayed in the **Default value** column.

NOTE: The default value is the value that is displayed first when the popup window appears.

3. If you need to remove the default value, click the Delete icon to delete it.

12.14.5 Modify list


NOTE: You can access this menu only if you have a field with a List as input type.


Use the following steps to create or modify a list of values:

1. Click **Modify list**:

Figure 12-112 Modify list



2. Enter the value you want to add to your list in the **New value** field and click **Add value** to validate.
3. To delete a value, select one or more and then click the Delete  icon.

 **NOTE:** The names of the values must be different.

12.14.6 Delete allocation profiles

 **NOTE:** You can delete an allocation profile only if no job is linked to this profile.

Use the following steps to delete an allocation profile:

1. Click **Allocation** on the HP AC Job Accounting remote control.

Figure 12-113 Select Allocation to delete





2. Select the profile you want to delete.
3. Click the Delete  icon.

Figure 12-114 Verify delete allocation



4. Click the Go  icon to accept the deletion, or the Cancel  icon to stop the operation.

12.14.7 Link a job to an allocation profile

It is also possible to display the list of the printed jobs with or without allocation information and then link them to a specific profile, as described below:

1. Click **Allocation** in the HP AC Job Accounting remote control.
2. Click **Job Allocation**.

Figure 12-115 Job allocation

The screenshot shows a 'New Query' form with the following fields and options:

- User: [Text input]
- Document name: [Text input]
- Profile name: All profiles [Dropdown]
- Print server: All print servers [Dropdown]
- Printer: All printers [Dropdown]
- Allocated job: Indifferent [Dropdown]
- Allocation Information: Indifferent [Dropdown]
- Printing date from: 01 January 2000 [Date/Time selector]
- To: 31 December 2020 [Date/Time selector]

From this screen, you can use the following filters:

- User (Windows login)
- Document name
- Profile name
- Print server
- Printer
- Allocated (Billed) job (Indifferent/Yes/No)
- Allocation information (Indifferent/Yes/No)

In addition, you can specify a date range when the related jobs were printed. The resulting list of printed jobs can then be linked to an allocation profile after the following page appears:

Figure 12-116 Result display, allocation

The screenshot shows a 'Result display' page with a 'New Query' button and a table of job records:

Document name	User	Creation date	Link profile to job	Allocated/Not allocated	Modify parameters
Test Page	williamb	11/11/2013 1:41:48 PM	+	×	∅
Test Page	williamb	11/11/2013 1:41:47 PM	+	×	∅
Test Page	williamb	11/11/2013 1:38:32 PM	+	×	∅

The above example shows a job that is not billed and not linked to an allocation profile. To link this job to an allocation profile, use the following steps:

1. Click the **Link profile** icon.

Figure 12-117 Add allocation profile parameters




Client	
Client Number	<input type="text"/>
Account Number	<input type="text"/>
bill job	<input checked="" type="checkbox"/>

2. You can use the current profile or choose another one by clicking the Modify  icon


Figure 12-118 Allocation profile

Select a profile	
Profile name	Client

Choose ONE of the available profiles:

- Click the Go  icon to accept the profile, or the Cancel  icon to stop the operation.
- Enter the field values for the selected profile.
- Click the Go  icon to accept again.
- The job is now linked to an allocation profile.

12.14.8 Modify allocation information

 **NOTE:** After a job is linked to a profile, you cannot remove this link. However, changes can be applied to the field values that make up the profile.





1. Search for the job requiring field value changes.
2. Click the Modify  icon to modify the field.

Figure 12-119 Modify allocation information

My profile	
My field1	98
My field2	list value2
My field3	29 June 2002
bill job	<input checked="" type="checkbox"/>

3. Keep the current profile or choose another profile.
4. Change the field values accordingly.
5. Click the Go  icon to accept the modification, or the Cancel  icon to stop the operation.

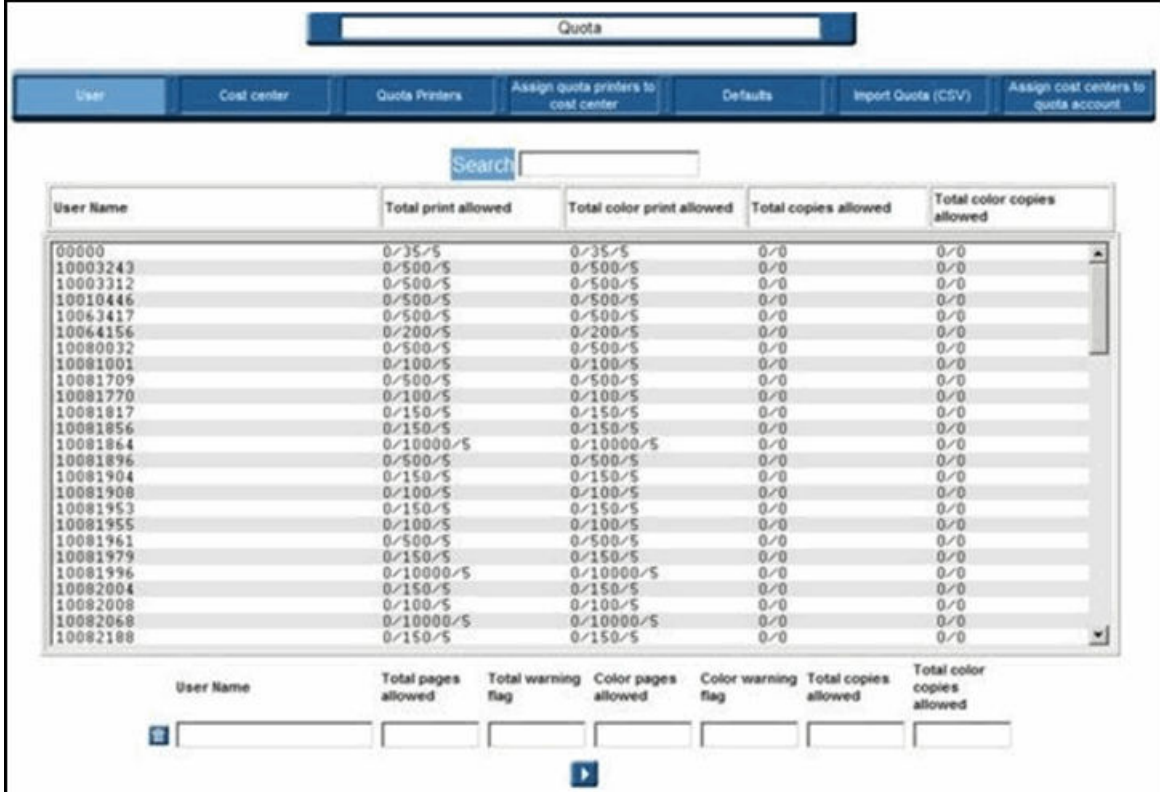
12.15 Quota module

 **NOTE:** Quota is not supported on USB connected devices.

This optional HP AC Job Accounting feature allows the administrator to set limits on how much each user is permitted to print, copy, or digitally send. A customizable warning message will automatically notify the user as they approach their quota limit. After a user has exceeded their limit, any additional jobs are automatically deleted. Quotas can be automatically renewed after a specified time period has elapsed.

To access the Quota Module, click **Quota** in the HP AC Job Accounting tab.

Figure 12-120 Quota module



The screenshot shows the Quota module interface. At the top, there is a search bar and a navigation menu with options: User, Cost center, Quota Printers, Assign quota printers to cost center, Defaults, Import Quota (CSV), and Assign cost centers to quota account. Below the navigation menu is a search field. The main area contains a table with the following columns: User Name, Total print allowed, Total color print allowed, Total copies allowed, and Total color copies allowed. The table lists various user IDs and their corresponding quotas. At the bottom of the interface, there is a summary section with input fields for User Name, Total pages allowed, Total warning flag, Color pages allowed, Color warning flag, Total copies allowed, and Total color copies allowed.

User Name	Total print allowed	Total color print allowed	Total copies allowed	Total color copies allowed
00000	0/35/5	0/35/5	0/0	0/0
10003243	0/500/5	0/500/5	0/0	0/0
10003312	0/500/5	0/500/5	0/0	0/0
10010446	0/500/5	0/500/5	0/0	0/0
10063417	0/500/5	0/500/5	0/0	0/0
10064156	0/200/5	0/200/5	0/0	0/0
10080032	0/500/5	0/500/5	0/0	0/0
10081001	0/100/5	0/100/5	0/0	0/0
10081709	0/500/5	0/500/5	0/0	0/0
10081770	0/100/5	0/100/5	0/0	0/0
10081817	0/150/5	0/150/5	0/0	0/0
10081856	0/150/5	0/150/5	0/0	0/0
10081864	0/10000/5	0/10000/5	0/0	0/0
10081896	0/500/5	0/500/5	0/0	0/0
10081904	0/150/5	0/150/5	0/0	0/0
10081908	0/100/5	0/100/5	0/0	0/0
10081953	0/150/5	0/150/5	0/0	0/0
10081955	0/100/5	0/100/5	0/0	0/0
10081961	0/500/5	0/500/5	0/0	0/0
10081979	0/150/5	0/150/5	0/0	0/0
10081996	0/10000/5	0/10000/5	0/0	0/0
10082004	0/150/5	0/150/5	0/0	0/0
10082008	0/100/5	0/100/5	0/0	0/0
10082068	0/10000/5	0/10000/5	0/0	0/0
10082188	0/150/5	0/150/5	0/0	0/0

The default **Quota** screen is the User screen, which provides the following information:

1. Specific user names
2. Total number of pages the user is allowed to print/copy/digitally send
3. Total number of pages the user has printed/copied/digitally sent so far
4. Total number of pages remaining for the user
5. Total number of pages remaining before the user is notified with a warning that they are approaching their printing limit
6. Number of color pages the user is allowed to print/copy/digitally send

7. Number of color pages the user has printed/copied/digitally sent so far
8. Number of color pages remaining for the user
9. Number of color pages remaining before the user is notified with a warning that they are approaching their limit of available color pages

12.15.1 Quota defaults

Default quota values are automatically assigned as users are added to the Quota table. After the default quota is assigned to a user, it can easily be modified later as needed.

To access the Quota Defaults screen, click **Defaults** in the menu bar at the top of the Quota page.

The duration of the quota period can be Daily, Weekly, Biweekly, Monthly, or Quarterly. After the specified duration has lapsed, Quota Auto Review can be checked to instruct HP AC Job Accounting to renew a user's quota automatically upon completion of the specified time period.

CAUTION: Make sure the **Quota Auto Review** option is checked. If left unchecked, the user will still be unable to print after the quota period has ended.

Figure 12-121 Quota defaults

The screenshot shows the 'Quota Defaults' configuration page. At the top, there is a title bar labeled 'Quota' and a navigation menu with four items: 'User', 'Quota Printers', 'Defaults', and 'Import Quota (CSV)'. The 'Defaults' tab is currently selected.

Below the menu, there are two columns of settings:

- Mode:**
 - Quota by user
 - Quota by cost center
 - Quota by user and cost center
 - Quota by printer cost center
 - Enable quota for print
 - Enable quota for copies
 - Enable quota for digital sending
- Quota Period:**
 - Daily
 - Weekly
 - Bi-Weekly
 - Monthly
 - Quarterly
 - Quota Auto Renew

Below these settings are two sections:

- User:**
 - Default page limit:
 - Default total warning flag:
 - Default color page limit:
 - Default color warning flag:
- Text:**
 - Warning total flag message:
 - No more total pages message:
 - Warning color flag message:
 - No more color pages message:

On this page, you can perform the following:

Quota mode

- Quota by user
- Quota by cost center
- Quota by user and cost center
- Quota by printer cost center
- Enable quota for print
- Enable quota for copies
- Enable quota for digital sending

User functions

- Set a **Default page limit** (the maximum number of total pages the user can print/copy/digitally send)
- Set a **Default total warning flag** (total number of pages before quota is reached)
- Set a **Default color page limit** (the maximum number of color pages the user can print/copy/ digitally send)
- Set a **Default color warning flag** (number of color pages before quota is reached)

Cost center functions

- Set a **Default page limit** (the maximum number of total pages the cost center can print/copy/ digitally send)
- Set a **Default total warning flag** (total number of pages before quota is reached)
- Set a **Default color page limit** (the maximum number of color pages the cost center can print/ copy/digitally send)
- Set a **Default color warning flag** (number of color pages before quota is reached)

Printer cost center functions

- Set a **Default page limit** (the maximum number of total pages the cost center can print/copy/ digitally send)
- Set a **Default total warning flag** (total number of page before quota is reached)
- Set a **Default color page limit** (the maximum number of color pages the cost center can print/ copy/digitally send)
- Set a **Default color warning flag** (number of color pages before quota is reached)

Text functions

- Create a custom **Warning total flag message** (message the user receives when they are approaching their quota for the total number of printed pages)
- Create a custom **No more total pages message** (message the user receives after their quota has been reached for the total number of printed pages)
- Create a custom **Warning color flag message** (message the user receives when they are approaching their quota for the number of printed color pages)
- Create a custom **No more color pages message** (message the user receives after their color page quota has been reached for the number of printed color pages)



NOTE: Users must have Messenger service enabled to receive quota messages. Messenger service is not available on Vista—quota will work, but the end-user will not be notified.

12.15.2 Quota user

The first time a user sends a job to a printer with a quota assigned, they are automatically added to the table using default values. In addition to providing basic information, the User page can also be used to alter quota settings on a case-by-case basis.

To access the User page, click **User** in the menu bar at the top of the Quota page.

Figure 12-122 Quota user

User Name	Total print allowed	Total color print allowed	Total copies allowed	Total color copies allowed
00000	0/35/\$	0/35/\$	0/0	0/0
10003243	0/500/\$	0/500/\$	0/0	0/0
10003312	0/500/\$	0/500/\$	0/0	0/0
10010446	0/500/\$	0/500/\$	0/0	0/0
10063417	0/500/\$	0/500/\$	0/0	0/0
10064156	0/200/\$	0/200/\$	0/0	0/0
10080032	0/500/\$	0/500/\$	0/0	0/0
10081001	0/100/\$	0/100/\$	0/0	0/0
10081709	0/500/\$	0/500/\$	0/0	0/0
10081770	0/100/\$	0/100/\$	0/0	0/0
10081817	0/150/\$	0/150/\$	0/0	0/0
10081856	0/150/\$	0/150/\$	0/0	0/0
10081864	0/10000/\$	0/10000/\$	0/0	0/0
10081896	0/500/\$	0/500/\$	0/0	0/0
10081904	0/150/\$	0/150/\$	0/0	0/0
10081908	0/100/\$	0/100/\$	0/0	0/0
10081953	0/150/\$	0/150/\$	0/0	0/0
10081955	0/100/\$	0/100/\$	0/0	0/0
10081961	0/500/\$	0/500/\$	0/0	0/0
10081979	0/150/\$	0/150/\$	0/0	0/0
10081996	0/10000/\$	0/10000/\$	0/0	0/0
10082004	0/150/\$	0/150/\$	0/0	0/0
10082008	0/100/\$	0/100/\$	0/0	0/0
10082068	0/10000/\$	0/10000/\$	0/0	0/0
10082188	0/150/\$	0/150/\$	0/0	0/0

Fields provided:

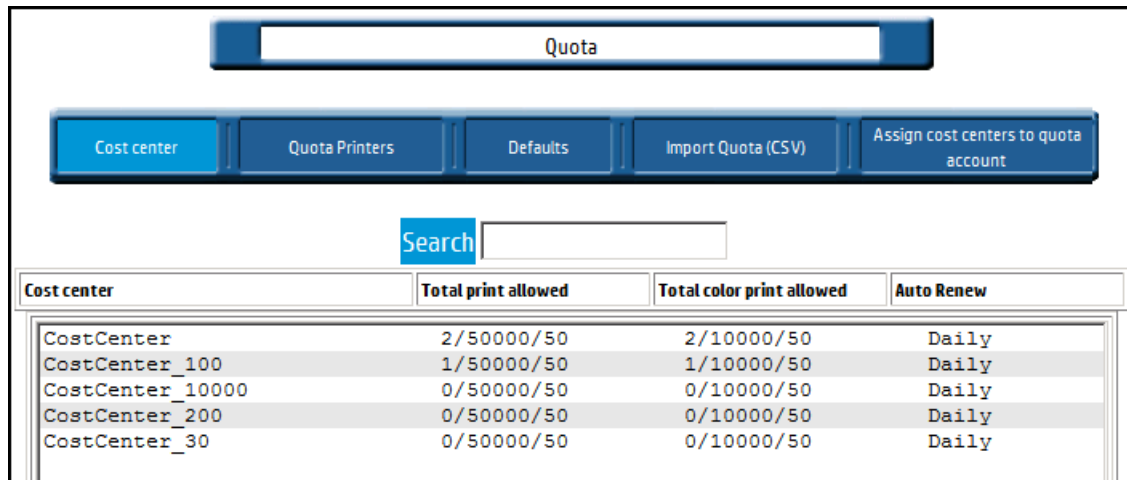
- Specific user names
- Total number of pages the user is allowed to print/copy/digitally send
- Total number of pages the user has printed/copied/digitally sent so far
- Total number of pages remaining for the user
- Total number of pages remaining before the user is notified with a warning that they are approaching their printing limit
- Number of color pages the user is allowed to print/copy/digitally send
- Number of color pages the user has printed/copied/digitally sent so far
- Number of color pages remaining for the user
- Number of color pages remaining before the user is notified with a warning that they are approaching their limit of available color pages

The selected user can be removed from the quota list by clicking **Delete**.

12.15.3 Quota cost center

To access the Quota Cost Center page, click **Cost Center** in the menu bar at the top of the Quota page.

Figure 12-123 Quota cost center



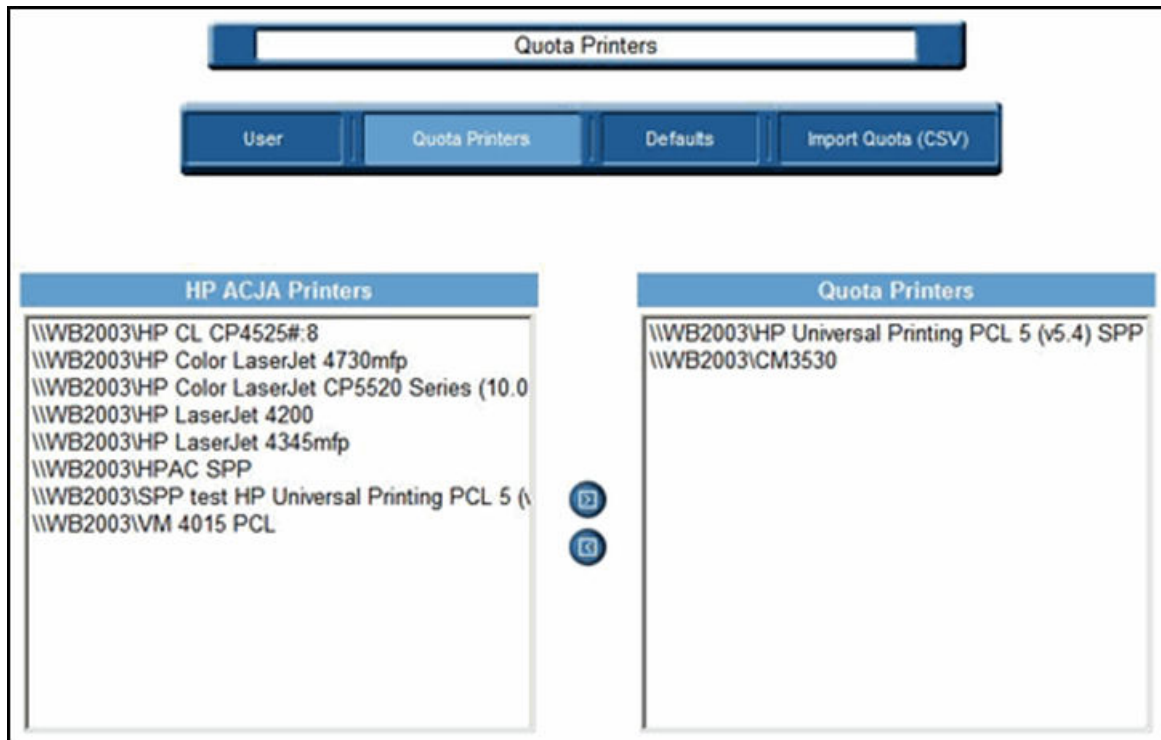
Fields provided:

- Specific Cost Center names
- Total number of pages the cost center is allowed to print/copy/digitally send
- Total number of pages the cost center has printed/copied/digitally sent so far
- Total number of pages remaining for the cost center
- Total number of pages remaining before the cost center is notified with a warning that they are approaching their printing limit
- Number of color pages the cost center is allowed to print/copy/digitally send
- Number of color pages the cost center has printed/copied/digitally sent so far
- Number of color pages remaining for the cost center
- Number of color pages remaining before the cost center is notified with a warning that they are approaching their limit of available color pages

12.15.4 Quota printers

To access this feature, click **Printers** in the menu bar at the top of the Quota page.

Figure 12-124 Quota printers



To designate an HP AC Job Accounting Printer as a Quota Printer, select the HP AC Job Accounting Printer in the left screen and click the Move right icon to move it to the right screen.

This is used only for printers with the HP AC Agent authentication solution, when Quota for copy/digital sending is enabled.

When quota control is done using HP AC Job Accounting Print Server, the quota printer is automatically added to the quota list when Quota is enabled and the web service has been configured properly.

12.15.5 Assign quota printers to cost center

To access this feature, click **Assign quota printers to cost center** in the menu bar at the top of the Quota page.

Figure 12-125 Assign to cost center



To assign cost centers to a quota printer, select the quota printer in the left screen, select the cost centers in the right screen, and then click **Assign**.



NOTE: This is used only when the mode **Quota by printer cost center** is selected.

In this mode, the user must be assigned to a cost center to be able to print. A printer can belong to multiple cost centers.

- If a user prints to a printer that belongs to the same cost center, the quota cost center will be used.
- If a user prints to a printer that does not belong to the same cost center, the default quota will be used.

Each cost center can have a different renewal period.

12.15.6 Import quota

To access this feature, click **Import Quota (CSV)** in the menu bar at the top of the Quota page.

Figure 12-126 Import quota

The screenshot shows a web interface for managing quotas. At the top, there is a breadcrumb trail labeled 'Quota'. Below it are four tabs: 'User', 'Quota Printers', 'Defaults', and 'Import Quota (CSV)'. The 'Import Quota (CSV)' tab is active. Underneath, there are two buttons: 'Import Quota (CSV)' and 'View import log'. The main form is titled 'Import Quota (CSV)' and contains the following fields and options:

- A file selection field with a 'Browse...' button.
- A checkbox labeled 'Use a csv with header'.
- A text input field for 'Cost center column' with the value '0'.
- A text input field for 'User name column' with the value '0'.
- A text input field for 'Total print allowed' with the value '0'.
- A text input field for 'Total color print allowed' with the value '0'.
- A text input field for 'CSV separator' with the value ','.
- A blue play button at the bottom.

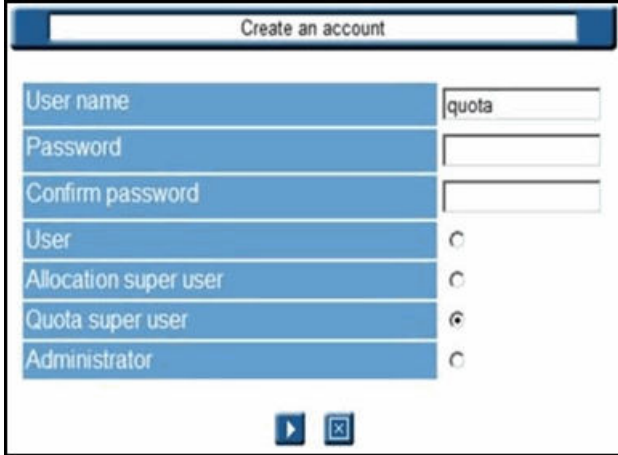
A CSV file containing the user name, cost center, quota values, and quota renewal can be imported into the database.

1. Browse to select the CSV file.
2. Assign the column number to the corresponding field.
3. If the CSV file does not contain the information, leave **0** as the value. Auto-renew values are:
 - 0: disabled
 - 1: Daily
 - 2: Weekly
 - 3: Monthly
 - 4: Quarterly
 - 5: Bi-weekly
4. Select the separator in the CSV file (the default is a comma).
5. Click **Import file** to import the CSV file.
6. Click **View import log** to see a log of the import process.
7. Click the **Delete** icon to delete the log.

12.15.7 Assign cost centers to quota account

To access this feature, click **Assign cost centers to quota account** in the menu bar at the top of the Quota page. In the administration/account menu, you can create a **Quota super user** account.

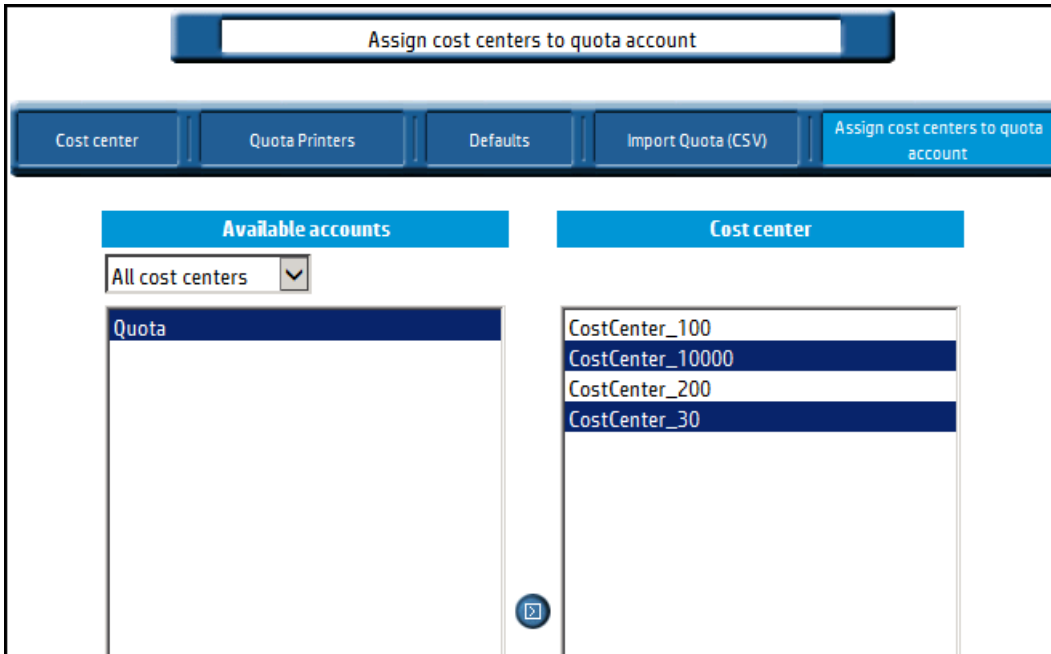
Figure 12-127 Create an account



Create an account	
User name	quota
Password	
Confirm password	
User	<input type="radio"/>
Allocation super user	<input type="radio"/>
Quota super user	<input checked="" type="radio"/>
Administrator	<input type="radio"/>

To assign cost centers to a Quota support user, select **Quota super user** in the left screen, select the cost centers in the right screen, and then click the **Assign** icon.

Figure 12-128 Assign cost center



Assign cost centers to quota account				
Cost center	Quota Printers	Defaults	Import Quota (CSV)	Assign cost centers to quota account
Available accounts		Cost center		
All cost centers				
Quota		CostCenter_100		
		CostCenter_10000		
		CostCenter_200		
		CostCenter_30		

When the quota user logs on to the application, they have the same rights as a regular HP AC Job Accounting user. The quota user also has access to the quota menu and can manage cost center quotas and the users belonging to these cost centers.

Figure 12-129 Manage cost center quotas

Cost center	Total print allowed	Total color print allowed	Total copies allowed	Total color copies allowed	Auto Renew
prnDiana_200	0/200/5	0/200/5	0/0	0/0	Daily
prnSesana1_10000	0/35/5	0/35/5	0/0	0/0	Weekly

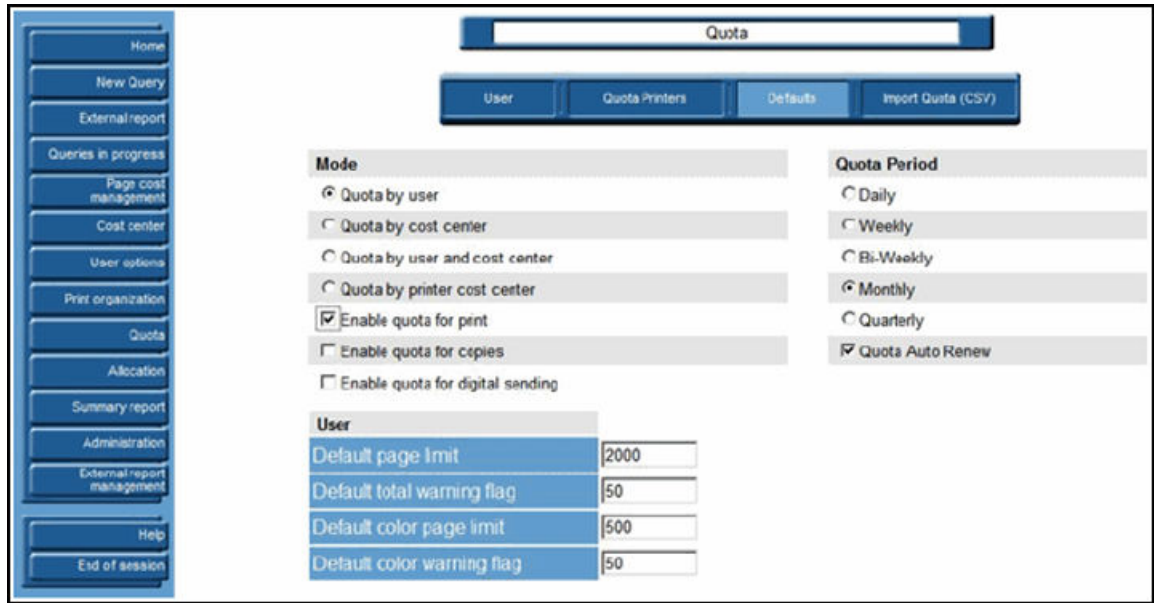
Cost center	Total pages allowed	Total warning flag	Color pages allowed	Color warning flag	Total copies allowed	Total color copies allowed	Auto Renew
prnDiana_200	200	5	200	5	0	0	Daily

12.15.8 Configure quota for printing using print server

To configure quota for printing on a device using the print server, complete the following steps:

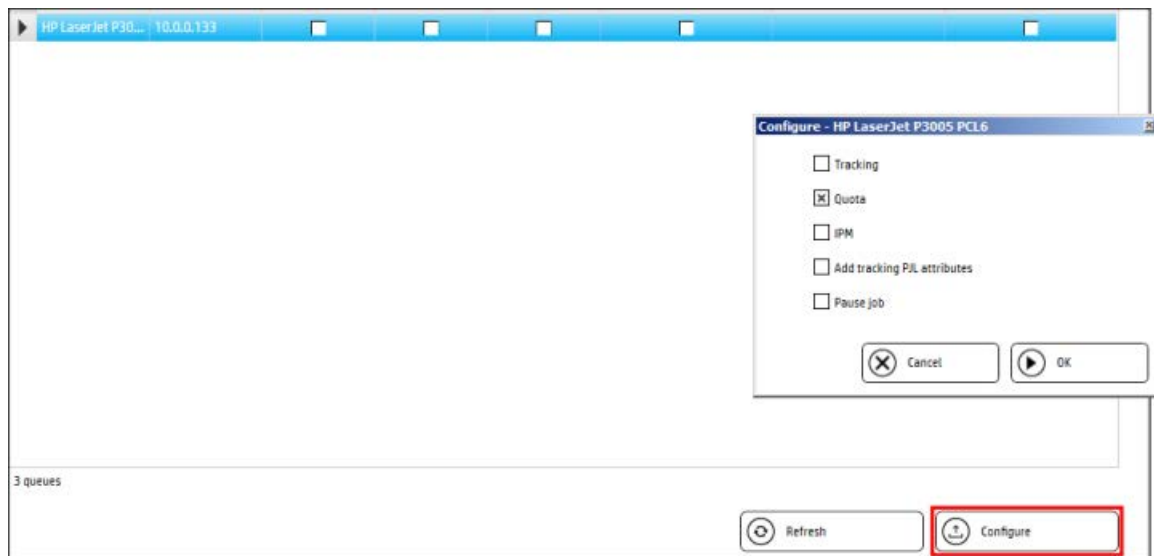
1. Enable quota for print in HP AC Job Accounting.
 - a. In the HP AC Job Accounting Quota module, go to the **Defaults** page.
 - b. Click **Enable quota for print** checkbox.

Figure 12-130 Enable quota for print



2. Go to the Print server tile, select a device, then click **Configure**. In the Configure window, select **Tracking** and **Quota**. Click **OK**.

Figure 12-131 Print server quota



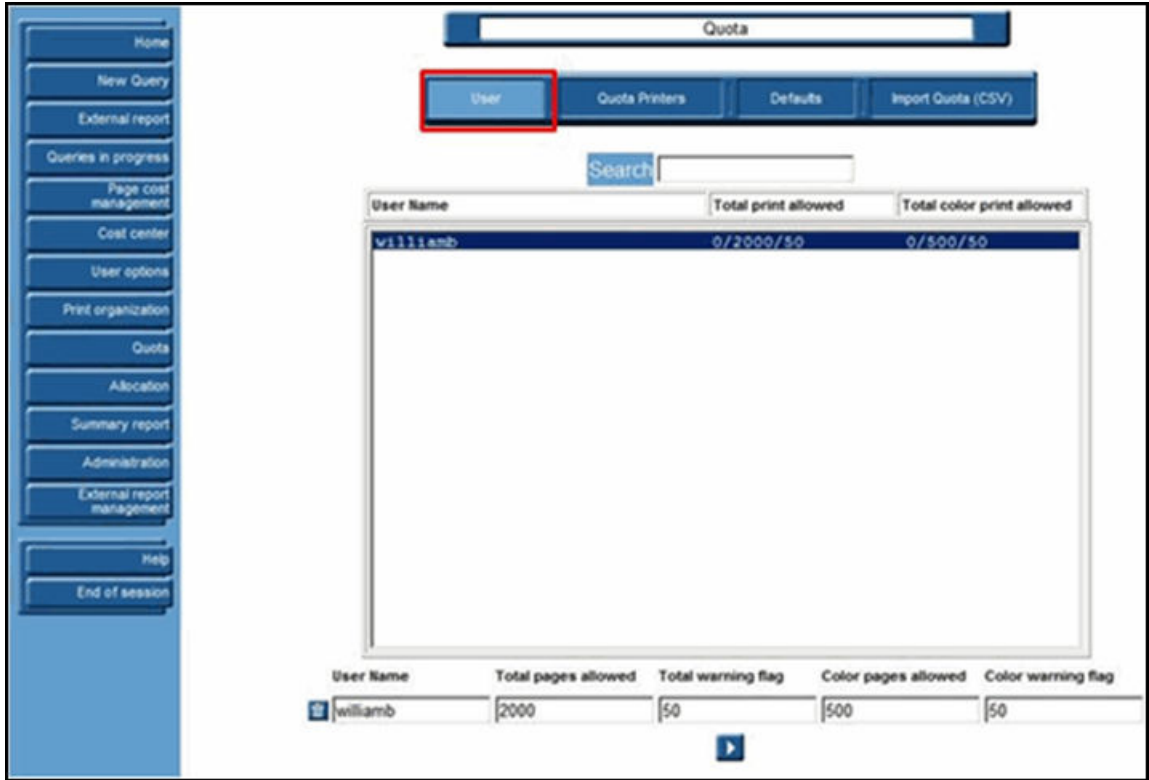
12.15.9 Adding new users to the quota control

The following sections include methods to add users to the quota control.

12.15.9.1 First print

A user is added to the quota control after the user sends his or her first print job to a device configured with quota. To view the user's name in the Quota User list, go to the HP AC Job Accounting Quota module and then click **User**.

Figure 12-132 User button

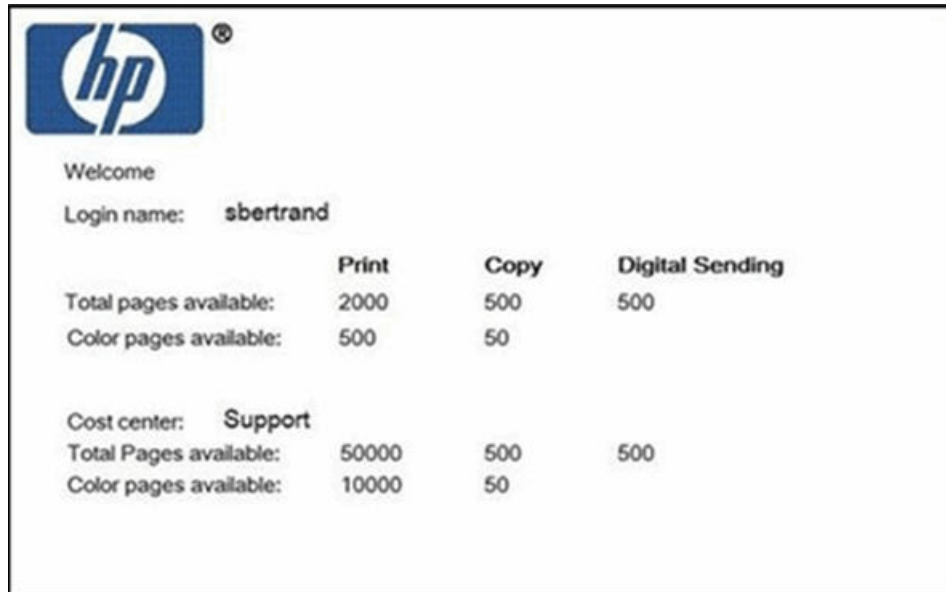


12.15.9.2 First access to the MyQuota

A user is added to the quota control after the user sends his or her first print job to a device configured with quota. To view the user's name in the Quota User list, go to the HP AC Job Accounting Quota module and then click User.

1. Open a Web browser and enter the following in the address bar:
`http://<servername>/myquota`
2. Where <servername> is the name of the server that has the HP AC Job Accounting quota web service installed.

Figure 12-133 Welcome screen



12.15.9.3 First install of Quota Client

A user is added to the quota control after the Quota Client is first installed on the user's desktop. You can install the Quota Client on the end-user desktop by running the "HP AC Job Accounting QuotaClient.msi" file from the following folder:

\\clients folder located in the HP AC installation zip file.

Installation requires knowledge of the server name where the HP AC Job Accounting quota web service is installed.

The quota client will display a printer icon on the tray bar of the desktop that shows the quota limit for the user that is logged into the desktop.

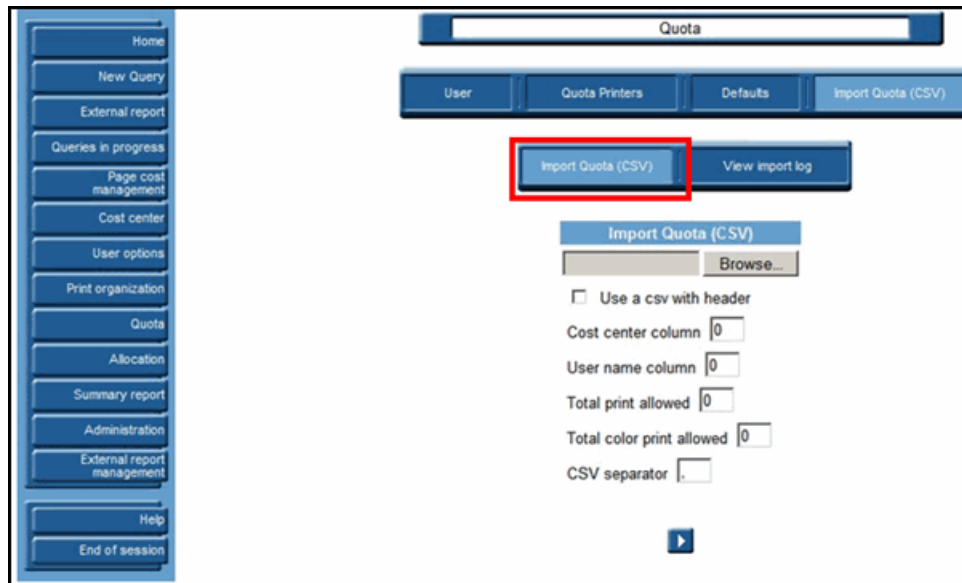
12.15.9.4 Import quota

You can also manually import users for quota control. Follow the steps below to import users.

1. Go to the HP AC Job Accounting Quota module.

2. Click **Import Quota (CSV)**

Figure 12-134 Import Quota



3. Click the **Browse** button to browse for and select the CSV file.
4. Click the **Use a csv with header** checkbox to accurately import a CSV file with a header.
5. Enter the correct values in the following fields to determine the correct locations of information in the CSV file: Cost center column, User name column, Total print allowed, Total color print allowed, CSV separator.
6. Click the **Import file** button to import the CSV file.

12.15.10 End user notification

There are two options available to notify the end user of their quota status:

- Quota client
- MyQuota website

12.16 Quota Client

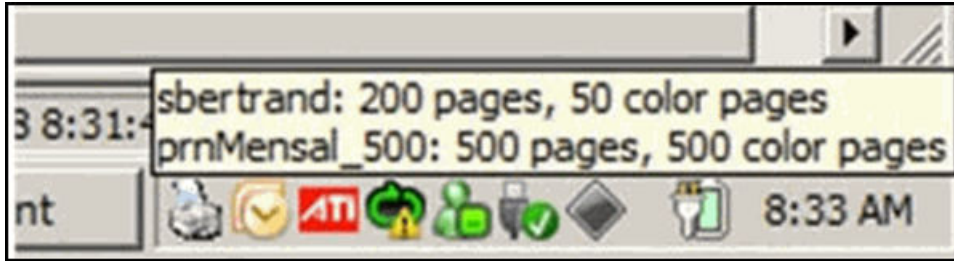
You can install the Quota Client on the end-user desktop by running the "HP AC JOB ACCOUNTING QuotaClient.msi" file from the following folder:

\\clients folder located in the HP AC installation zip file.

Installation requires knowledge of the server name where the HP AC Job Accounting quota web service is installed.

The quota client will display a printer icon on the tray bar of the desktop that shows the quota limit for the user that is logged into the desktop.

Figure 12-135 User quota limit



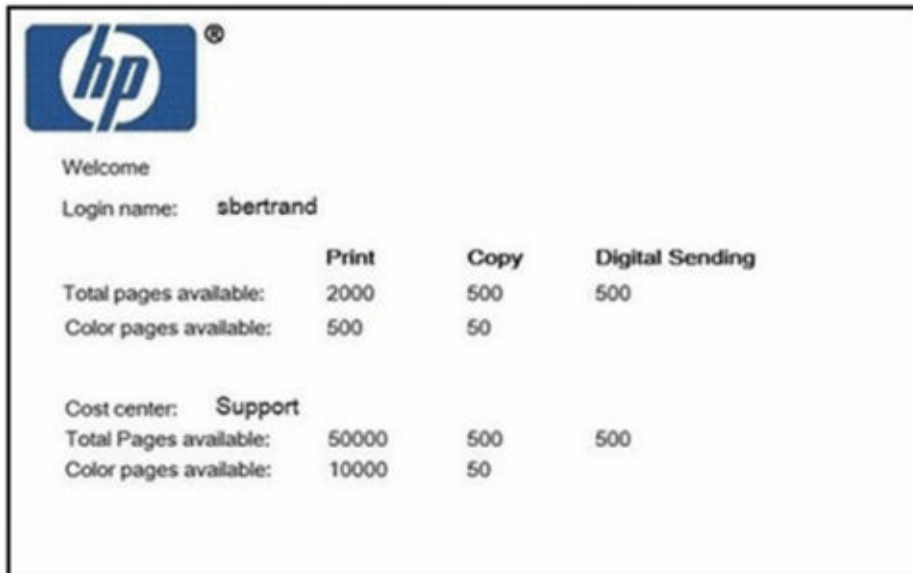
12.17 MyQuota website

End-users can access the MyQuota website to view their login's quota status. Open a Web browser and type the following in the address bar:

`http://<servername>/myquota`

Where <servername> is the name of the server that has the HP AC Job Accounting quota web service installed.

Figure 12-136 MyQuota web interface



12.18 Job Accounting Print Client

To track local printers connected to client desktops via USB, LPT1 or Standard TCP/IP port, install the Job Accounting Print Client. The Job Accounting Print Client is installed on client desktops where local print activity is tracked and then sent to the Job Accounting Database Server.

1. Copy the HP AC Job Accounting Print Client application from the server (located in the HP AC installation zip file in the \clients folder) to the client desktop.
2. Run the HP AC Job Accounting Print Client application on the client desktop and follow the on-screen instructions.
3. On the Setup Type screen, select one of the following configuration modes:

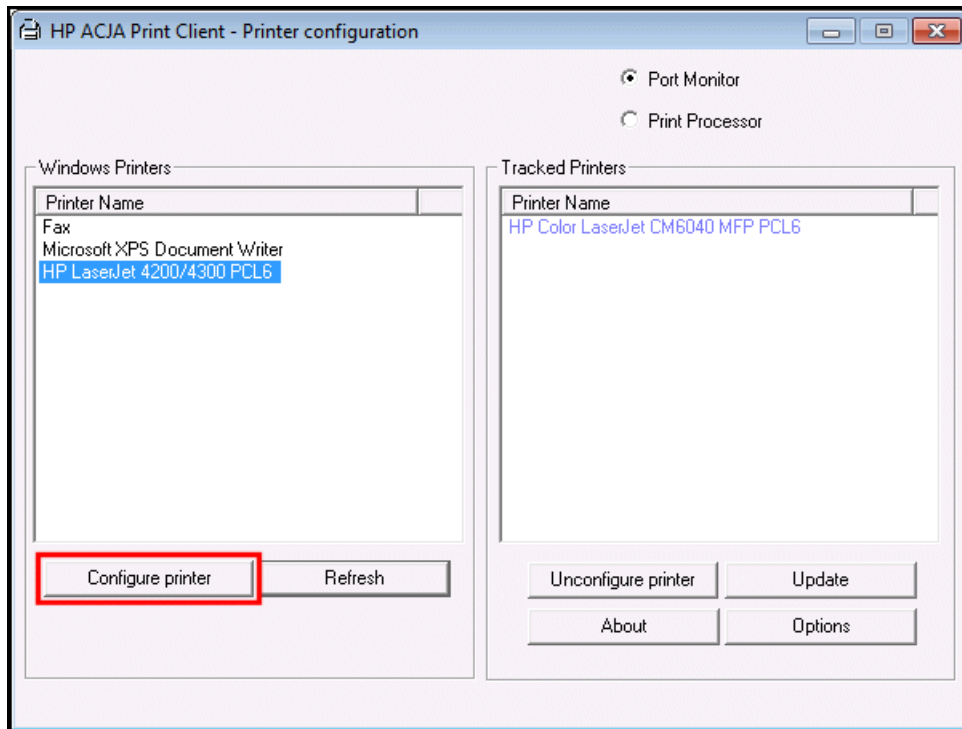
- **Automatic using print processor** configures all printers connected via USB.
- **Automatic using port monitor** configures all printers connected via Local Port or Standard TCP/IP Port.
- **Manual configuration** requires you to manually configure printers with Printer Configuration tool.

Click **Next**.

4. On the Select Features screen, select **Track Novell** if you want to use the Novell protocol. Click **Next**.
5. Select **HTTP** or **FTP** as the desired transfer protocol to upload print tracking data to the Job Accounting Database Server. Click **Next**.
6. In the Server field, type the name or IP address of the Job Accounting server. Click **Next**. Click **Finish**.

If you selected **Manual configuration** during the HP AC Job Accounting Print Client installation, go to **Start > All Programs > HP Access Control Job Accounting**, then click **Printer Configuration**. In the Printer Configuration application, select installed printers from the Windows Printers list, then click **Configure printer**.

Figure 12-137 Job Accounting client — Printer configuration



Configured printers display in the **Tracked Printers** list on the right.

12.19 External reports

Select **External report management** on the Remote Control to set up the HP AC Job Accounting report server for external reporting functions. Use External Reporting to create and distribute reports with the following useful features:

- Schedule off-line execution of reports to minimize processing time.
- Maintain a history of executed reports (useful when existing data is changed frequently).

 **NOTE:** A working knowledge of SQL Reporting Services is required to use the **External Reporting** functions.

12.19.1 Report activities

The **External Reporting** process is comprised of three activities:

Report Authoring

The process of defining the report parameters, properties, style, and user activity.

Report Management

The administration of the published report.

Report Delivery

Delivering reports to end-users.

The actions required to set up the report server in HP AC Job Accounting are:

1. Set up and validate **Source**, **Model**, and **Report** folders.
2. Create and validate a data source.
3. Upload a model.
4. Assign a data source to the model and validate.
5. Upload a report.
6. Assign a model to the report and validate.

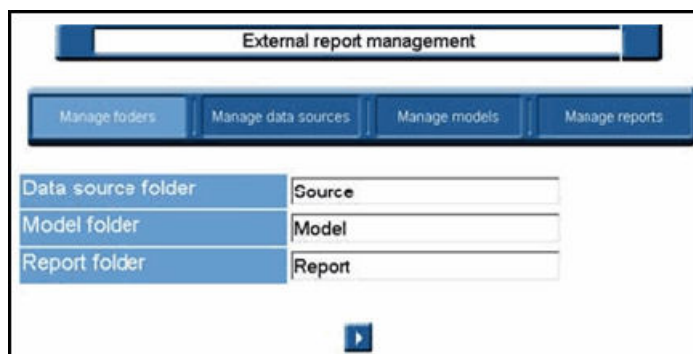
 **NOTE:** The actions above must be performed in the listed sequence to correctly configure the report server.

12.19.2 External report management

Four management functions are available on the **External report management** screen:

- Manage folders
- Manage data sources
- Manage models
- Manage reports

Figure 12-138 External report management



12.19.3 Manage folders


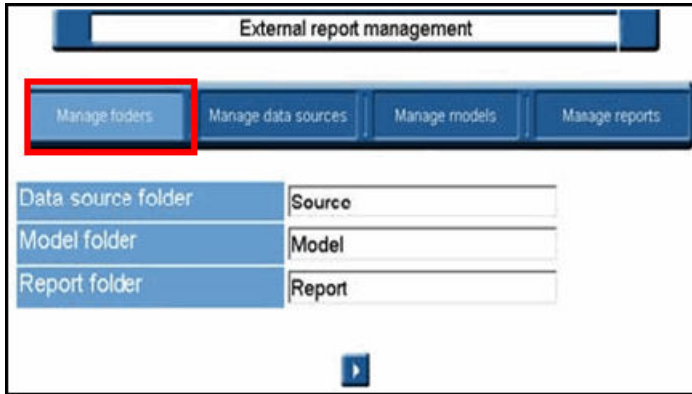
The fields for the **Data source folder**, **Model folder**, and **Report folder** must contain a name. Default names are provided during installation (Source, Model, Report). Type an alternative name, if desired, in any field and click the Go  icon to save the change.

Figure 12-139 Manage folders button




12.19.4 Manage data sources

Use the **Manage data sources** screen to add or delete report data sources.

Figure 12-140 Manage data sources

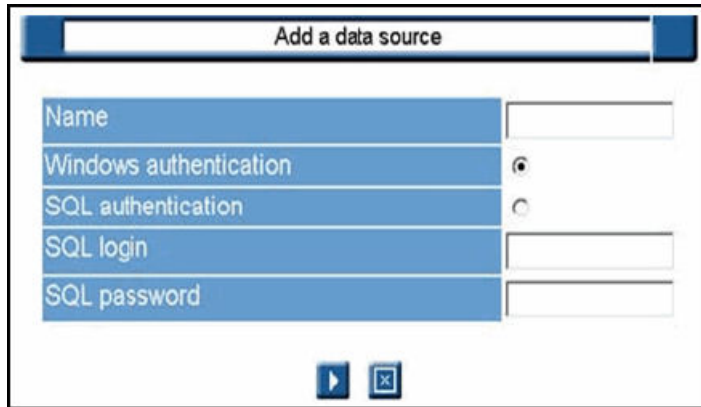


- To add a data source, click **Add a data source** button.
- To delete a data source, click the selection box and then click the Delete  icon.
- To return to the **External report management** screen, click the Back icon.

12.19.5 Add a data source



Use the **Add a data source** page to create, view, and modify a shared data source item. A shared data source defines a connection to an external data source. With a shared data source, you can create and maintain the settings for the data source connection separately from the reports that use the data source.

Figure 12-141 Add a data source



- Enter **Name** for the shared data source, which is used to identify the item within the report server namespace.
- Select **Windows Authentication** if the credentials that the user provides are Windows Authentication credentials.
- Select **SQL Authentication** if you are using SQL Server Authentication.

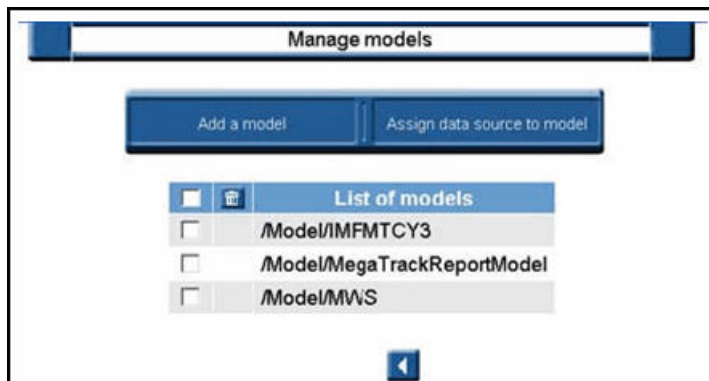
Complete the following steps:

1. Enter **SQL Login** information for SQL Server Authentication.
2. Enter **SQL Password** information for SQL Server Authentication.
3. Click the Go  icon to proceed, or the Cancel  icon to quit.

12.19.6 Manage models

Use the **Manage models** page to manage report models in the database.

Figure 12-142 Manage models page



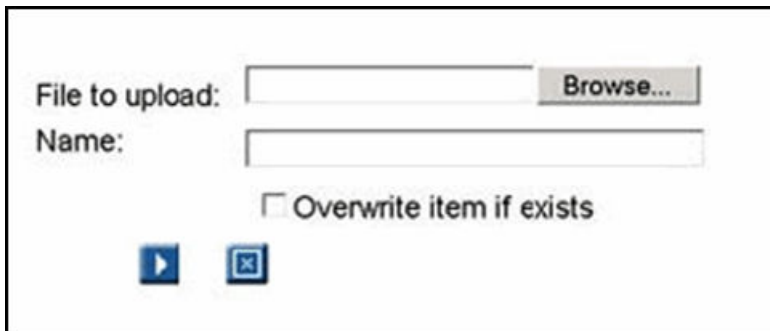
Complete the following steps:

1. Click **Add a model** to upload a .smdl model file.
2. Select a model from the list displayed in the table and click **Assign data source to model**.



12.19.6.1 Add a model

Use the **Add a model** screen to upload a .smdl model file in the application.


Figure 12-143 Add a model



Complete the following steps:

1. Enter the name of the .smdl file to upload, or click **Browse** to locate the file.
2. Click **Overwrite item if exists** if the uploaded file will replace an existing file.
3. Click the Go  icon to validate the selection, or the Cancel  icon to quit.

12.19.6.2 Delete a model

To delete a model, click the selection box and then click the Delete  icon.

12.19.6.3 Assign data source to model

If a model is displayed in red on the **Manage Model** screen, it is not yet linked to a data source.



Use the following steps to assign a data source:

1. Select the model from the list on the **Manage Model** screen.

2. Click **Assign data source to model**.

Figure 12-144 Assign data source to model

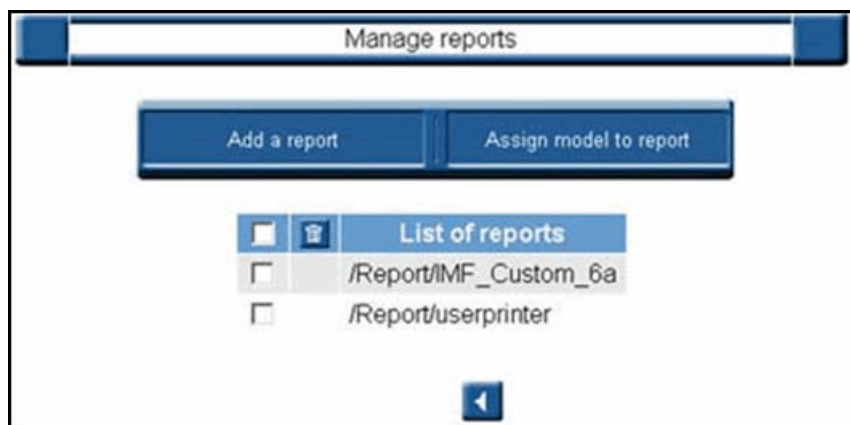


3. Select the data source.
4. Click the Go  icon to proceed, or the Cancel  icon to quit.

12.19.7 Manage reports

The table on the **Manage reports** page displays a list of custom reports available in the database.

Figure 12-145 Manage reports page



12.19.7.1 Add a report

Use the **Add a report** page to upload a .rdl file from the report server database.


Figure 12-146 Add a report

File to upload: Browse...

Name:


Description:

Overwrite item if exists

Complete the following steps:

1. Enter the name of the .rdl file to upload, or click **Browse** to locate the file.
2. Enter name of the file as it will appear in the report server namespace. This field is automatically filled when a file is selected with the Browse function.
3. Enter report Description.
4. Select the **Overwrite item if exists** check box if you want to replace an existing item with a newer version. To overwrite an existing version, the name of the new item and the existing item must be an exact match.

 **TIP:** Only reports and models are published during a file upload. All other file types are stored as resources. The folder from which you initiate the upload operation is the folder that will contain the uploaded file.

5. Click the Go  icon to proceed, or the Cancel  icon to quit.

12.19.7.2 Assign model to report

Use the **Assign model to report** page to assign a model from the database to a report.

Figure 12-147 Add model to report

Assign model to report



List of models

/Report/userprinter

Model/IMFMTCY3
Model/MegaTrackReportModel
Model/MWS

Complete the following steps:

1. On the **Manage report** page, select a report from the list displayed in the table and click **Assign model to report** to assign a report model to an existing report.
2. Select a model from the list displayed.
3. Click the Go  icon to proceed, or the Cancel  icon to quit.



12.19.7.3 Assign data source to report

Use the **Assign data source to report** page to assign a data source to a report.


Figure 12-148 Assign data source to report page



Complete the following steps:

1. On the **Manage reports** page, select a report from the list displayed in the table and click **Assign data source to report** to assign a data source to an existing report.
2. Select a data source from the list displayed.
3. Click the Go  icon to proceed, or the Cancel  icon to quit.

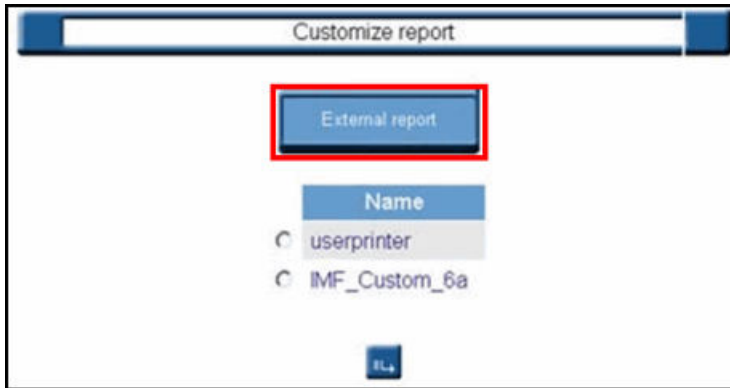
12.19.7.4 Delete a report

To delete a report, click the selection box next to the report and then click the Delete  icon.

12.19.8 Launch external report

Select **External report** button on the Customize report page of the Remote Control to set parameters for your report.

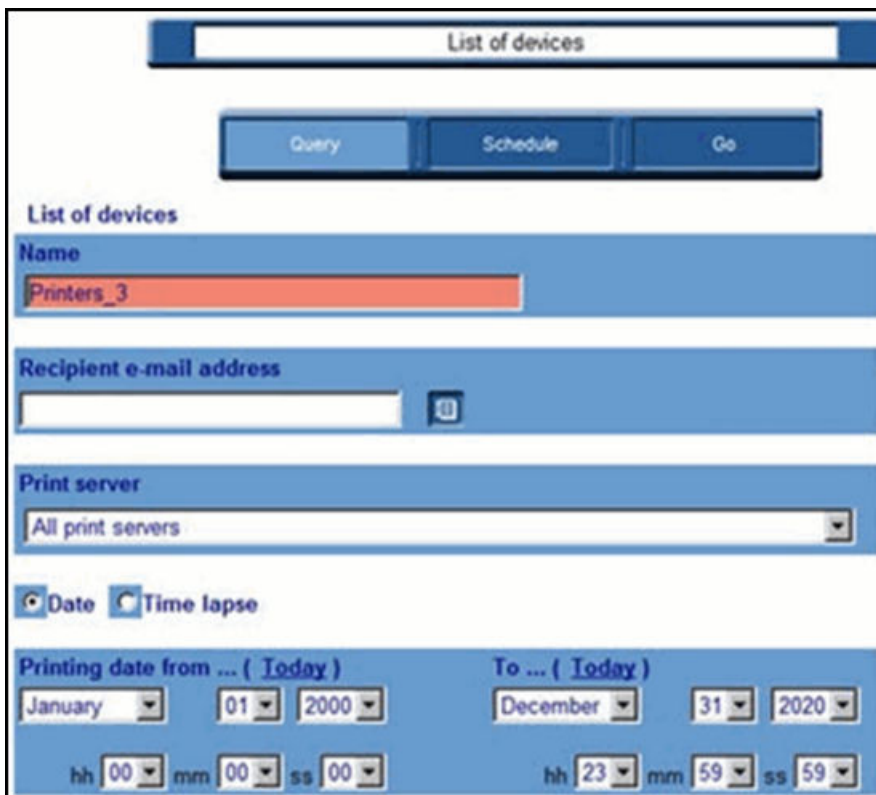
Figure 12-149 External report button



Complete the following steps:

1. Select the report you want to customize.
2. Click **Parameterized mode** to customize the selected report.
3. Use the **Parameterized query** page to set parameters for the report. For more detailed information about customizing and launching the query, see [Section 12.11.3, Parameterize queries](#)

Figure 12-150 Parameterized query



12.19.9 JA reports in SQL Server Reporting Services

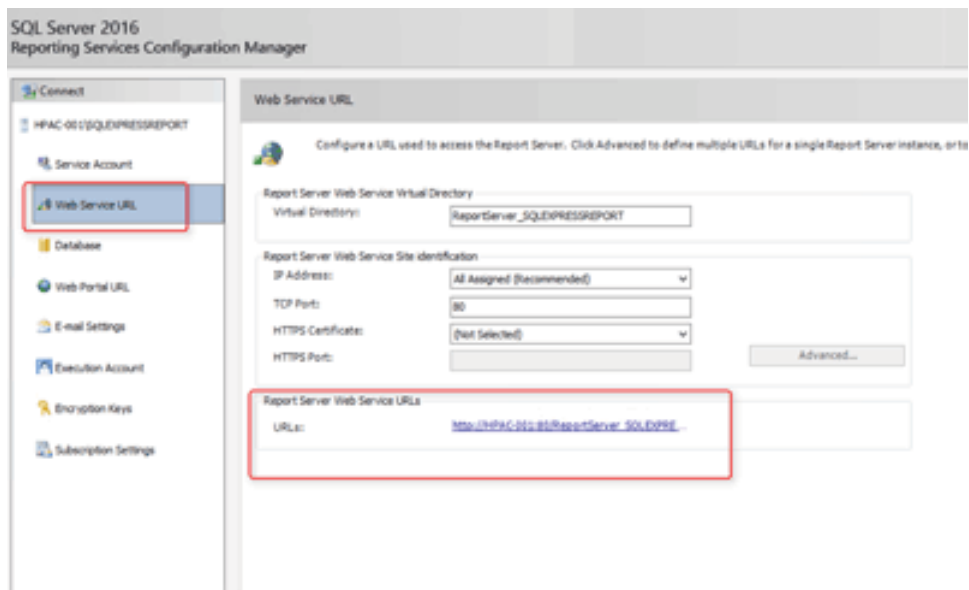
Prerequisites

- SQL Express with Advanced services (to add reporting services)
- SQL Full edition (up to 2017)

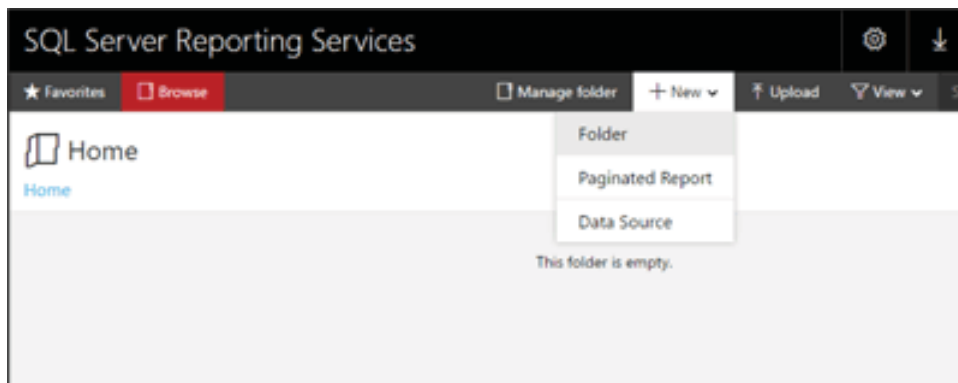
NOTE: The default SQL Express version supplied with the HP Access Control installer does not include Advanced Services and cannot be upgraded to include Reporting Services. A new instance of SQL Express with Advanced Services will need to be installed and used as the database for Reporting services. The Job Accounting HPACJA database can be separate from Reporting Services so no data needs to be transferred. The additional services required is Reporting Services - Native.

In the HP Access Control\JA Reports folder there are 32 report files that can be uploaded to SQL Server Reporting Services (SSRS). This allows users and managers to view JA data from SSRS. Complete the following steps to upload the JA reports into SSRS:

1. After configuring SQL Server Reporting Services, open a web browser and go to the address of the SQL reports (Example: <http://servername/reports>). The SQL Reports address can be found through the **Reporting Services Configuration Manager**, under the **Report Manager URL** or **Web Service URL**.



2. Create a new folder called HPAJCA.



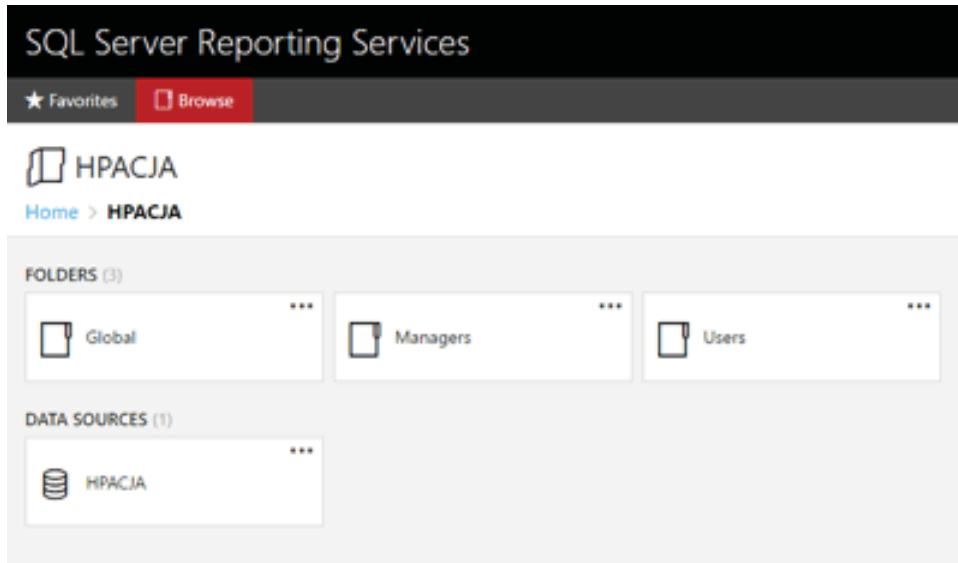
3. Open the new folder.

4. Create a new data source inside the folder that points to the SQL Server where the HPACJA database is located. The name of the data source should be HPACJA. Use this line for the connection string: `Data Source=SQLServerName\SQLInstanceName;Initial Catalog=HPACJA`.

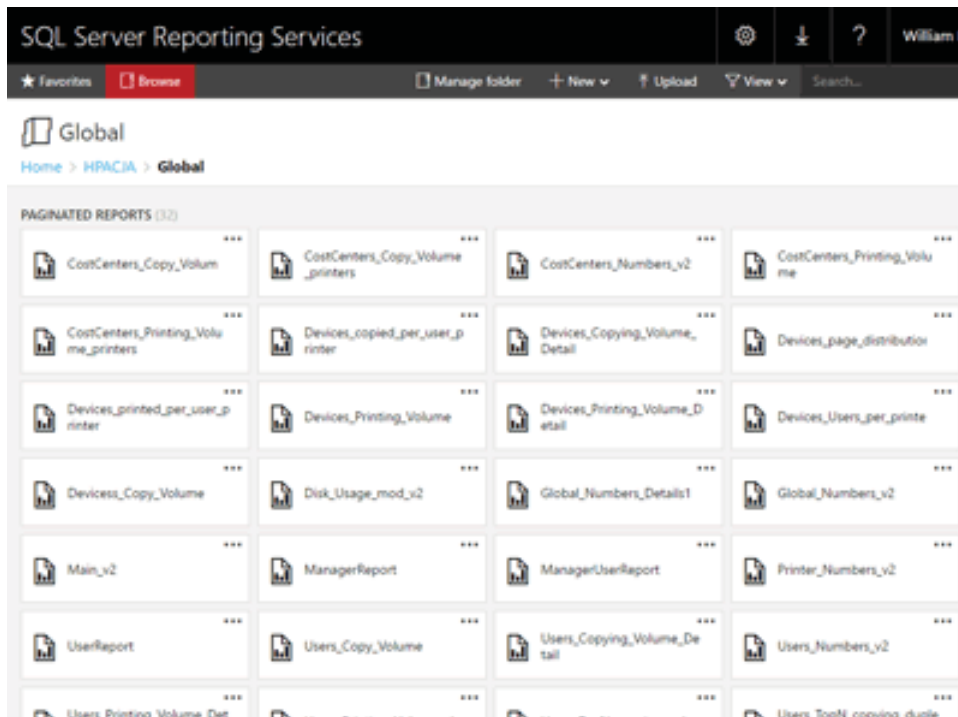
The screenshot displays the 'Edit HPACJA' dialog box in SQL Server Reporting Services. The window title is 'SQL Server Reporting Services' and it includes 'Favorites' and 'Browse' buttons. The breadcrumb path is 'Home > HPACJA > HPACJA'. The 'Properties' tab is active, showing a left-hand navigation pane with 'Properties', 'Dependent items', and 'Security'. The main area contains the following fields and options:

- Properties**
 - Name: HPACJA
 - Description: (Empty text area)
 - Hide in tile view Enable this data source
- Connection**
 - Type: Microsoft SQL Server (dropdown menu)
 - Connection string: `Data Source=(local)\SQLExpress;Initial Catalog=HPACJA` (with a 'Learn more' link)

5. Create three new folders in SSRS called Users, Managers, and Global.



6. There are 32 RDL files in the \HP Access Control\JA Reports folder, and 1 RDL file in the \HP Access Control\EcoReporting folder. Upload the 33 .rdl files into the Global folder. All files should be in your SSRS and assigned to the HPACJA data source. From the HPAC server, right-click on the **HPAC Report Uploader.exe** and run as administrator. This tool is located in the \HP Access Control\JA reports folder, or the \HP Access Control\EcoReporting folder.



7. If the SQL Server is installed on the HPAC server, verify the information in the **Auto local discovered** section. If you are running HPAC Report uploader from a remote server, enter the SQL server information in the **Manual** section. Then enter the credentials to access the SQL server. Click **Connection Test** to connect to the SQL server.

The screenshot shows the 'HPAC Report Uploader' application window. On the left is a sidebar with three buttons: 'Server', 'Browse Content', and 'Upload HPAC Reports'. The main area is titled 'Reporting Server Details' and contains the following configuration options:

- Auto local discovered
- Manual**
- Default Credentials
- Use another account

Fields for configuration include:

- SQL Instance: (dropdown menu)
- Server Uri: (dropdown menu)
- Virtual Directory: (text input)
- Server: (text input, value: SQL1.domain.com)
- Virtual Directory: (text input, value: ReportServer)
- Account (Domain\User): (text input)
- Password: (text input)
- Use Secure connection - HTTPS

A 'Connection Test' button is located at the bottom right of the configuration area. Below the configuration are two sections: 'Granted Permissions' (empty) and 'Connection Message' (value: N/A).

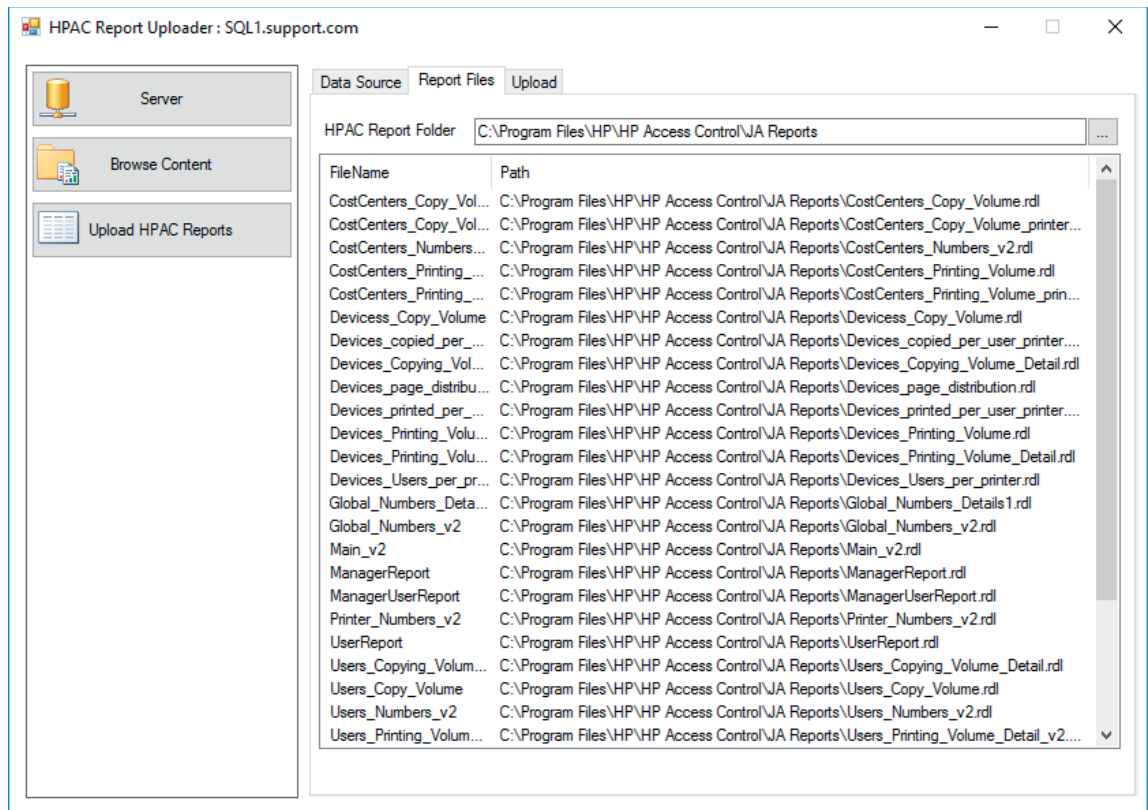
8. Go to **Upload HPAC reports**. In the **Data Source** tab verify the information is correct and then click **Connection Test**. This will create the Data Source.

The screenshot shows a web application window titled "HPAC Report Uploader : SQL1.ctsupport.com". The interface is divided into a left sidebar and a main content area. The sidebar contains three buttons: "Server", "Browse Content", and "Upload HPAC Reports". The main content area has three tabs: "Data Source", "Report Files", and "Upload". The "Data Source" tab is active and contains the following fields and controls:

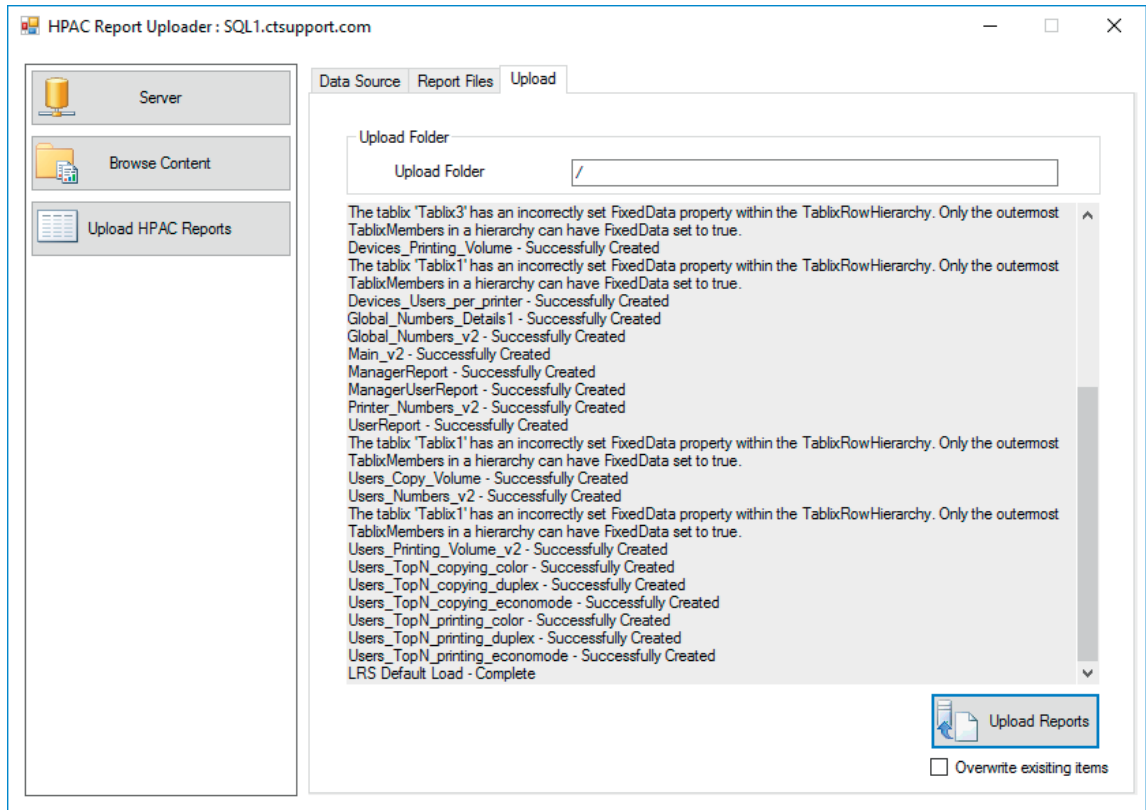
- Name:** HPACJA
- Description:** HPAC Reporting Services Datasource
- Hide Datasource
- SQL Server:** 127.0.0.1
- SQL Instance:** SQLEXPRESS
- Database:** HPACJA
- User Name:** SA
- Password:** [masked with 12 dots]
- Create Datasource

At the bottom right of the main content area is a "Connection Test" button. Below this button is a "Connection Message" text area.

- In the Report Files tab, specify the location of the JA Report files in the **HPAC Report folder** field. By default, the JA Report files are located on the HPAC server in the `HP Access Control\JA Reports` folder, and in the `\HP Access Control\EcoReporting` folder. When the correct JA Report folder is entered, the list of the report files displays below.

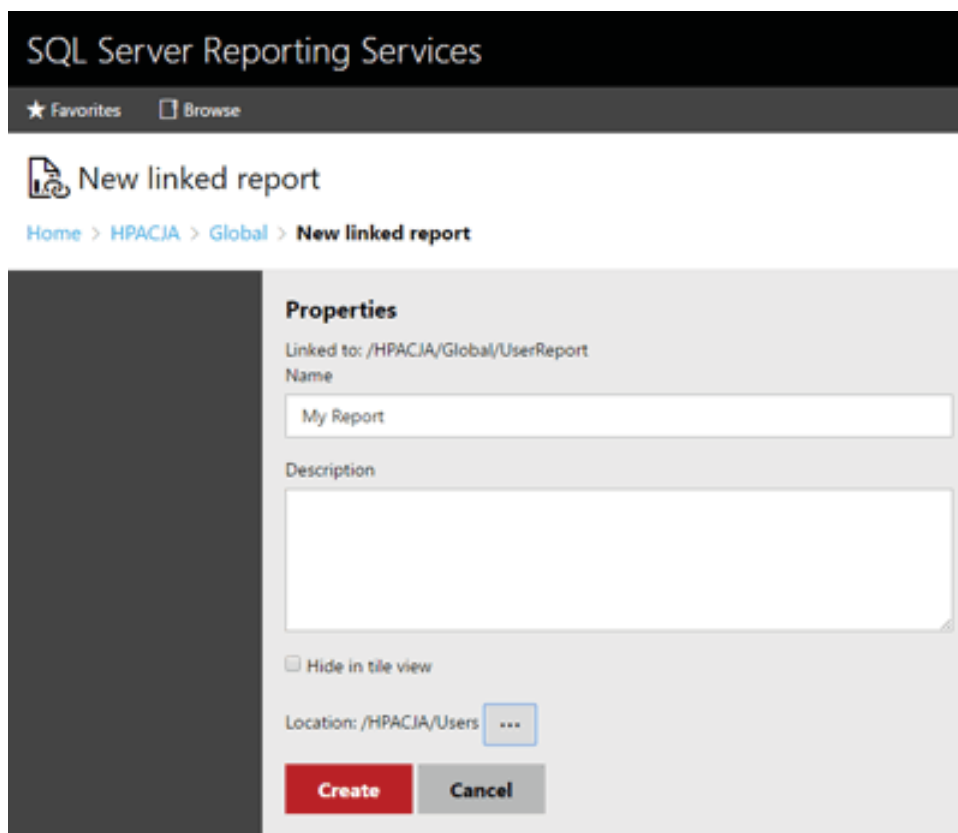
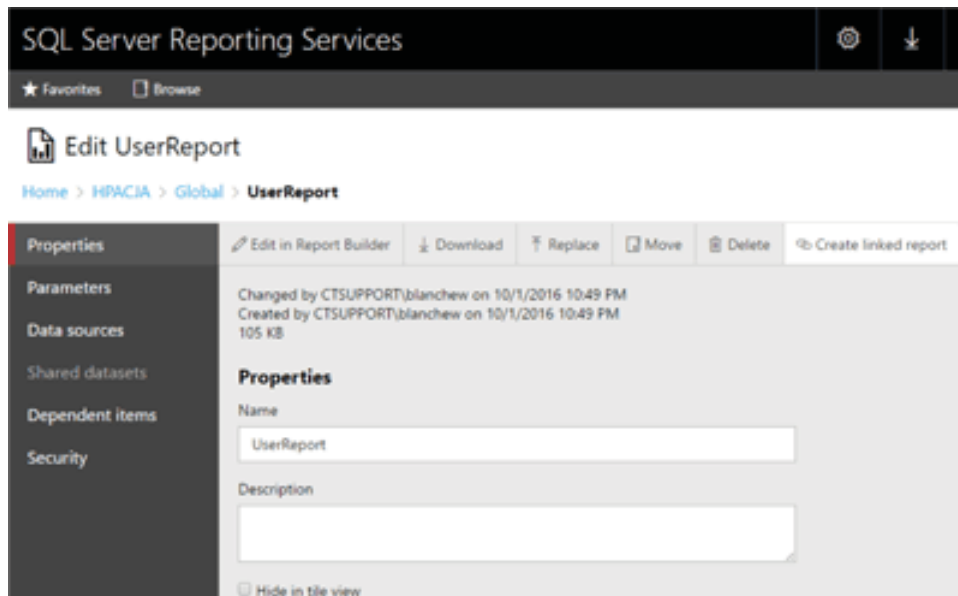


10. In the **Upload** tab, click **Upload reports**.



11. The uploaded reports are displayed on the **Browse Content**. Reports can now be viewed using the SQL Reporting Services web page.

- Go to the HPACJA folder > UserReport.rdl > Manage, and click **Create linked report**. Place the report in the **Users** folder. This is for end users only.



- Create a linked report for the UserEcoReport.rdl and place it in the Users folder.
- Create a linked report for the ManagerReport.rdl and place it in the Managers folder. This is for managers only.
- Create a linked report for the ManagerUserReport.rdl. The name for linked report should be “Report by User”, and place it in the Managers folder.

16. Change the security for the Managers folder and Users folder, to allow the corresponding user you want to be Manager, User or Admin. The HPACJA security should be for Admin users only. The group you assign is based on AD groups and if the group does not exist an error will be displayed.
17. You can now create http shortcuts in your desktop to call the User report, EcoReport, Manager reports, and Main report.

12.20 HP AC Job Accounting Dashboard

12.20.1 Introduction

The HP AC Job Accounting Dashboard is a tool that allows users to monitor detailed printer usage information by printer, user, project, department, or cost center. The data can provide meaningful analysis of printer and MFP activity and gives you a precise accounting of device usage.

The Dashboard application consists of various tabs that users can use to view and organize printing data. There are two types of installation files:

- The User version of the HP AC Job Accounting Dashboard installation file can be found in the following folder on the server:

located in the HP AC installation zip file in the \clients\dashboard\user folder.

The User version is intended for users with the basic ability to view and organize their printing data, as well as the printing data of the people they manage. This installs the Default Dashboard tab, the My Dashboard tab, and the Basic Designer tab.

- The Admin version of the Dashboard installation file can be found in the following folder on the server:

located in the HP AC installation zip file in the \clients\dashboard\admin folder.

The Admin version is intended for administrators or managers with the authority to oversee the database and printing data of an organization. This version installs the Default Dashboard tab, the My Dashboard tab, the Basic Designer tab, and the Advanced Designer tab.



IMPORTANT: The Admin version of Dashboard requires connection to an SQL Server with SQL Analysis Services installed and configured.

12.20.1.1 Requirements

HP AC Job Accounting installed and setup on a server.

Any of the following SQL Servers installed locally or remotely:

- Microsoft SQL Server 2012 Express
- Microsoft SQL Server 2012
- Microsoft SQL Server 2016

12.20.1.2 Installation

Follow the instructions below to install HP AC Job Accounting Dashboard on client computers:

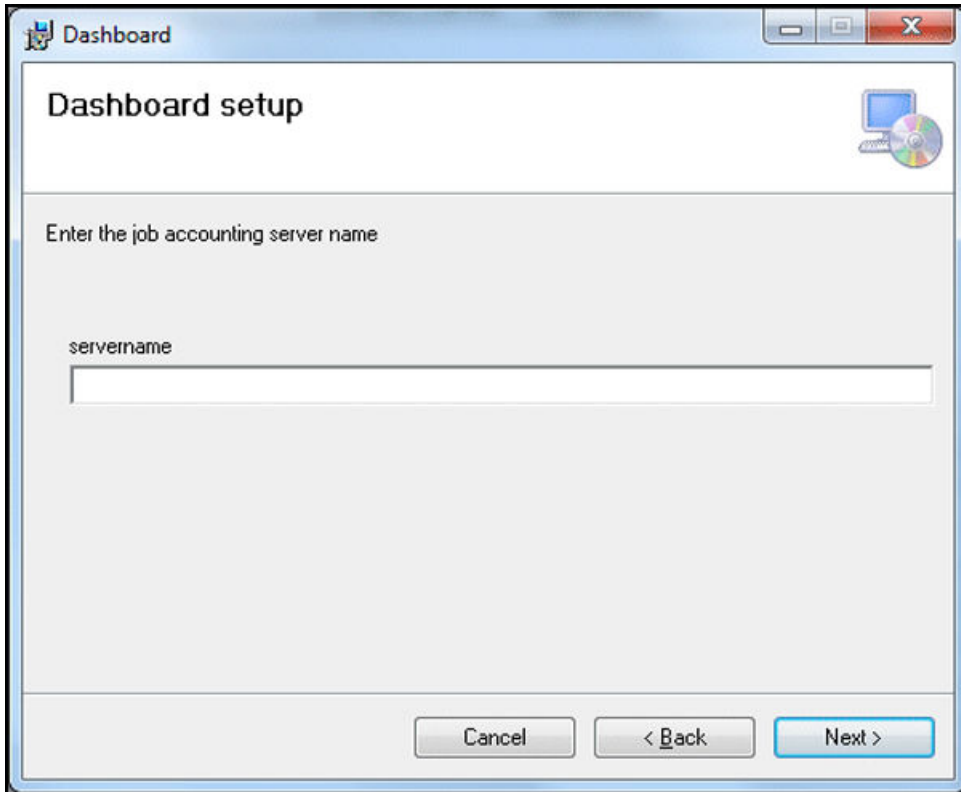
1. Double-click the **Dashboard** installation file. The Dashboard Setup Wizard window displays. Click **Next**.

Figure 12-151 Dashboard Setup Wizard



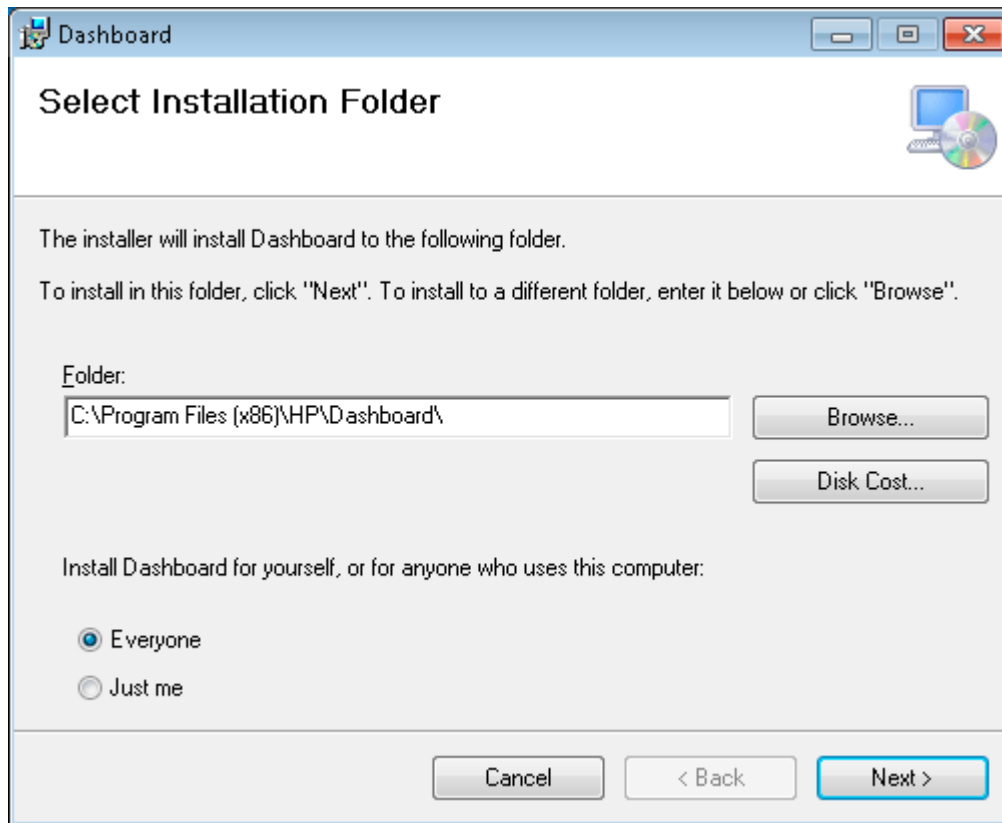
2. On the Dashboard Setup screen, enter the name or IP address of the job accounting server. Click **Next**.

Figure 12-152 Server name



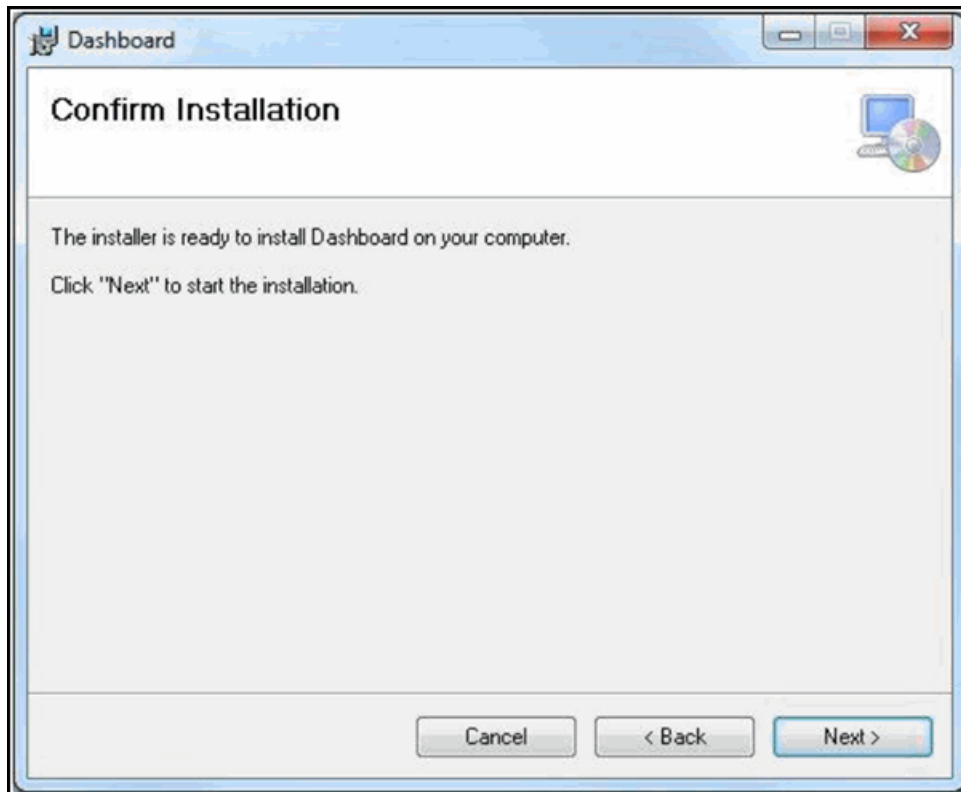
3. On the Select Installation Folder screen, make sure the correct folder path is displayed in the Folder field. Select **Everyone** to allow all users and guests on the computer to use the Dashboard. Select **Just me** to allow only the current user to use the Dashboard. Click **Next**.

Figure 12-153 Select Installation Folder



4. On the Confirm Installation screen, click **Next**.

Figure 12-154 Confirm Installation



5. When the installation is complete, click **Close**. To open Dashboard, double-click the Dashboard desktop icon or select **Dashboard** from the Start menu.

12.20.1.2.1 Silent mode installation

To install Dashboard in silent mode, use the **Dashboard Custom Setup** application. Dashboard Custom Setup can be found in the following folder on the server that has HP AC Job Accounting installed:

located in the HP AC installation zip file in the \clients\dashboard folder.

Follow the instructions below to use **Dashboard Custom Setup** to edit the **DashboardSetup.msi** file:

1. On the HP AC Job Accounting server, open the **Dashboard Custom Setup** application.
2. Click the **Load MSI** button. Locate the **DashboardSetup.msi** file in either the Admin folder or the User folder, depending on which version of Dashboard you want to install silently on client computers. Click **Open**.
3. In the Job accounting server name field, enter the name or IP address of the job accounting server you want Dashboard users to connect to.
4. Click **Apply**.

Figure 12-155 Dashboard custom setup

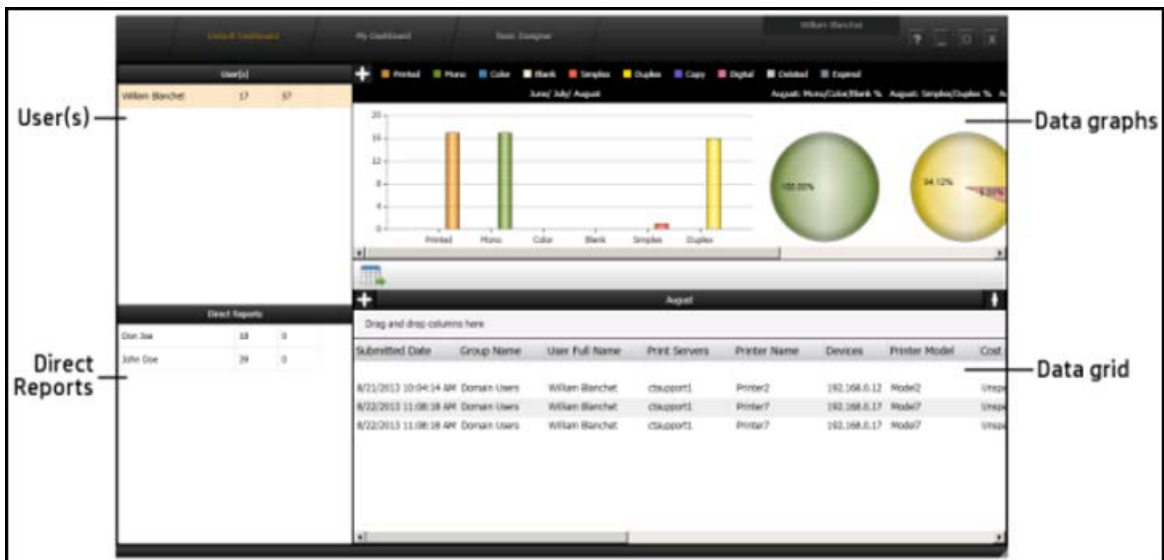


12.20.1.3 User guide

12.20.1.3.1 Default Dashboard

The Default Dashboard tab allows you to view printing information about yourself and about your group, extended information about users' printing history in your group and graphs of information about the printing history of the past three months.

Figure 12-156 Default Dashboard

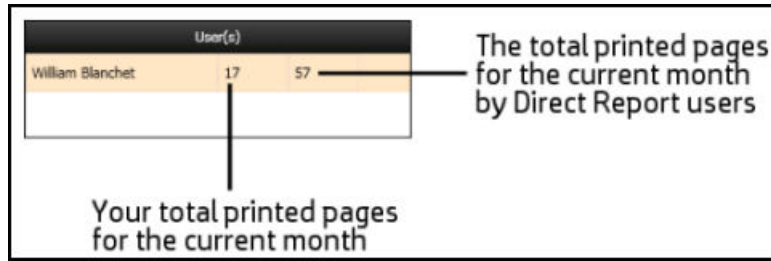


12.20.1.3.1.1 User(s) area

In the User(s) area you can see your user name, your total number of pages printed, and the total number of pages printed by the group you supervise.

The information displayed in the data visuals section and data grid section represents the printing by the user listed last in the User(s) section.

Figure 12-157 users area



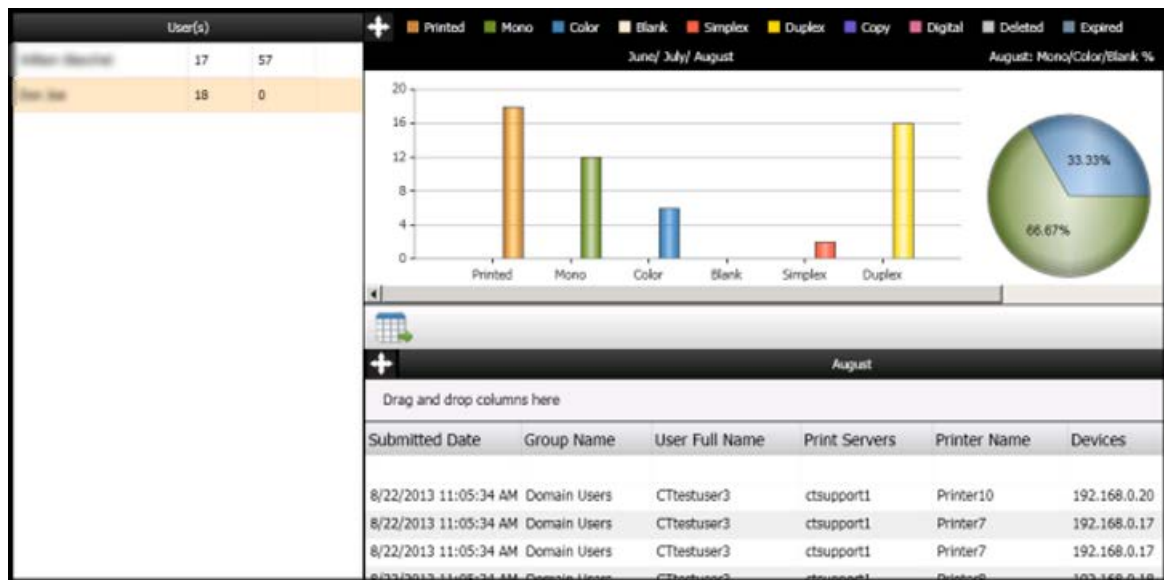
12.20.1.3.1.2 Direct Reports area

The Direct Reports section lists users in your group who report directly to you. The user name, the user's total number of printed pages, and the total number of printed pages by the group the user supervises.

To view printing information about a user in your Direct Reports, double-click a user name in the Direct Reports section. The following happens:

- This moves the user name up to the User(s) section. The User(s) section now displays the hierarchy of users.
- Information about that user's printing history displays in the data visuals and data grid sections on the right.
- The Direct Reports section also changes to display the names of users who report directly to the user selected.

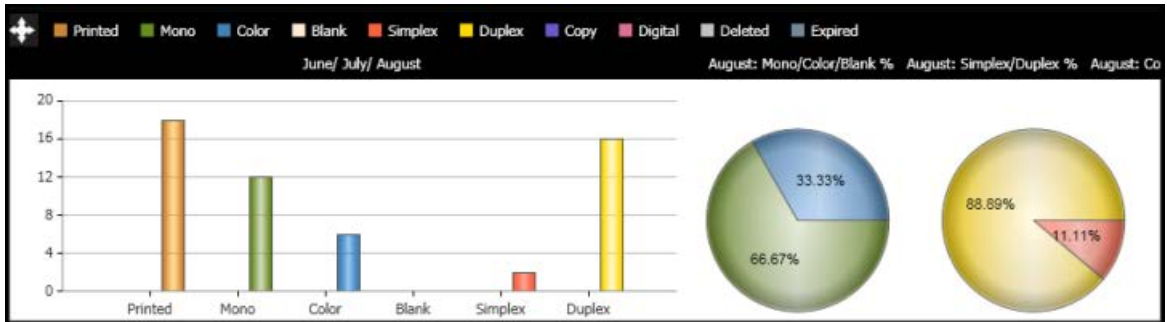
Figure 12-158 Direct reports data



12.20.1.3.1.3 Data graphs area

The information displayed in the data visuals section shows the current and previous two month's printing data related to the last user listed in the User(s) section.

Figure 12-159 Data graphs area



The data visuals section displays two types of visual: a bar graph and pie charts.

- The bar graph illustrates the user's printing data over the past three months, including the total number of pages print, the total number of mono pages printed, the total number of colored pages printed, the total number of simplex pages printed, and the total number of duplex pages printed. Each bar represents the number of pages printed for each month.
- The pie charts show the user's printing data for the current month.
 - The Mono/Color chart shows the percentage of printed pages that were black and white or color.
 - The Simplex/Duplex chart shows the percentage of printed pages that were printed using the simplex or duplex printing feature.
 - The Copy/Digital/Print chart shows the percentage of printed pages that were printed using the copy function, the digital sending function, or were printed directly to the printer.
 - The Deleted/Expired/Print chart shows the percentage of print jobs that were deleted before they were printed, that expired before they were printed, or were printed.

Click the chart popup icon to view the data visuals larger in the Chart Popup window.

Figure 12-160 Data graphs popup icon



12.20.1.3.1.4 Data grid area

The data grid section displays columns with the user's printing data details for the current month.

Figure 12-161 Data grid area

Submitted Date	Group Name	Print Servers	Printer Name	Function	Printed Pages	Devices	Printer Model
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer3	Print	5	192.168.0.13	Model3
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer3	Print	5	192.168.0.13	Model3
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer3	Print	5	192.168.0.13	Model3
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer3	Print	5	192.168.0.13	Model3
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer3	Print	5	192.168.0.13	Model3
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer3	Print	5	192.168.0.13	Model3
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer6	Print	1	192.168.0.16	Model6
8/22/2013 11:05:43 AM	Domain Users	ctsupport1	Printer6	Print	1	192.168.0.16	Model6

Arrange data so that it is easier to analyze. Click the column headings to sort the column data in ascending or descending order.

In the filter field, under the column headings, you can set the rules for the data that should remain visible after the filter is applied. You can type text to filter names or you can type any one of the filter operators below to filter numbers:

<	less than
<=	less than or equal to
>=	greater than or equal to
<>	not equal to

For a more customized view of data, click and drag column headings to the Drag and drop columns here section above the column headings. This will group the data by the selected columns. For example, the figure below shows data grouped by GroupName and then by PrinterModel. The totals of pages appear highlighted in the last rows.

Figure 12-162 Group data

Group Name	Submitted Date	Print Servers	Printer Name	Function	Printed Pages	Printer Model
Devices : 192.168.0.13 - 6 Items						
Domain Users	8/22/2013 11:05:43 AM	ctsupport1	Printer3	Print	5	Model3
Domain Users	8/22/2013 11:05:43 AM	ctsupport1	Printer3	Print	5	Model3
Domain Users	8/22/2013 11:05:43 AM	ctsupport1	Printer3	Print	5	Model3
Domain Users	8/22/2013 11:05:43 AM	ctsupport1	Printer3	Print	5	Model3
Domain Users	8/22/2013 11:05:43 AM	ctsupport1	Printer3	Print	5	Model3
					30.00	
Printed Pages:					30.00	
Mono Pages:					.00	
Color Pages:					30.00	
Simplex Pages:					6.00	
Duplex Pages:					24.00	
Devices : 192.168.0.16 - 9 Items						

Click the **Expand groups when grouped** checkbox to automatically expand all grouped data when the data is grouped.

To export the data as a report, click the **Export report to Excel** icon. Select a save destination and save the report.

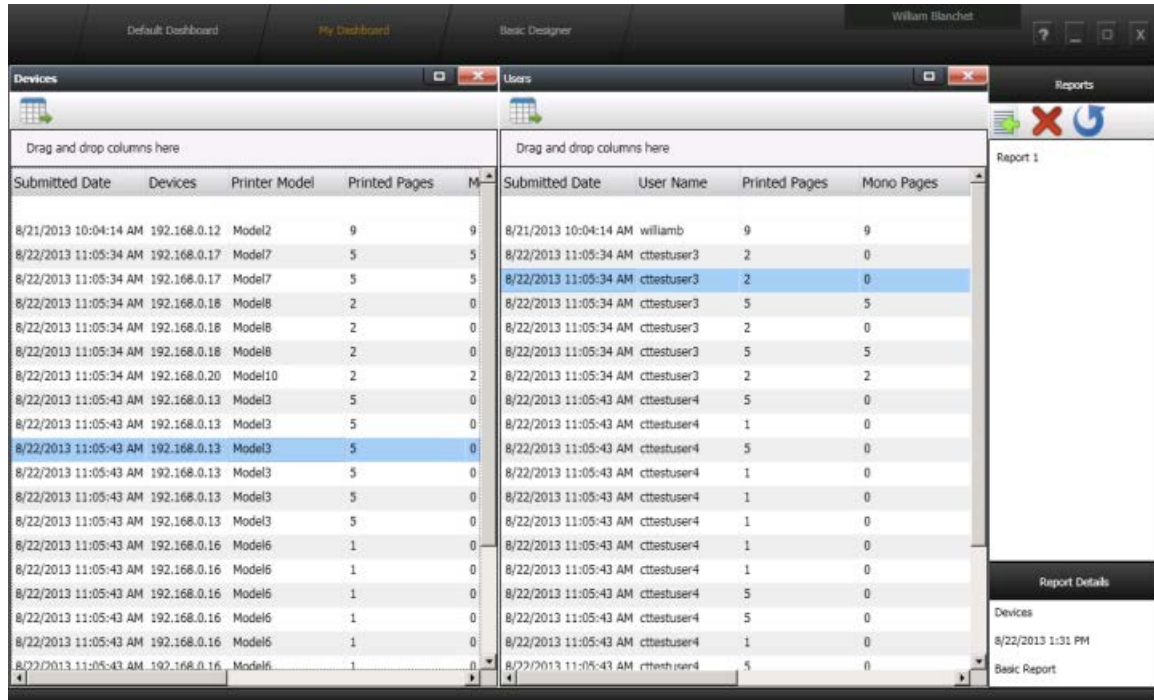
Click the Min/Max icon to maximize or minimize the data grid.

Click the expand icon to expand the data grid vertically.

12.20.1.3.2 My Dashboard

Using the My Dashboard tab, you can open multiple reports at one time to review and compare your printing data. The My Dashboard tab consists of three areas: the Reports area, the Report Details area, and the report viewer area.

Figure 12-163 My Dashboard



12.20.1.3.2.1 Reports

The Reports area lists saved reports. The reports listed are reports that were saved using the Basic Designer tab or the Advanced Designer tab. Double-click one or more report names from the list to view the report data in the report viewer area.

Click the Import an XML format report icon to import a report saved as an XML file.

Select a report from the list and then click the Delete to delete a report from the Reports area.

Click the Reset to clear the report viewer area.

12.20.1.3.2.2 Report Details

The Report Details area shows information about a selected report. Click a report in the Reports area to display information about the report, including the report name, the date and time the report was created, the month relating to the report information, and the type of report.

12.20.1.3.2.3 Report viewer area

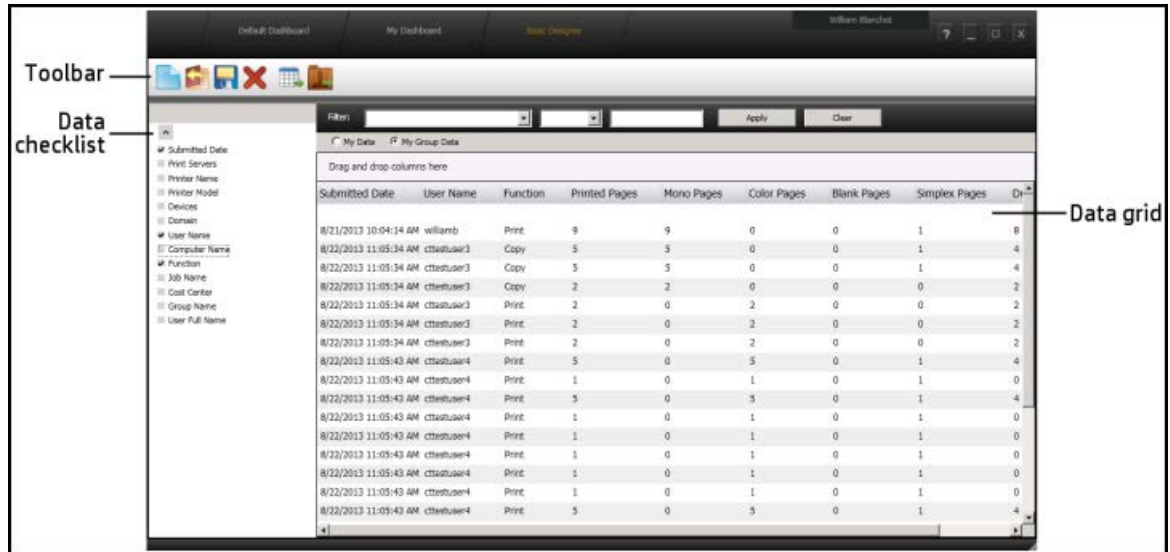
The report viewer area shows selected report data. Multiple reports can be viewed at one time for easy comparison of report information.

Click and drag the report heading to organize the order of multiple reports.

12.20.1.3.3 Basic Designer

The Basic Designer tab allows you to customize your printing data or your group's printing data.

Figure 12-164 Basic designer tab



12.20.1.3.3.1 Basic Designer toolbar

Figure 12-165 Basic Designer toolbar



Click the **New** icon to clear all data to create new customized data.

Click the **Open** icon to open a saved report. Select a report from the list and then click **Load**.

Click the **Save** icon to save a customized report. Type the name of the customized report and then click **Save**.

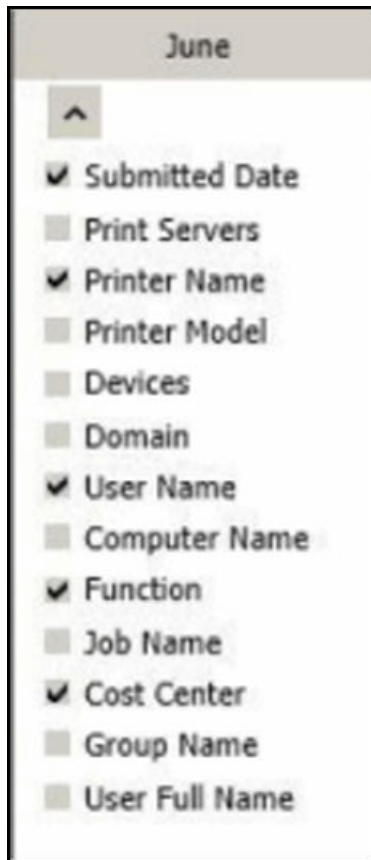
Click the **Delete** icon to delete a saved report. Select a report from the list and then click **Delete**.

Click the **Export grid to Excel** icon to export the customized data as an Excel file.

Click the **Export report to XML** icon to export the customized report as an XML file. This feature is intended for managers, and displays only if there are users in your Direct Reports list.

12.20.1.3.3.2 Data checklist

Figure 12-166 Data checklist



Use the checkboxes on the left to select what data you want to see in the columns.


Figure 12-167 My Dashboard Data grid area

The screenshot shows a data grid area with a filter bar at the top containing three dropdown menus, "Apply", and "Clear" buttons. Below the filter bar are two radio buttons: "My Data" (selected) and "My Group Data". A header row says "Drag and drop columns here". The table below has the following columns: User Name, Function, Printed Pages, Mono Pages, Color Pages, Blank Pages, Simplex Pages, and Duplex Pages. The data rows are as follows:

User Name	Function	Printed Pages	Mono Pages	Color Pages	Blank Pages	Simplex Pages	Duplex Pages
cttestuser3	Copy	5	5	0	0	1	4
cttestuser3	Copy	2	2	0	0	0	2
cttestuser3	Copy	5	5	0	0	1	4
cttestuser3	Print	2	0	2	0	0	2
cttestuser3	Print	2	0	2	0	0	2
cttestuser3	Print	2	0	2	0	0	2
cttestuser4	Print	5	0	5	0	1	4
cttestuser4	Print	1	0	1	0	1	0

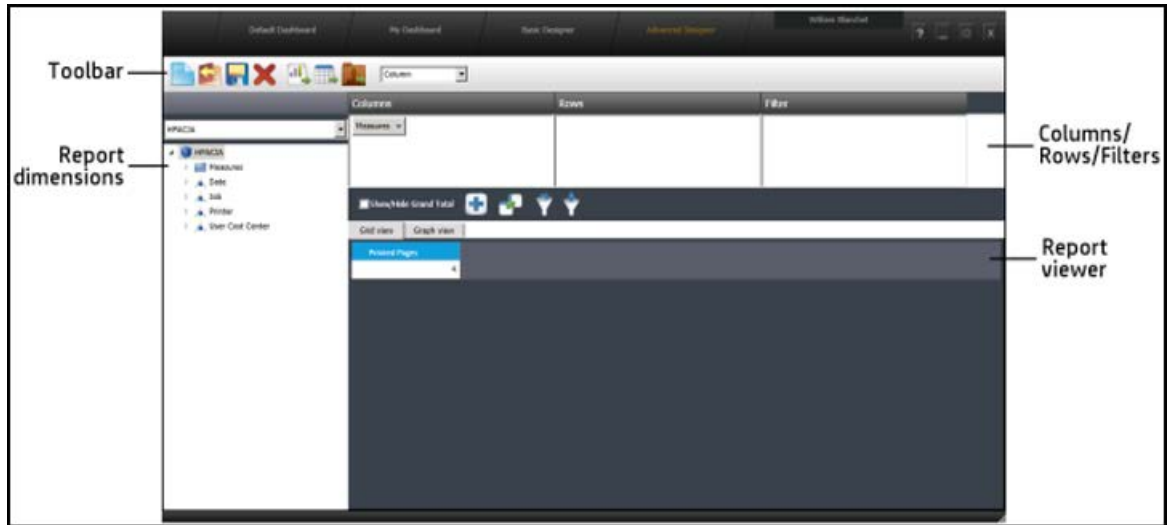
At the top, select **My Data** to view your printing data, or select **My Group Data** to view your group's printing data. These options are intended for managers and display only if there are users in your Direct Reports list.

12.20.1.3.4 Advanced Designer

 **IMPORTANT:** The Advanced Designer tab displays only if the Dashboard administrator version is installed. Please contact your administrator for more information.

The Advanced Designer tab allows you to customize data on an advanced level using multidimensional data.

Figure 12-168 Advanced Designer



12.20.1.3.4.1 Advanced Designer toolbar

Figure 12-169 Advanced Designer toolbar



The following icons display on the Advanced Designer toolbar:

Click the **New** icon to clear all data to create new customized data.

Click the **Open** icon to open a saved report. Select a report from the list and then click **Load**.

Click the **Save** icon to save a customized report. Type the name of the customized report and then click **Save**.

Click the **Delete** icon to delete a saved report. Select a report from the list and then click **Delete Export chart to PDF** icon.

Click the **Export report to XML** icon to export the customized report as an XML file. This feature is intended for managers and displays only if there are users in your Direct Reports list.

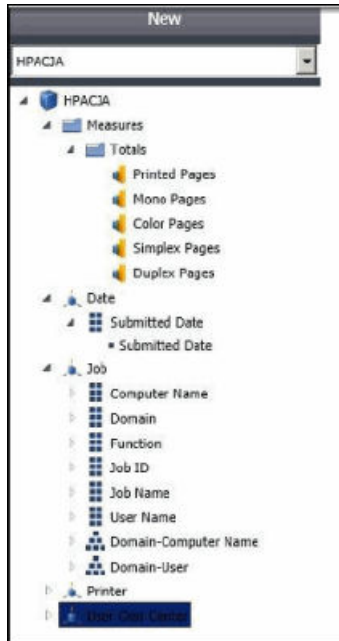
Click the **Export grid to Excel** icon to export the customized data as an Excel file.

Click the graph view drop-down menu to select a graph type to be viewed in the Viewer area.

12.20.1.3.4.2 Report dimensions

Use the drop-down menu to select the job accounting server.

Figure 12-170 Job Accounting report dimensions - drop-down menu



Click and drag the dimensions to the Columns/Rows/Filter areas to group and customize your data. The data appears in the Viewer area.

12.20.1.3.4.3 Columns/Rows/Filter area

Figure 12-171 Columns/Rows/Filter area



Click and drag the dimensions from the Report dimensions area to the Columns, Rows, or Filter area to group and customize your data.

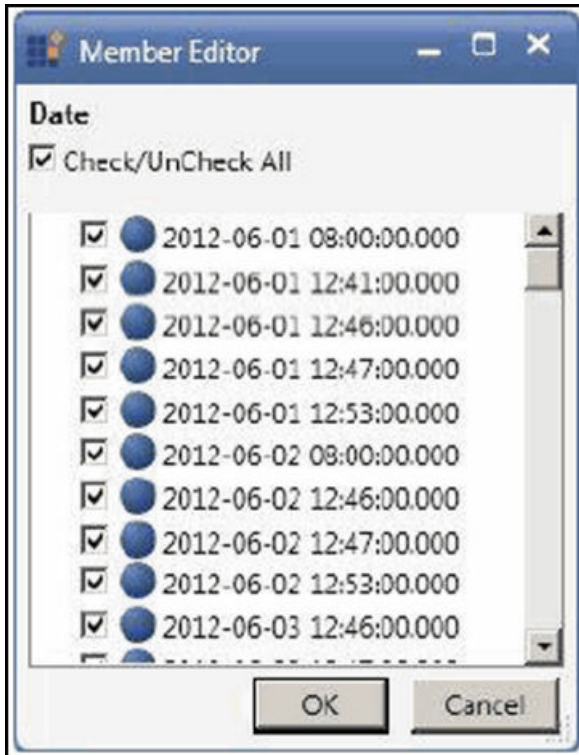
After you click and drag the dimensions, do the following:

- Move your cursor over a dimension button to view the dimension options:



- Click the up arrow icon to move the dimension up in the hierarchy.
- Click the down arrow icon to move the dimension down in the hierarchy.
- Click the delete icon to remove the dimension from the hierarchy.
- Click the dimension button to display the Member Editor window. In the Member Editor window, check or uncheck the dimension attributes you want to display or not display. Click **OK** to save your changes.

Figure 12-172 Member editor



12.20.1.3.4.4 Viewer area

Figure 12-173 Report viewer

			Printed Pages	Mono Pages	Color Pages	Blank Pages
2013-08-23 10:41:52.000	cttestuser3	CopyJob	30	30	0	
		Document33.doc	9	9	0	
		Document53.html	16	16	0	
		Total	55	55	0	
	cttestuser4	CopyJob	4	0	4	
		Document121.html	18	6	12	
		Document166.html	77	77	0	
		Total	99	83	16	
	sbertrand	CopyJob	48	26	22	
		Document164.html	90	90	0	
		Document52.xls	3	3	0	
		Document7.xls	96	16	80	
		Document97.xls	44	44	0	

Click the **Show/Hide Grand Total** check box to hide the data totals.

Click the **Show/Hide Expanders** icon to display or not display the icon to expand the detailed data.

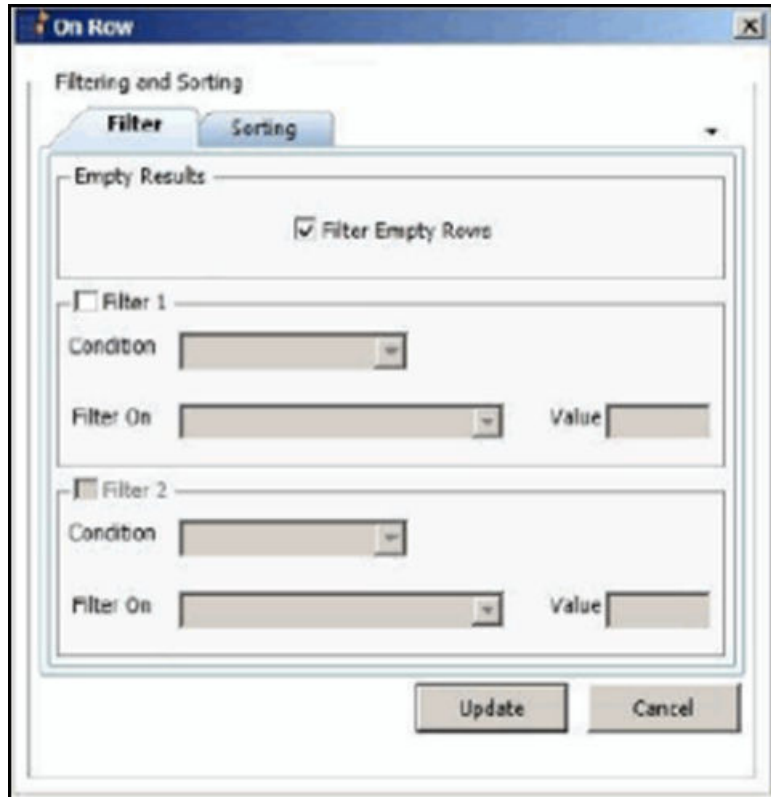
Click the **Toggle Pivot** icon.

Click the **Filter/Sorting** icon.

12.20.1.3.4.5 Filtering and Sorting window

Click the **Filtering/Sorting** icon if you want to arrange data so that it is easier to analyze. In the Filtering and Sorting window, you can filter data to quickly see only the printing data that you specify. When you are finished making changes, click Update to apply the filter or sort settings.

Figure 12-174 Filter tab



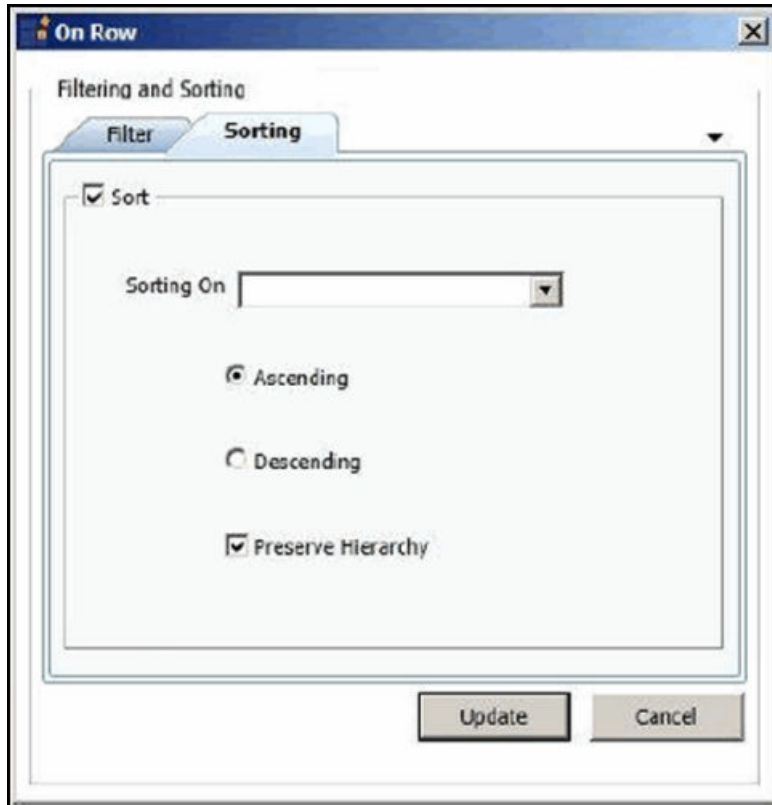
Uncheck the **Filter Empty Rows** checkbox if you do not want to include rows with empty data in the filter.

Check the **Filter 1** checkbox to create a filter.

Select a filter condition from the Condition drop-down menu.

Click the **Filter On** drop-down menu to select a printing data value to filter by.

Figure 12-175 Sorting tab



Click the **Sort** checkbox to turn on sorting.

Click the **Sorting On** drop-down menu to select the page type that you want to sort the data by.

Select **Ascending** or **Descending** to determine the order of sorting.

12.21 Configuring for Print Server tracking


To configure a print queue, select a print queue from the installed print queues list, then click Configure. In the Configure window, select features to enable. Click **OK**.

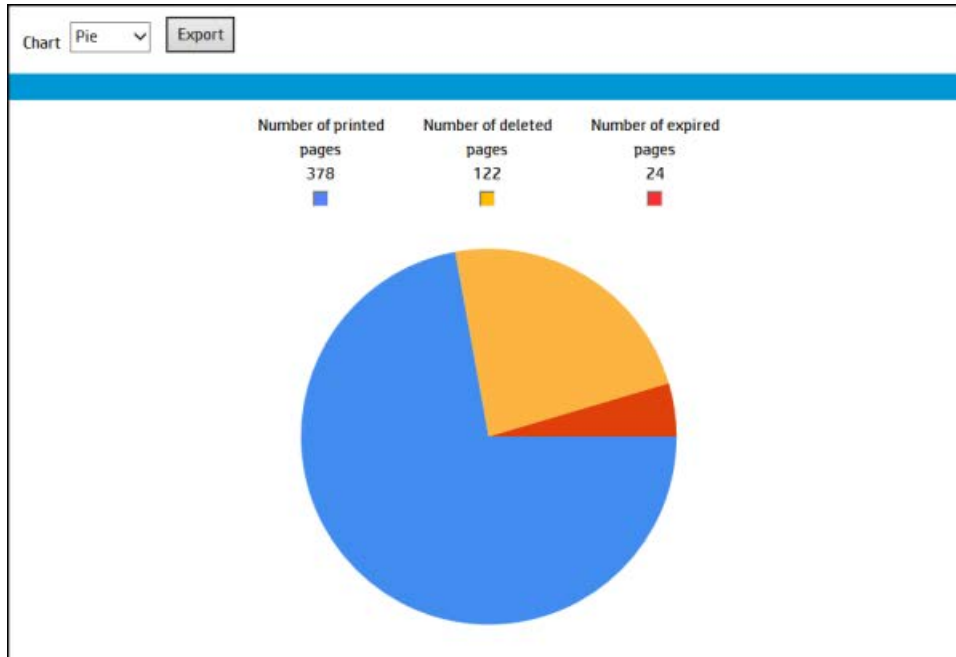
The Configure window displays the following possible features:

- **Tracking:** Enables tracking of print jobs sent to the selected print queue. The print queue tracking method can be either Port Monitor or Print Processor, depending on what is selected in the Settings tile > Print Server tab.
- **Quota:** Enables the enforcement of Job Accounting quotas for printing.
- **IPM:** Enables the implementation of IPM rules and costs. Select a cost per page scheme from the drop-down list. The cost per page schemes can be set in the Settings tile > IPM tab. The IPM Cost column displays the cost per page scheme assigned to the selected print queue.
- **Add tracking PJI attributes:** Inserts Job Accounting PJI attributes in the data stream. If an application generates a data stream that does not include the PJI header containing the user and job information, the user and job name are reported as UNSPECIFIED in Job Accounting reports.
- **Pause job:** Automatically pauses print jobs in the print queue. This feature is only possible when Port Monitor is selected for print queue tracking and the Windows service HP ACJASpool Monitor is started.

13 Pull Print Savings

The Pull Print Savings tile allows administrators and users to view the number of printed pages, deleted pages and expired pages in as a graph. Click the **Chart** drop-down menu to view the data as a pie chart or as a bar graph. Click the **Export** button to export the data as a CSV file.

 **NOTE:** The Pull Print Savings can also be viewed in a web browser by going to <http://server/PullPrintSavings>, where server is the name or IP address of the HP AC server.



14 Licensing


14.1 Licensing the product

Licensing of HP AC software is controlled via the license file - lrsoskey.lic. This license file contains all the information needed to run licensed HP AC software on any licensed host in your environment. The license file can be installed on each of your designated host servers. The license file can be viewed and copied but must not be modified as this will invalidate the license.

Example temporary Product License File:

```
Version 5
*****
*                               LRS Product license file                               *
*-----*
* Customer ID: IL0000 - HPAC DEMO *
* *
* Customer Name: Levi, Ray & Shoup, Inc. - HPAC DEMO *
* *
* Date created: 20-Jun-2017 01:25 AM *
* *
* LRS Order Number: HPAC DEMO *
* *
* LRSOSKEY=L5IL000000097T79K616K08VAUKF+YVZ001+HSZ28PX6I108UC50QC64+JWD*
*-----*
* WARNING: If this file is modified it will invalidate the license *
*          and the product will be disabled. *
*-----*
*Type   Expiration   Count   CustID   Key   Product Name   HostVer   Host Name
*-----*-----*-----*-----*-----*-----*-----*
Trapped 20Jun2018   001000  IL0000   145   LRS/EOM Output Server   Yes      LOCALHOST
Trapped 20Jun2018   000000  IL0000   306   VPSX/Spool              No
Trapped 20Jun2018   000010  IL0000   199   VPSX/Secure Delivery    No
Trapped 20Jun2018   000010  IL0000   319   HPAC for HP              No
Trapped 20Jun2018   000010  IL0000   320   HPAC for Canon           No
Trapped 20Jun2018   000010  IL0000   321   HPAC for XT              No
Trapped 20Jun2018   000500  IL0000   322   HPAC Job Accounting      Yes      LOCALHOST
Trapped 20Jun2018   000010  IL0000   323   HPAC IPM                 Yes      LOCALHOST
```

 **NOTE:** The host name specified in the license file must match the value returned by the 'hostname' command.

 **NOTE:** If transferring the license file between systems, use a BINARY file transfer to avoid corrupting the file.

To receive a license file for HP AC, go to the HP licensing center at <http://myhplicensing.hp.com>.

After logging in using your HP Passport account, the first information you will enter is the Entitlement Order Number (EON). You should have received an email from HP after purchasing HP Access Control licenses which contains the EON. Follow the onscreen instructions. When you are prompted for an ID Key or server hostname, be sure to provide the list of all server hostnames that will share this HP AC license. Use the simplified hostnames that are returned when using the hostname command.

After your license request is processed, you will receive an email from HP containing a license .dat file. Use the Upload license button on the HP AC Configuration Utility License tile to install the license. The .dat file will be converted to lrsoskey.lic and stored in c:\program files\hp\hp access control.

Repeat this step for each HP AC server in the environment or manually copy the lrsoskey.lic to c:\program files\hp\hp access control on each server. You will be prompted to provide a copy of the lrsoskey.lic file or its contents when more licenses need to be added in the future.

14.2 License tile

The License tile shows the expiration dates and the number of used and available license keys for devices, IPM and Job Accounting.

Figure 14-1 License tile

License

Server: EGMCTQAG2 To contact a licensing customer support center, go to <http://mylicensing.hp.com> and click on the "contact HP licensing" link on the left. The form provided allows you to send requests to the licensing support team.

HP AC Agent

Expiration date: 7/31/2018 2/10 devices

HP AC IPM

Expiration date: 7/31/2018 4/10 devices

Print DLP

 **NOTE:**

- Information in the License tile may vary depending on what components of HP Access Control (HP AC) are installed on the server.
- If a .bak license backup file exists in the HP Access Control directory, the file must be removed from the HP Access Control directory before uploading a new license file.

14.3 License expiration

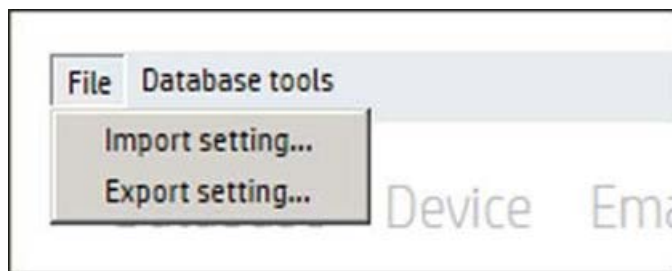
The red highlighted License tile on the HP AC Configuration Utility main screen indicates a component license is expired.

15 Best practices and troubleshooting

15.1 Importing and Exporting settings

Configuration settings can be exported as an XML file, in the event that the server or application needs to be re-installed. Complete the following steps:

1. Go to the Settings tile and under the File menu, do one of the following:
 - Click **Import setting** to import an XML file of previously saved settings or;
 - Click **Export setting** to save your current settings as an XML file.



2. Enter the path for the file required.

15.2 Backing up the database for re-installation

The Database tools menu allows you to repair or backup the database setting information in the event the server or application needs to be reinstalled. The information entered in the settings tile is stored in a database.

Go to the Settings tile and under the Database tools menu, do one of the following:

- Click **Compact and Repair database** to compact the database
- Click **Backup database** to save the database as an SDF file

15.3 Server information

The Server information tile displays information to help you manage HP Access Control on your server. This tile displays version numbers of installed components, storage and memory of the server, and the HP Access Control logs. This makes it easy to check if your HP Access Control components are up to date and view valuable information about your server such as hard drive space available. Click **Help > About** to view copyright information about HP Access Control. It is recommended to enable logs when requested by the support team. To enable logs for components, click the check box next to the component title. Click the **View Log File** icon to open the log file. Click **Clear Log File** to clear the log.

15.4 FDT section

The HP Fleet Deployment Tool (FDT) is a standalone tool designed to install and configure your printer fleet.

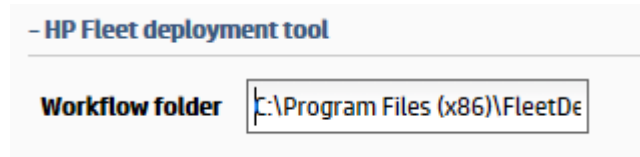
This FDT section utilizes the customized workflows created by the HP Fleet Deployment Tool, allowing you to send firmware, in-printer agents or configuration files to multiple devices for a more automated deployment.

See the HP Fleet Deployment Tool User Guide included with the Fleet Deployment Tool application for instructions to create workflows.

 **NOTE:**

- The FDT section displays only if the HP Fleet deployment Tool application is installed on the server.


In the Workflow folder field, enter the folder path containing FDT workflow files.



Use the Fleet Deployment Tool to send FDT workflows to devices.

15.5 Limit the AD-Authenticator managerial websites to specific users

The Group Manager and User Editor Web pages can be set to limit their use to specific users only. By default, these pages permit access to any user who can successfully authenticate to your domain. Because they are used only for managing the AD-Authenticator, you are encouraged to limit their use to those individuals in your organization who have been specifically selected and trained to use them. This section describes how to accomplish that.

-
-  **NOTE:** The Group Manager and User Editor pages each perform unique functions. You can allow different users access to each page. For example, you may want to give your help desk personnel access to the User Editor and limit the Group Manager pages to system administrators only.
-

15.5.1 IIS 7

1. Open Internet Information Services (IIS) Manager.
2. In the Connections pane, go to the local server name>Sites>Default Web Site.
3. In Features View, double-click **Authorization Rules**.
4. In the Actions pane, click **Add Deny Rule**.
5. In the Add Deny Authorization Rule select one of the following types of access:
 - **All users:** specifies that all users, whether they are anonymous or identified, can access the content.
 - **All anonymous users:** specifies that anonymous users can access the content.
 - **Specified roles or groups:** specifies that only members of a certain roles or users groups can access the content. Enter the role or user group in the text box.
 - **Specified users:** specifies that only certain users can access the content. Enter the user IDs in the text box.
6. Optionally, check **Apply this rule to specific verbs** if you want to require that the users, roles or groups allowed to access the content can only use a specific list of HTTP verbs. Enter those verbs in the text box.
7. Click **OK**.

15.6 Customize the user code and device function rights email message

The contents of the email message sent to inform users of their PIC and device function rights can be modified. The following is an example of the default email text from the default notification-mailer-localization.xml:

```
Hello John Doe,  
  
Your code is required for device access.  
  
Your code is: 1791  
  
Your device function permissions:  
  
No - Copy  
No - Color Copy  
No - Send to E-mail  
No - Send Fax  
No - Send to Folder  
No - Job Storage  
No - Create Stored Job  
No - Digital Sending Service (DSS) Secondary E-mail  
No - Digital Sending Service (DSS) Workflow  
Yes - HP AC Secure Pull Print  
  
Please contact your supervisor if you have questions regarding this email.
```

The text of the message, and other information, can be changed. Complete the following steps to modify the email:

1. Launch the Windows Notepad utility with the Run as Administrator option.
2. Open the AD-Authenticator mailer style sheet:
 - a. On the Notepad menu, click **File** and then click **Open**.
 - b. In the Files of type drop-down list, select **All Files**.
 - c. Browse to the AD-Authenticator Configuration directory (default location: ...\\Program Files\\HP\\HP Access Control\\Share\\<version>\\Configuration\\) and then to the mailers subdirectory.
 - d. Select the **notification-mailer-localization.xml** file and then click **Open**.
3. The XML file contains the contents of the notification email parts in plain text with additional localization features. For best practices, save a copy of the original file before modifying the text.
4. When the required changes are completed, save the changes and close Notepad.

For reference, the following is an example of the default content of the notification-mailer-localization.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<strings>
  <!--
  The user notification email is created from the strings defined here.

  Its basic format is as follows:

  {salutation}
  {instructions}
  {card-status}
  {code-status}

  {permissions-heading}
  {permission-permitted | permission-prevented} - {permission-[guid-value]-display-name} (repeated for all permissions)
  {conclusion}

  {closing}
  {signature}

  The "instructions", "card-status", "code-status", and "permission-permitted"
  sections are created dynamically depending upon your solution configuration
  and the specific user's status.

  By default, the "closing", and "signature" sections are not populated.
  -->
  <string name="subject">
    <value language="en-US">Your printer and MFP device access information!</value>
    <value language="cs-CZ">Přístupové údaje vaší tiskárny a zařízení MFP.</value>
    <value language="da-DK">Adfændeoplysninger om din printer og MFP-enhede</value>
  </string>

```

15.7 Logs

15.7.1 IPM logs

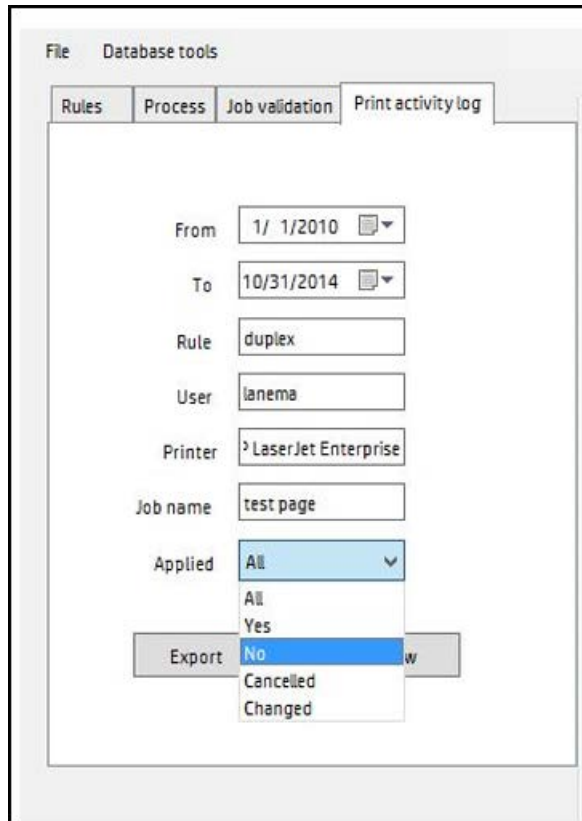
To enable a list of all jobs printed using IPM rules, the IPM log can be enabled.

Prerequisites

- HP Access Control Intelligent Print Manager installed and configured.
- Devices configured for IPM rules.

Complete the following steps:

1. Go to the Settings tile and click on the IPM tab.
2. Under **Print activity**, select **Enable print activity log**.
3. Click **Apply**.
4. To view the logs to the IPM tile, click **Print activity log** tab.
5. Enter the following information to define the report required:
 - Enter the date range in **From** and **To**.
 - **Rule**: Enter the name of the rule to view print activity with a specific rule.
 - **User**: Enter the NT username to view print activity of a specific user.
 - **Printer**: enter the print name to view activity of a specific printer.
 - **Job name**: enter the name of a job to view activity of a specific print job.
 - **Applied**: select the status of job rules to view activity of a specific rule status.



6. Click **View** to see the log, or click **Export** to save as a CSV file.

15.8 Troubleshoot the AD-Authenticator

This section describes various error conditions that may be encountered when configuring and/or using the AD-Authenticator and how to resolve them.

15.8.1 Internet Explorer cannot display the web page

If this message displays when trying to start the AD-Authenticator Group Manager or User Editor on the server where the AD-Authenticator is installed, it is most likely caused either because the URL of the application is incorrectly entered, or because the Default Web Site is not started in IIS on the server.

Make sure the URL is correct. For the Group Manager, it should be `http://localhost/AD-Authenticator/AD-Group-Manager.aspx`. For the User Editor, it should be `http://localhost/AD-Authenticator/AD-User-Editor.aspx`.

If the URL is correct, go to the IIS Manager and check to see if the Default Web Site is running. If it is stopped, right-click it and select Start

If you encounter this error when trying to start the AD-Authenticator Group Manager or User Editor on a machine other than where the AD-Authenticator is installed, it could be caused by either of the conditions previously described, or because the firewall on the server (or another firewall between the machine and the server) is preventing access.

First, make sure the utility operates correctly when started on the AD-Authenticator server itself. If it does not, correct that problem. If it operates correctly on the server, check the server and any other firewall or router settings.

15.8.2 No LDAP server configured and unable to obtain one automatically

The AD-Authenticator can often locate the AD server automatically without requiring a specific address. If this message displays, it is unable to automatically locate the AD server and one must be specified.

15.8.3 Unable to establish a secure connection with the server

An unable to establish connection with the server error displays text similar to the following:

```
Server Error in '\AD-Authenticator' Application
```

```
Configuration Error
```

```
Description: An error occurred during the processing of a configuration file required to service this request. Please review the specific error details below and modify your configuration file appropriately.
```

```
Parser Error Message: Unable to establish secure connection with the server
```

This error can be caused by an error in the ConnectionUsername and ConnectionPassword attribute strings.

Make sure those strings contain the correct username and password for a user with read-write access to the AD. Make sure only a simple username was entered, with no domain prefix.

15.8.4 Unable to auto-detect a SMTP server

If Microsoft Exchange is implemented, AD-Authenticator can often detect the SMTP server automatically without requiring its specific address. This message indicates that it is unable to automatically locate the SMTP server and one must be specified one. For instructions on setting the SMTP server address, see [Section 4.2.2.1, Set SMTP Server parameters](#).

15.9 Redeploying workflows to devices

When redeploying workflows to the device(s), place an X in a component checkbox to re-send the configuration file. Clear a component checkbox to disable the component on the device.



NOTE: If the IP address of a device changes, go to the Devices tile > select the device > click Admin > Update, then update the IP address of the device. This is to update the cached printer information in the admin console.

15.10 Troubleshooting devices

15.10.1 Troubleshooting OfficeJet Pro devices

When configuring OfficeJet Pro devices you may see the following errors in the messages pane:

- **Error 401:** Check that the OPS Server Password provided during the OPS installation matches the password in the HP AC Configuration utility.
 - In the Settings tile > Pull Print, select your server, and then click **Configure**. Go to the Advanced tab > HP OPS Server section and re-enter the OPS password.
- **Error 400:** There is a communication issue between the OPS server and the device.
 1. Remove the OPS certificate from the device. Go to the EWS and under Network > Certificates delete the OPS certificate.
 2. Reboot the printer.

3. Select "Override OPS" in the Settings tile > Pull Print tab, select your server and click **Configure**. Click on the Advanced tab > HP OPS Server in the OPS server section.
4. Restart the OPS service.
5. Reconfigure the device.
6. If the error persists, reset the printer to factory defaults and reconfigure the device.

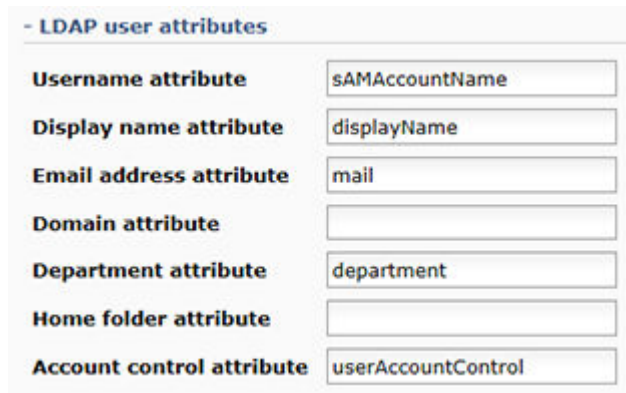
15.11 Slow authentication

If authentication performance is sluggish upon first use, contact the IIS administrator to look into disabling the Certificate Revocation List check (CertCheckMode). This has been reported to take 10-15 seconds to complete in some cases. Use of SQL Server Express or full SQL in HP AC can eliminate this issue.

15.12 Blocking disabled AD users

This is useful if accounts are not removed, but only disabled, and you do not wish to allow the accounts access to the print devices.


1. Go to the Settings tile > Pull Print tab > Configure > Advanced tab > LDAP User Attributes section.





The screenshot shows a configuration window titled "- LDAP user attributes". It contains several rows, each with a label on the left and a text input field on the right:

Username attribute	sAMAccountName
Display name attribute	displayName
Email address attribute	mail
Domain attribute	
Department attribute	department
Home folder attribute	
Account control attribute	userAccountControl

2. If the Account Control Attribute field is filled, disabled users will not be able to authenticate. If this field is empty, disabled users will be able to authenticate.

 **NOTE:** The disabled user will still display in the HPAC > Settings tile > User tab if the disabled user is looked up, but the user will not be able to authenticate at devices.

 **NOTE:** If authentication is attempted by the user that is disabled, the user's card/code data will be automatically removed from the database.

 **NOTE:** If the disabled account is later re-enabled, the AD-Authenticator will return one of the users with the matching card/code and will not be able to distinguish between the two. It is recommended that a user's card/code values be cleared before their account is disabled. When an Active Directory user account is disabled, it will be invisible to AD-Authenticator operations and behave as follows:

For card authentication:

- Previously enrolled users will appear in the DB-User-Editor and can be modified. Regardless of any modification there, the disabled user will still be unable to authenticate or enroll a card.
- Attempting to enroll a new card will result in a "Your account is disabled" error.
- Attempting to authenticate a card that was previously enrolled to a now disabled user will result in an "Unknown card" error. If enrollment is permitted, the user will be prompted to enroll the card but attempts to enroll it to a disabled user will result in the "Your account is disabled" error as stated above. The card can, however, be enrolled by another user whose account is not disabled. This can cause issues if the original account is later re-enabled because the card will now be assigned to multiple user accounts.

For code authentication:

- Previously enrolled users will appear in the DB-User-Editor and can be modified. Regardless of any modification there, the user will still be unable to authenticate or enroll a card.
 - Attempting to authenticate a code that was previously assigned to a now disabled user will result in an "Unknown code" error.
 - A disabled user's code can be reassigned to another user whose account is not disabled through either the User tab or MyCode pages. This can cause issues if the original account is later re-enabled because the code will now be assigned to multiple user accounts.
-

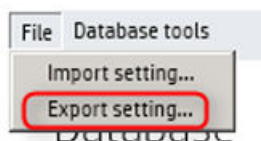
15.13 Resetting XT devices

XT devices can be reset by going to the web page of the XT device and selecting to reset to factory settings.

15.14 Post installation tasks

As a best practice, after configuring your HP AC installation, you should backup the configuration so that it can be easily recovered if needed.

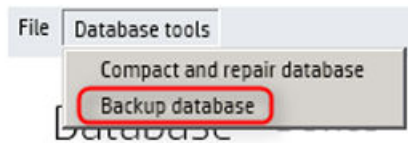
1. Go to the Settings tile.
2. Under the File menu select **Export Setting**.



3. Save the file. When complete you will get an export successful message.



4. Go to the Database Tools and choose **Backup Database**. The database stores the admin console configuration and the login rights for the admin console.



15.15 Enabling CORS on FutureSmart devices

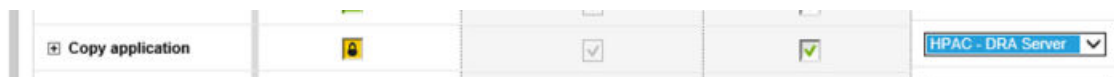
If CORS is enabled on any of the FutureSmart devices than the following is required to be done in the device's Embedded Web Server:

- If using Job accounting and tracking is required, make sure the Job Accounting server is listed in the CORS Trusted Site list.
- If using Secure Pull Print, make sure "localhost" is listed in the CORS Trusted Sites list.

15.16 User rights not being enforced

When configuring user rights for access to device functions, if the user is able to access a restricted function check the following:

1. In the device's EWS ensure that the function is controlled by HPAC-DRA and that the guest user is locked out (displays a lock icon).



- In the Settings tile > DB User Editor you can search on the user and under the rights column it should show 1's (permitted access) or 0's (not permitted access).

Search users

ue15

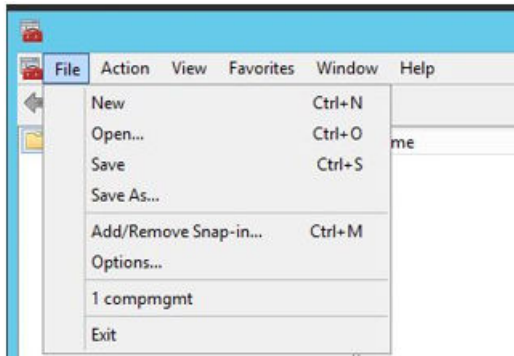
Select	Update	Users	Cards	Rights	Name	Domain	Email	Group	Last authentication
<input type="checkbox"/>		ue15	EF042065C11850	1111111111	User EMEA 15	emea.hpsolstr.com	ue15@emea.hpsolstr.com	Finance	6/9/2015 11:58:12 AM
<input type="checkbox"/>		ue159		0000000000	User EMEA 159	emea.hpsolstr.com	ue159@emea.hpsolstr.com	Finance	6/9/2015 11:28:53 AM
<input type="button" value="Delete"/>									

- In the User tab, check the rights for the individual user. Checked means that the user has access, unchecked means they will be forbidden access.

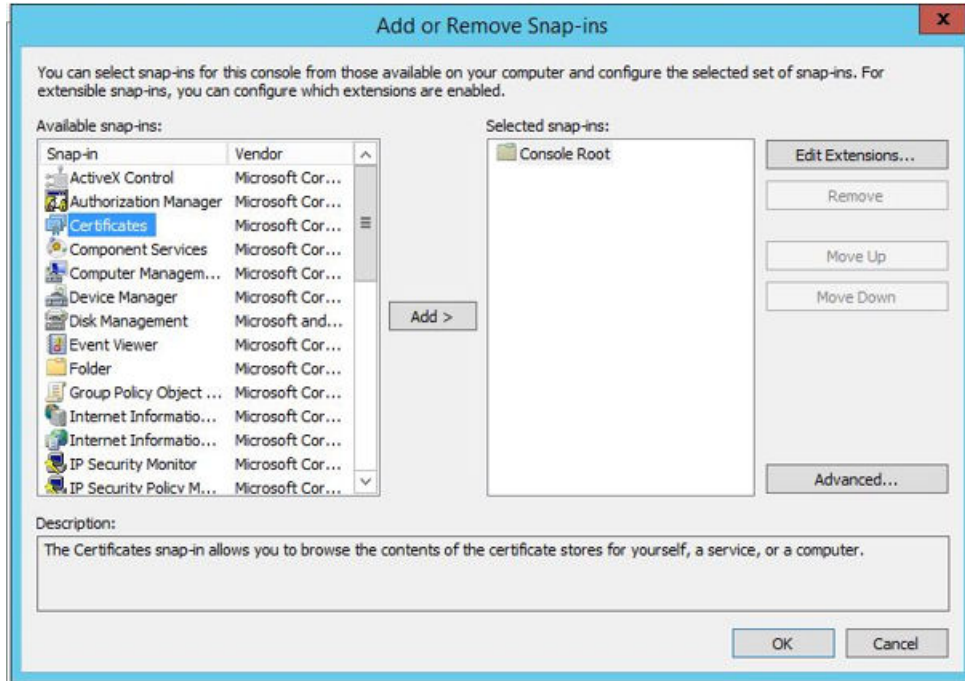
15.17 Reinstalling HP OPS

To reinstall OPS, the OPS certificates need to be deleted before reinstall as the certificate created by the new installation will not override the previous certificate.

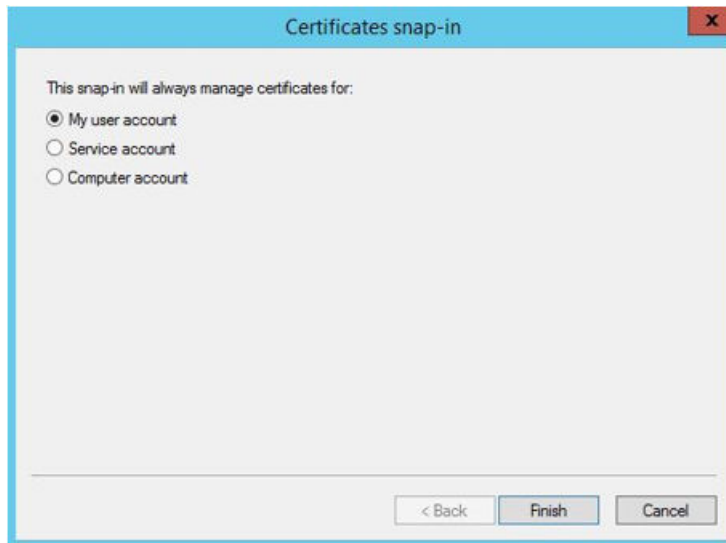
- On the HP AC server, open **Microsoft Management Console**. Go to **File** and select **Add/Remove Snap-in...**



- From the **Available snap-ins** section, select **Certificates** and then click **Add**.

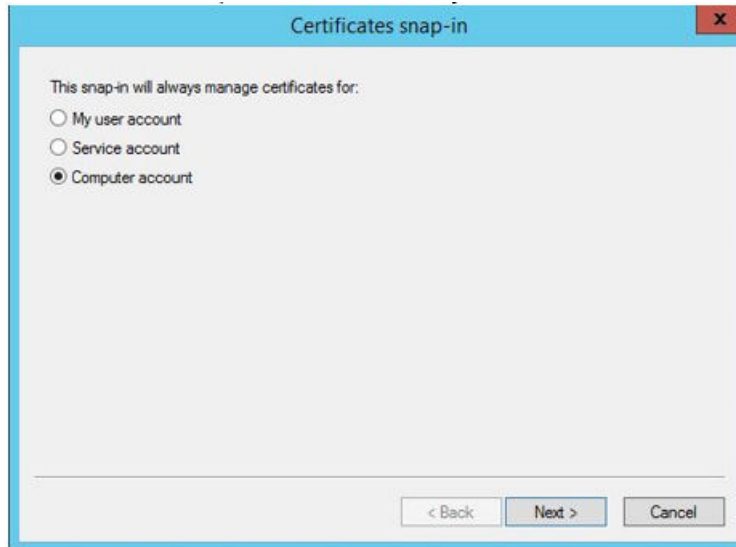


- For **Certificates snap-in**, select **My user account** and click **Finish**.

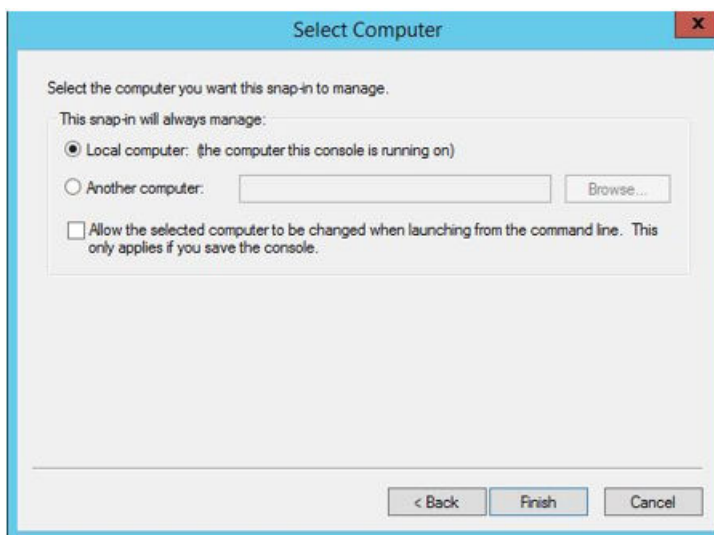


- Add another Certificate snap-in.

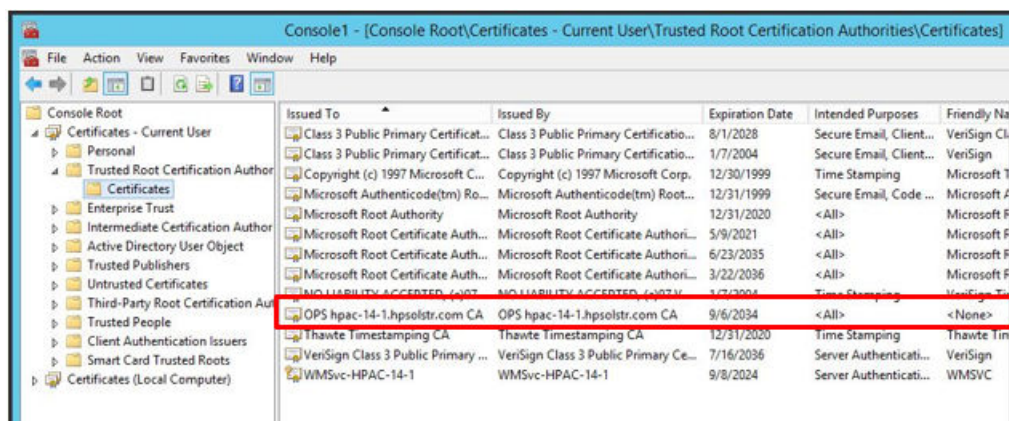
- In the Certificates snap-in window, select **Computer account** and click **Next**.



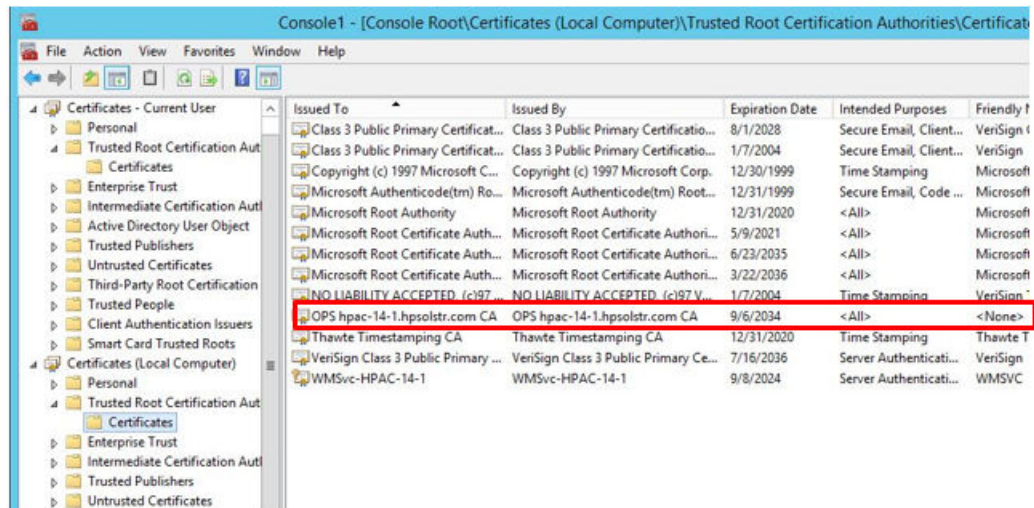
- When prompted, select **Local Computer**. Click **Finish** and **OK**.



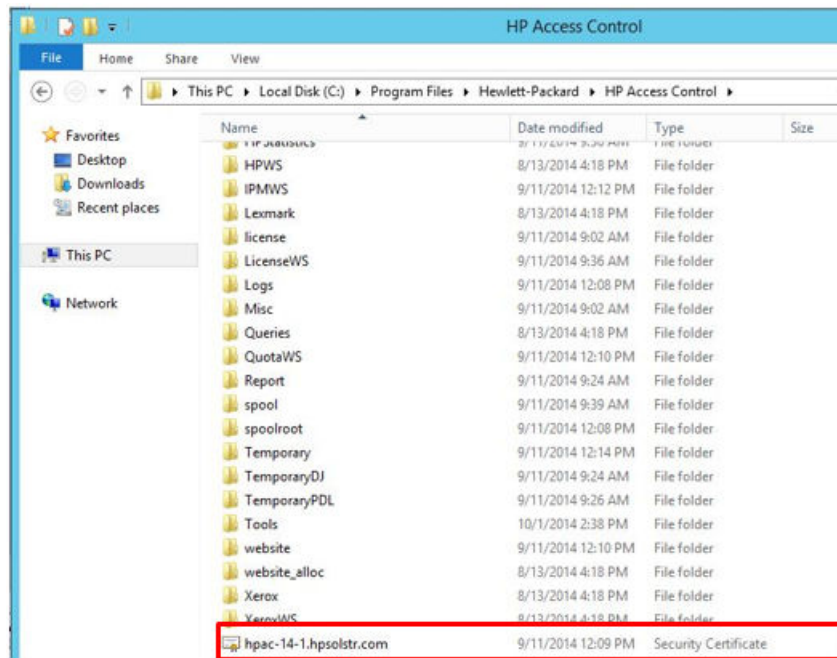
- Under Console Root, select **Certificates-Current User > Trusted Root Certification Authorities > Certificates**. Delete the OPS certificate.



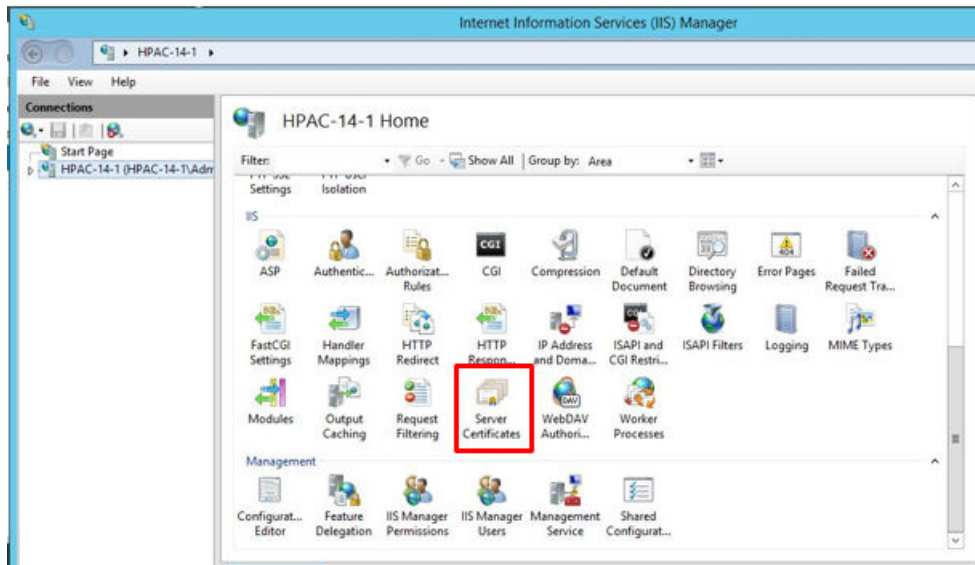
- Under Console Root, select **Certificates (Local Computer) > Trusted Root Certification Authorities > Certificates**. Delete the OPS Certificate.



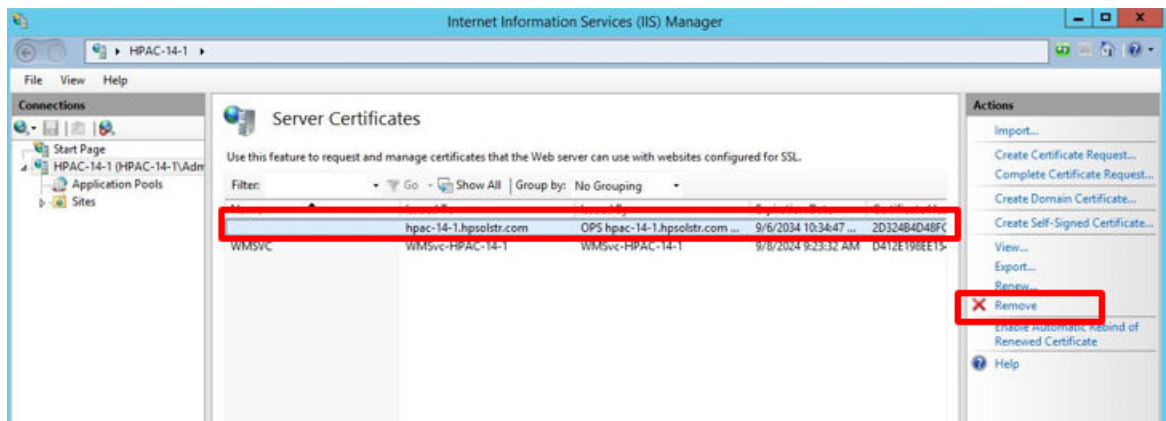
- Go to Program Files > HP > **HP Access Control** folder and delete the OPS certificate.



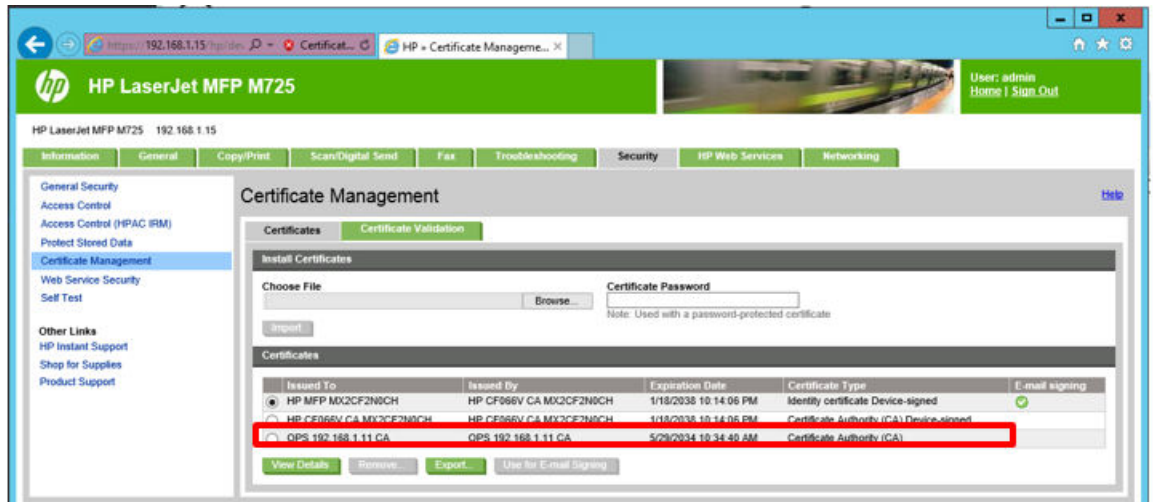
- Open **Internet Information Services (IIS) Manager** and select local machine. In the center pane, double-click **Server Certificates**



- Select the OPS certificate and choose **Remove**.



- Launch the HP AC configuration utility. Go to the Settings tile, select your server and click **Configure**. Go to **Advanced > HP OPS Server**. Delete the text in the **Certificate** field and click **Update**.
- Remove the OPS certificate from all configured devices:
 - For HP FutureSmart and non-FutureSmart devices, go to the device's Embedded Web Server and navigate to **Security > Certificate Management**. Remove the OPS certificate.
 - For HP OfficeJet Pro devices, go to the Embedded Web Server and select **Network > Certificates**. Remove the OPS certificate.



- Run the OPS installer from Program Files > HP > HP Access Control > Misc folder, and run **opssetup.exe** as an administrator.

15.18 Changing the drive where HP AC Enterprise stores pull print jobs

If you want to store pull print jobs in a different location other than the C drive, perform the following steps.

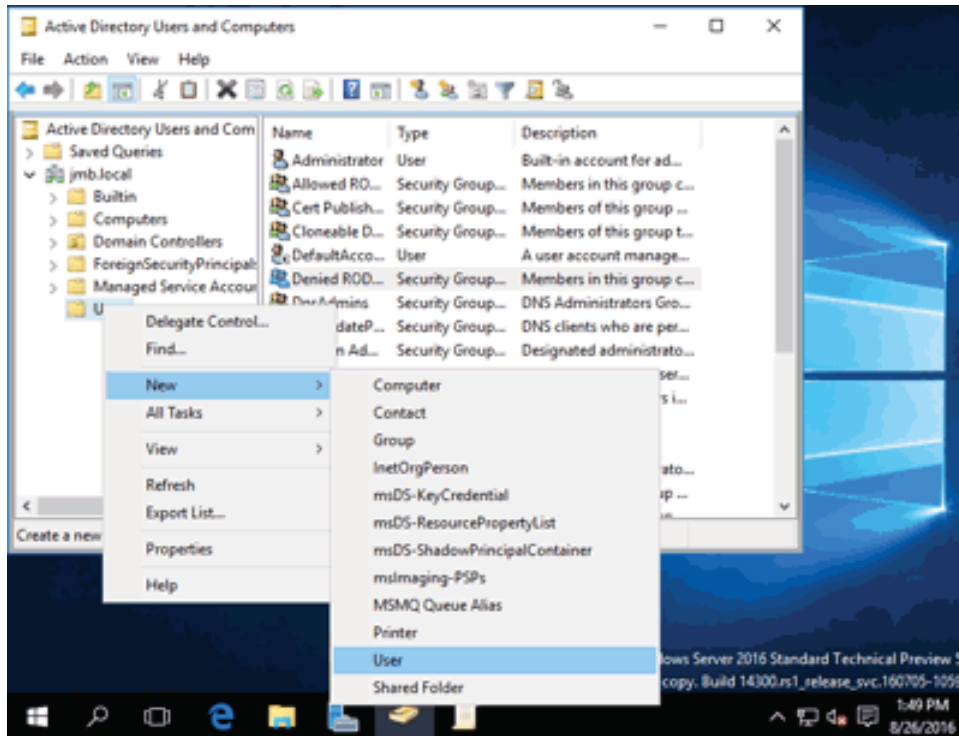
- After the installation is finished, stop the HP AC SPP Enterprise service.
- Move the \spoolroot folder and subfolders to the new local drive. This cannot be a network share or mounted drive. Copy the LIC file to the folder above the spoolroot folder.
- Open the \bin\vpstart.ini file and enter the new location on the SERVROOT line.
- Save the file and restart the service after the folder has been moved.

15.19 Configure a user account to logon as a service without interactive logon rights

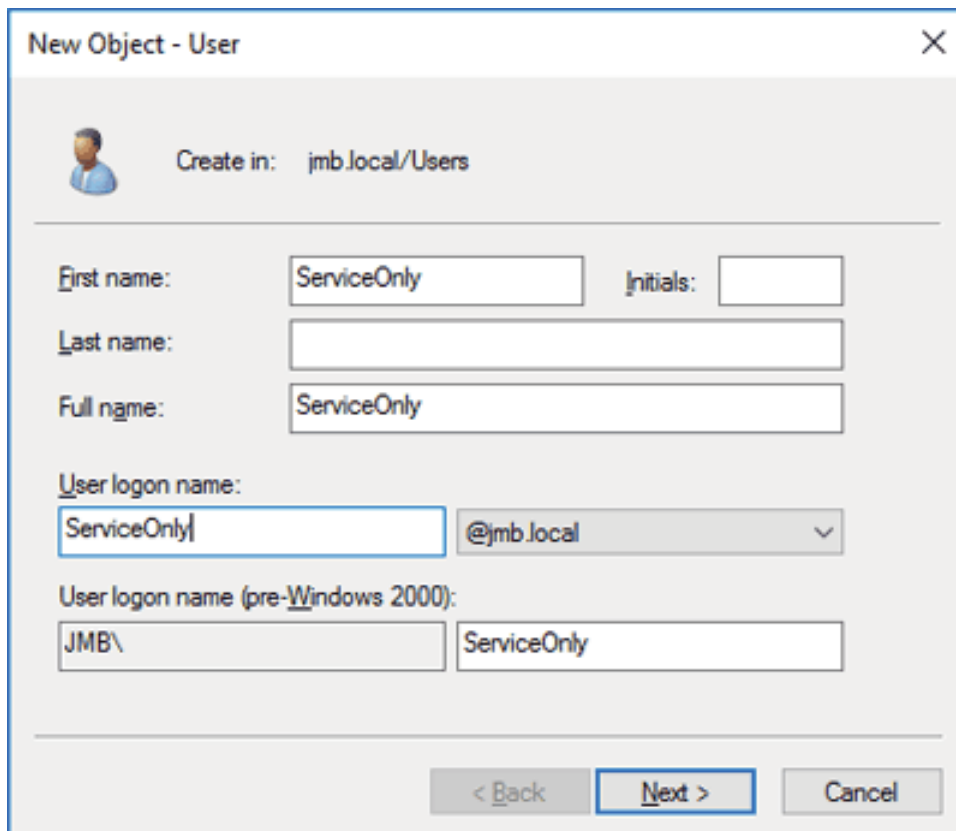
Complete the following procedure to configure a domain user with the ability to “logon as a service”, and to deny their ability to perform an interactive logon.

- Launch **Active Directory Users and Computers**.

2. Right-click **Users**, navigate to **New** and then select **User**.




3. Enter the information for the new, service-only user and click **Next**.



4. Enter a password. Make sure both **User must change password at next logon** and **Account is disabled** are both unchecked. Make sure **User cannot change password** and **Password never expires** are both checked. Click **Next**.

New Object - User [X]

 Create in: jmb.local/Users

Password: [.....]

Confirm password: [.....]

User must change password at next logon

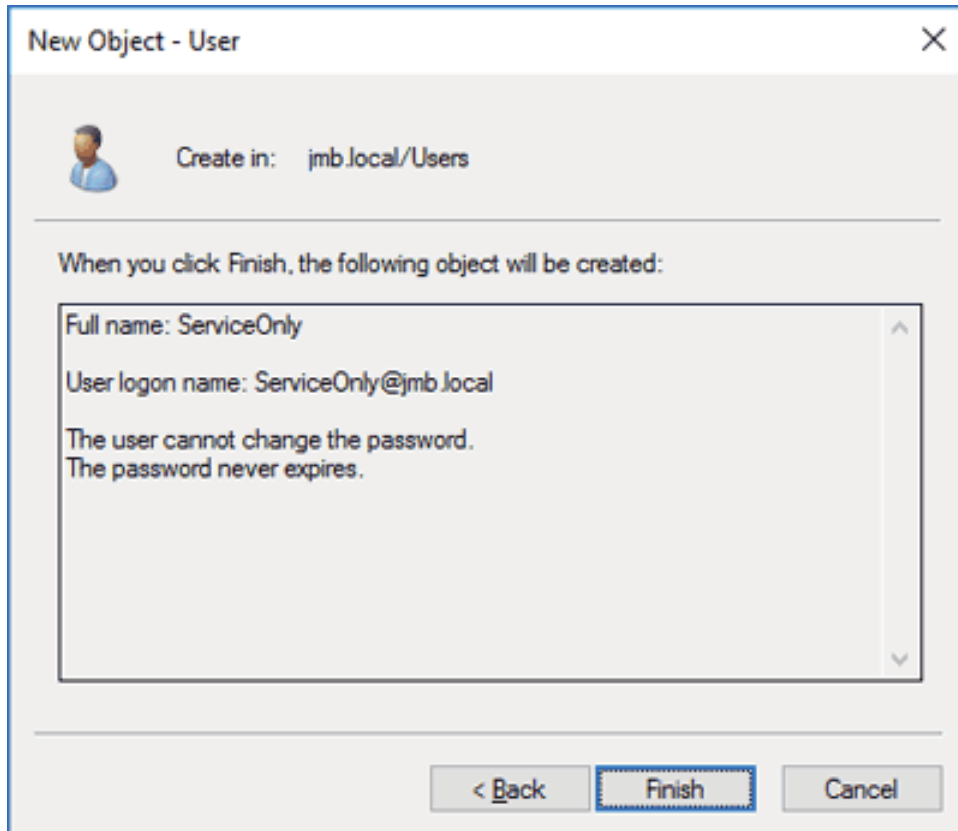
User cannot change password

Password never expires

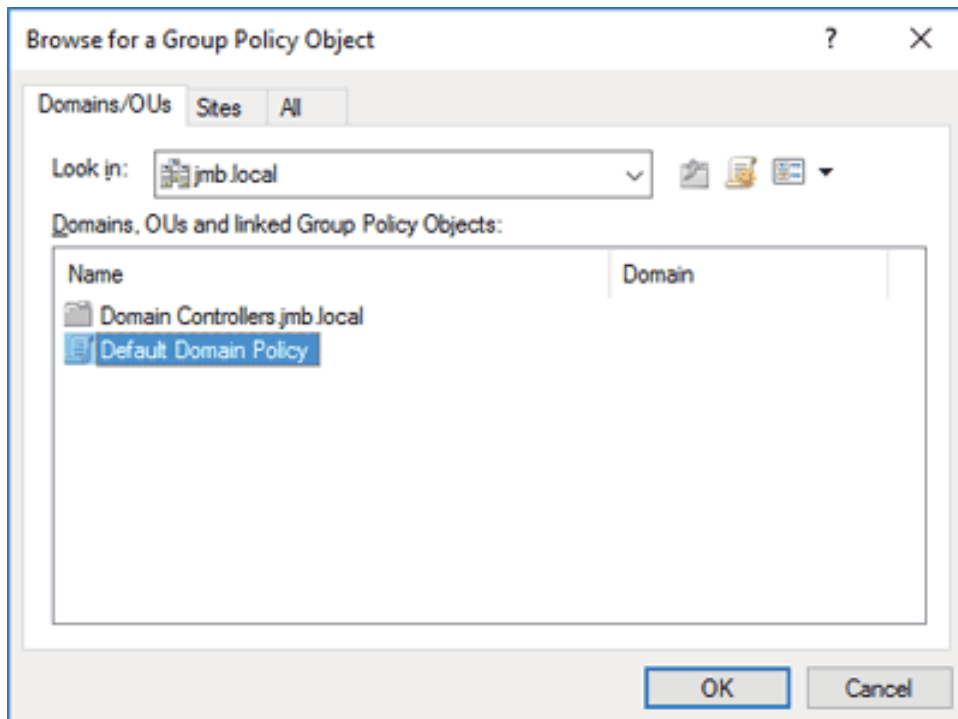
Account is disabled

< Back **Next >** Cancel

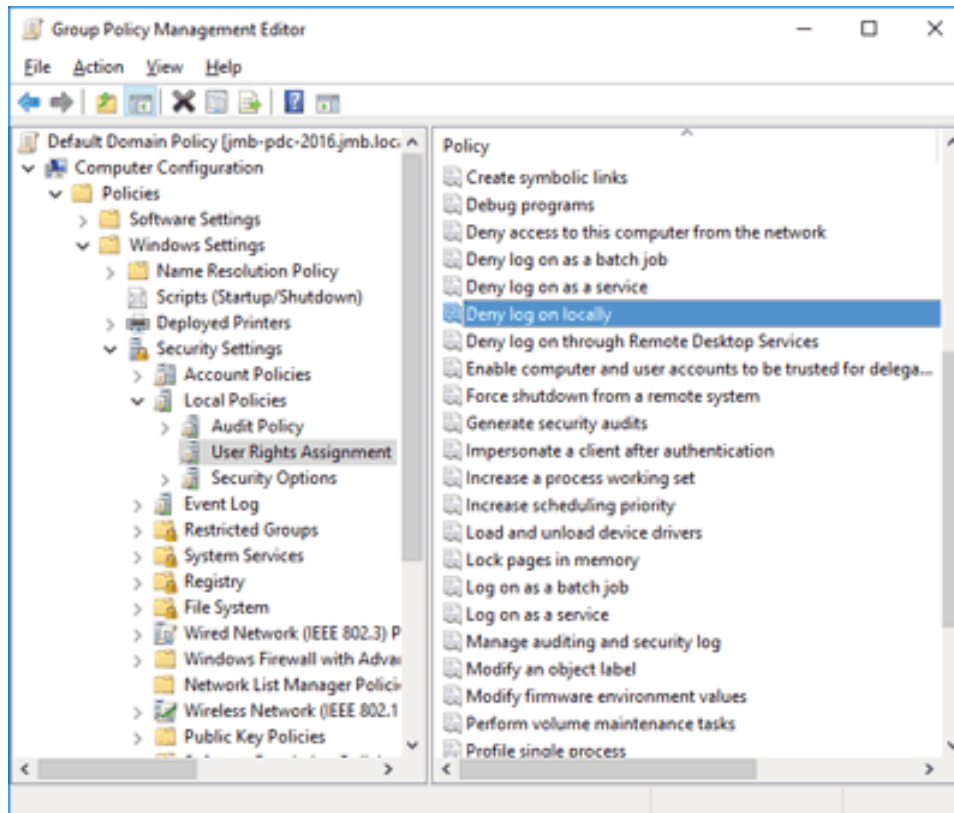
5. Confirm entries by clicking **Finish**.



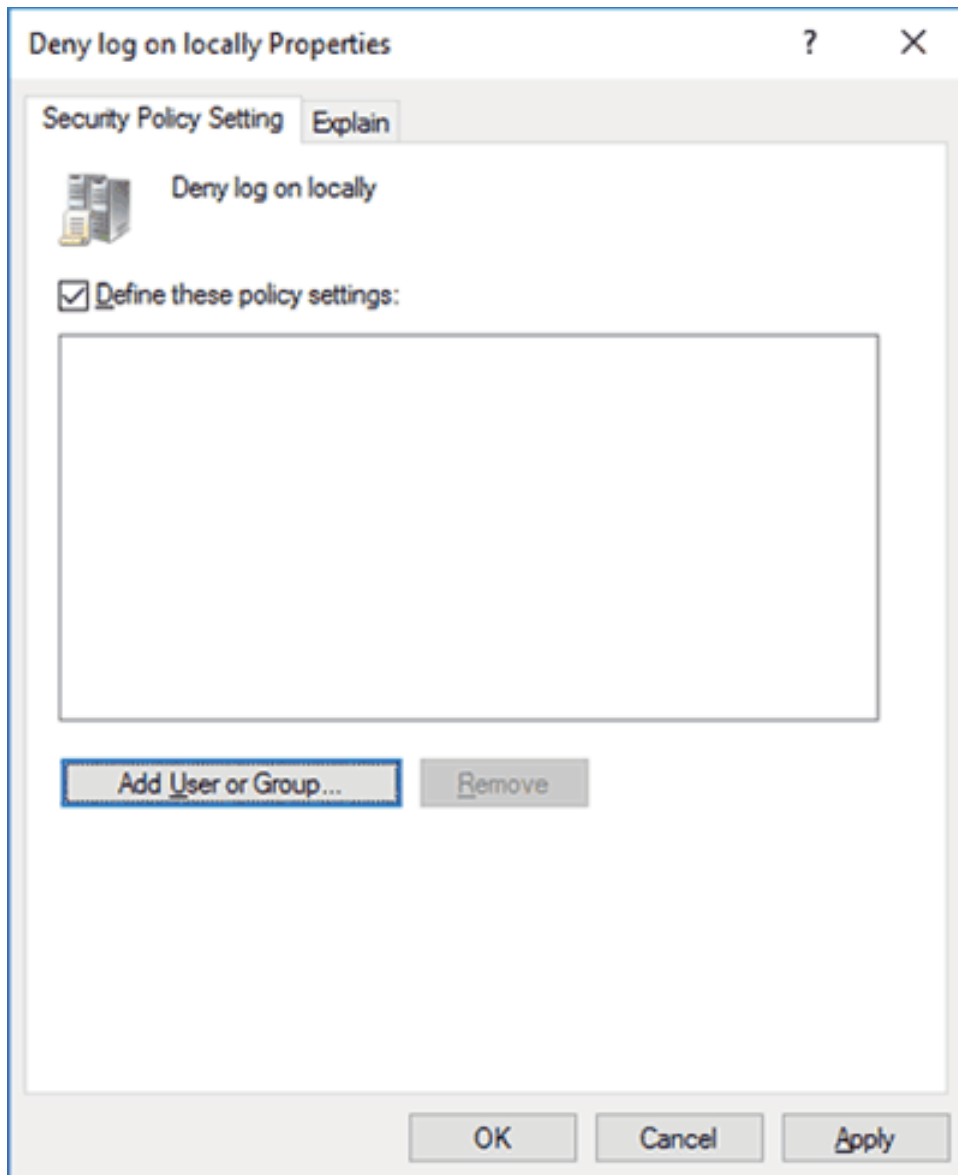
6. Launch the domain Group Policy Management Editor by typing “gpme.msc” at the **Start** menu. Double-click the **Default Domain Policy** entry in the **Domains, OUs and linked Group Policy Objects** section.



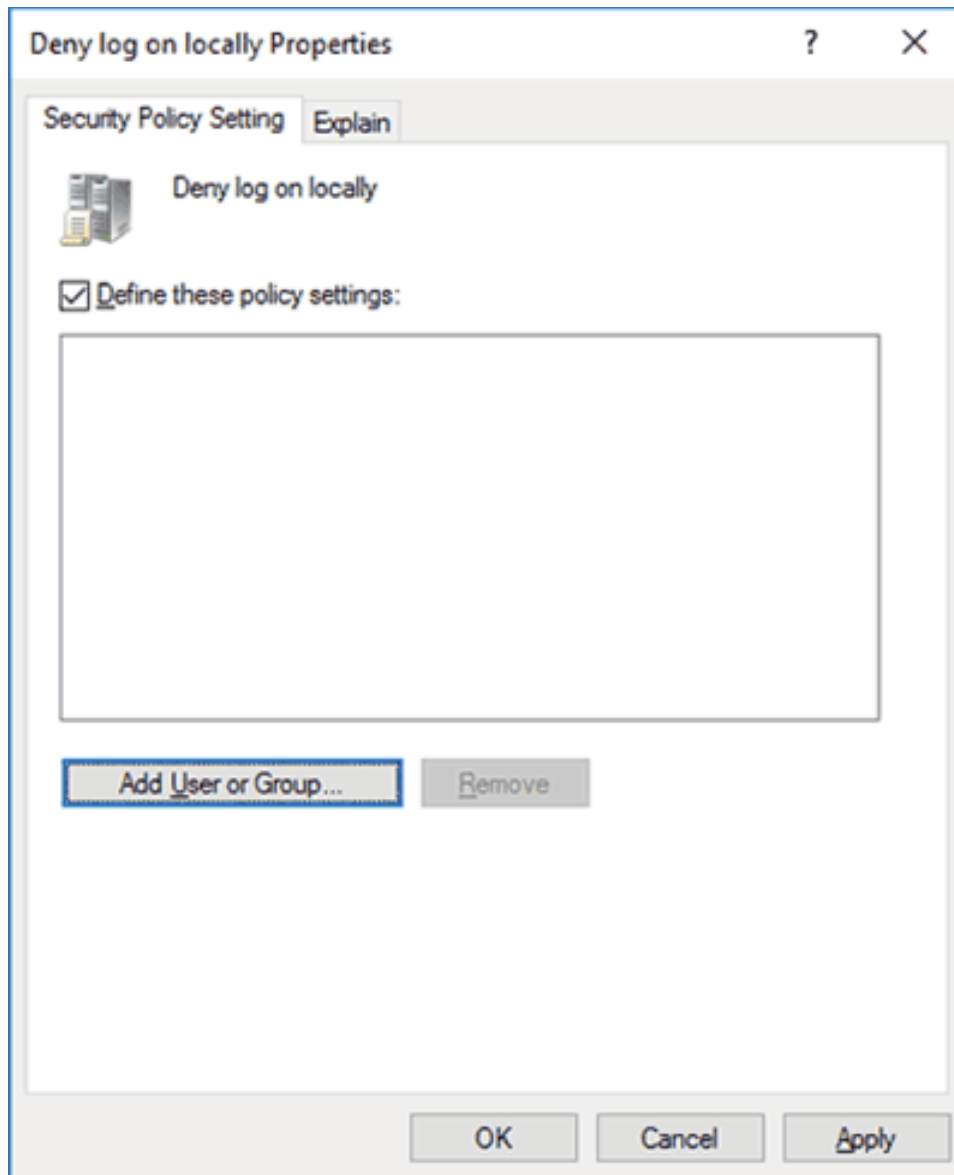
- Under **Default Domain Controllers Policy**, expand **Computer Configuration, Policies, Windows Settings, Security Settings**, and **Local Policies**. Click **User Rights Assignment**. On the **Policy** list (on the right side of the page), scroll down to **Deny logon locally**.



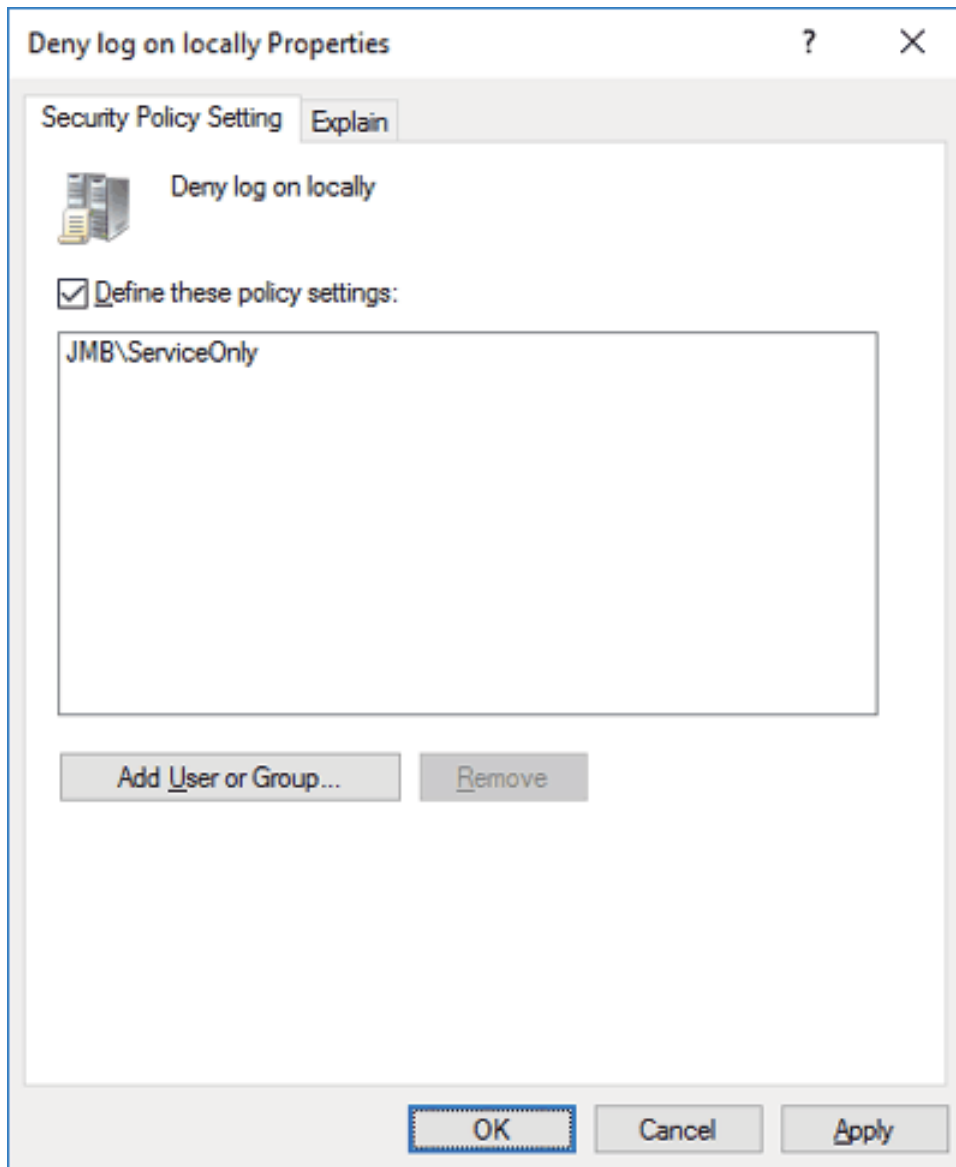
8. Double-click **Deny log on locally**. Make sure **Define these policy settings** is checked. Click **Add User or Group**.



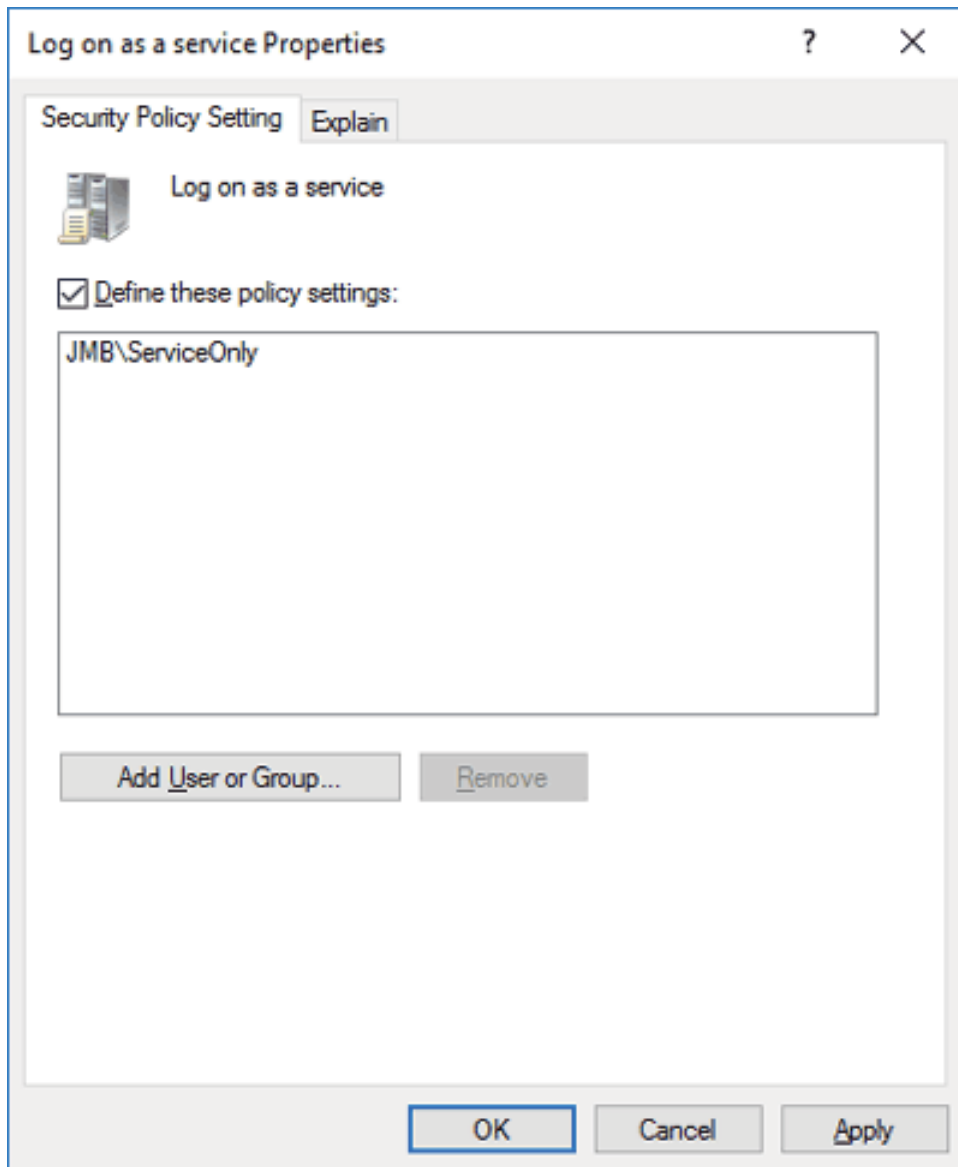
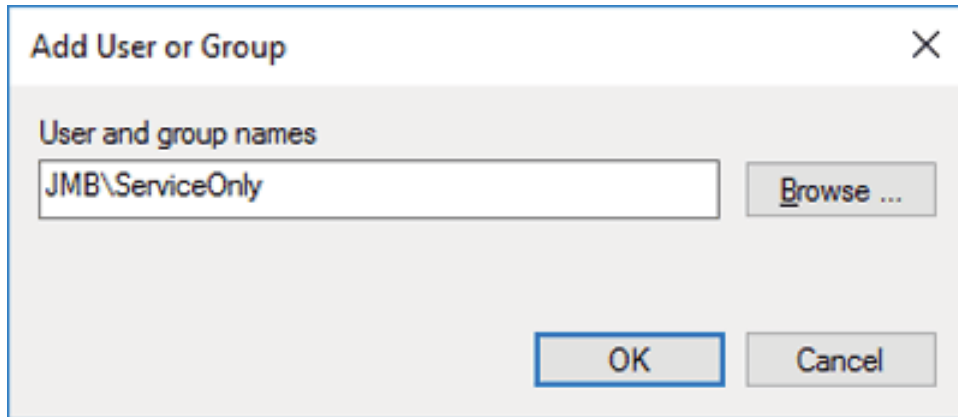
9. Enter the fully qualified username of the service user. It might be helpful to use the **Browse** button to locate the user. Click **OK**.



10. Click **OK** to accept changes.



12. Enter the fully qualified username of the service user. Click **OK**.



The user for use only as a service is now properly configured.

16 Appendix A: Network ports and firewalls

16.1 Secure Pull Print Server ports

Port	Inbound (to Server)	Outbound (to another)	Description	Used for
TCP 25 SMTP or TCP 587 TLS		✓	Outgoing email notifications (optional)	(required only if email notifications are used) HP Access Control server to mail server. Using 587 will encrypt the mail. Used to send emails for Job Accounting, IPM notifications, Pull Print notifications, and Device Analysis scans.
TCP 443 HTTPS	✓		Delegate/Group Printing (optional)	(required only if using Delegate/Group Printing - HP AC Enterprise only) For the HP AC Print Client to connect to the HP AC Pull Print Server and check the delegate and group print options.
TCP 110 POP3/995 SSL or 142 IMAP/993 SSL		✓	Pull Printing for email messages (optional)	(required only if mobile printing is used) Allows users to email jobs for pull printing either over POP3 or IMAP. Default port for POP3 is 110, but can be encrypted using 995. Default port for IMAP is 142, but can be encrypted using 993. Choice is dependent on what the customer is using.
TCP 139, 445 UDP 137, 138	✓		Windows shared queues (optional)	(required only if using Windows shared queues) Needed for Windows shared queues in the HP AC Server to be reachable from Client PCs to submit print jobs.
UDP 161 SNMP	✓	✓	Print Devices configuration	<ul style="list-style-type: none">• Non-FutureSmart device agent configuration• Device discovery SNMP data
TCP 443 HTTPS	✓		Job list and job retrieval from print devices	Used for job list and job print / delete request for pull printing to HP AC Server from Print devices.
TCP 443 HTTPs	✓		Job list and job retrieval from mobile devices (optional)	(only used when retrieving pull print jobs through mobile devices) Used for job list and job print / delete request for pull printing to HP AC Server from mobile devices.
TCP 443 HTTPs		✓	Print device configuration	Configuration data for HP devices, including HP OfficeJet Pro X, and licensing for other platforms.
TCP 443 HTTPs		✓	Client-based Pull Printing configuration	(only when using Client-based Pull Printing - HP AC Enterprise only) During configuration, the HP AC Client application will connect to the HP AC Server to find some configuration parameters.

TCP 443 IPPS	✓		Print job (optional)	(only required when using IPPS to send jobs to print devices – HP AC Enterprise only) Used by SPP Enterprise to send print jobs to devices using the IPP protocol over SSL, if that is the protocol chosen.
TCP 515 LPR	✓	✓	Print job (optional depending on config option)	(HP AC Enterprise only) This is the default port that SPP Enterprise will use for inbound LPD/LPR print jobs. Specifies the local TCP/IP port that SPP Enterprise will open for inbound LPD requests. This port number can be changed. For outbound, depending on the protocol selection on the server, jobs are sent to the printer either to this port, or 631, or 9100.
TCP 631 IPP	✓		Print job (optional depending on config option)	(required only if print jobs are submitted to the HP Access Control server using the IPP protocol - HP AC Enterprise only) Used for inbound IPP connections from the clients to the HP AC server.
TCP 631 IPP	✓	✓	Roaming for Pull Printing (optional)	(only used when Pull Print roaming is configured across multiple servers - HP AC Enterprise only) Used for communication between servers for remote printing (roaming).
TCP 1433 SQL		✓	HP Access Control server to SQL Server	Checking for alias, groups, delegate jobs, and for the primary license server with the HP AC Enterprise. Port number is configurable and needs to match with SQL server settings.
TCP 2000 TCP 2001		✓	XT Device Controller configuration (optional)	(only used when the fleet has XT Device Controllers) Configuration files sent from HP Access Control server to XT Device Controllers.
TCP 5500	✓		Client-based Pull Printing (optional)	(used only for Client-based Pull Printing - HP AC Enterprise only) Used by the Client to send jobs metadata to the server
TCP 5501			Internal	(HP AC Enterprise only) Used by the Enterprise spooler for internal API requests. Port number is configurable.
TCP 5600	✓		This is the port that ServerX will open for inbound HP AC monitor connections.	HP AC servers will communicate with ServerX via this port number.
TCP 5601	✓		This is the port that ServerX will open for inbound API requests.	The NetX server will communicate with ServerX via this port number.
TCP 5700	✓		This is the port that NetX will open for inbound connections to route inbound Web page requests to NetX.	
TCP 5984			Internal	(only used when the print fleet contains HP OfficeJet Pro X Print Devices)

				Internal on HP Access Control server and is used to get OfficeJet Pro X devices configuration stored in the CouchDB. Port number is configurable.
TCP 7501	✓		Client-based Pull Printing (optional)	(only required when Client-based Pull Printing is used - HP AC Enterprise only) Used by the HP AC Pull Print Server to launch a print or delete command to the client for client-based pull print jobs.
TCP 7627	✓		Print Devices configuration (with HP FutureSmart firmware) (optional)	(only used when the print fleet contains HP FutureSmart Print Devices) Configuration of FutureSmart devices from HP Access Control server.
TCP 8081	✓		Print Devices configuration (HP OfficeJet Pro X)	(only used when the print fleet contains HP OfficeJet Pro X Print Devices) Used for the configuration of HP OfficeJet Pro devices. When the device boots it will pull the configuration from the HP AC server from a web service that publishes this (OXPd Service). Port number is configurable.
TCP 9100	✓		HP Access Control Server sending configuration and print jobs to print devices	<ul style="list-style-type: none"> • Device agent installation (non-HP devices) • Device configuration • Print jobs from the HP Access Control server to the print device (optional, depending on print protocol)
UDP 11000	✓	✓	XT Device Controller configuration (optional)	(only used when the fleet has XT Device Controllers) Device discovery with SNMP for XT Device Controllers

16.2 Authentication Server ports

Port	Inbound (to Server)	Outbound (to another)	Description	Used for
TCP 389 LDAP		✓	User credentials & details check to Active Directory/LDAP server (optional)	Authentication credentials and user details check from HP AC Server to an AD/LDAP server, in case LDAP is used. Port number is configurable and needs to match with AD/LDAP server settings.
TCP 443 HTTPS	✓		User credentials check to HP AC Server	HP Access Control Server from print devices and mobile devices. Authentication credentials check from printing device or mobile device to HP AC Server.
TCP 636 LDAPS		✓	User credentials & details check to Active Directory/LDAP server (optional)	Authentication credentials and user details check from HP AC Server to an AD/LDAP server, in case LDAP over SSL is used. Port number is

				configurable and needs to match with AD/LDAP server settings.
TCP 1433 SQL	✓		User details check to SQL Server (optional)	Used to check user alias and delegate/group settings in the SQL database (off-server). Port number is configurable and needs to match with the SQL server settings.

16.3 Job Accounting and Intelligent Print management Server ports

Port	Incoming (Server)	Outgoing (Server)	Description	Used for
TCP 80 HTTP	✓		Job Accounting in-device tracking for HP non-FutureSmart-based print devices (optional)	(only required for in-printer tracking in HP non-FutureSmart-based print devices) Print device to send tracking data to Job Accounting server or to intermediate tracking server.
TCP 80 HTTP	✓		Job Accounting Client PC tracking (optional)	(only required for tracking at Client PCs) Print device to send tracking data to Job Accounting server or to intermediate tracking server.
TCP 443 HTTPS	✓		Job Accounting data consolidation across servers (optional)	(only required when tracking data is collected from other servers than the main Job Accounting Server) For either Print Servers with a tracking agent, Pull Print servers for deleted/expired jobs or any other distributed tracking data collector, to send that data to the main Job Accounting server.
TCP 443 HTTPS	✓		Job Accounting in-Device tracking for HP FutureSmart print devices (optional)	(only required for in-printer tracking in HP FutureSmart print devices) Print device to send tracking data to Job Accounting server or to intermediate tracking server.
TCP 443 HTTPS	✓		Quota (optional)	(only used with quota restrictions) <ul style="list-style-type: none"> HP printing devices to the quota web service in the HP Access Control Job Accounting server to check user's quota balance for copy and digital sending (only when using quota for MFP copy and/or digital send) HP Access Control Print Client to the quota web service in the HP Access Control Job Accounting server to check the user's quota balance for printing (only when restricting print quota at Client PCs).
TCP 80 HTTP	✓		Allocation (optional)	(only when using the Allocation Client) Used by the Allocation client for PCs to check the allocation codes in the HP Access Control Job Accounting server.

UDP 161 SNMP	✓	✓	SNMP tracking (optional)	(only when using SNMP tracking through Direct Tracking Module) From HP Access Control server to devices to connect to the device's MIB for confirmation traps (DTM).
UDP 162 SNMP	✓	✓	SNMP tracking (optional)	(only when using SNMP tracking through Direct Tracking Module) From HP printing device to Job Accounting server. Used by trap service to listen for print job completion. This port can be changed.
TCP 1433 SQL		✓	Connection to external Job Accounting database (optional)	(only when using an SQL database in a different server than the Job Accounting one) HP AC Job Accounting server will connect to the database to do the needed transactions when entering data or when creating a report and reading the data. Port number is configurable and needs to match with the SQL server settings.

16.4 Client PC and Mobile Devices Ports and Applications

Port	Incoming (Client)	Outgoing (Client)	Description	Used for
TCP 443 HTTPS		✓	Card Enrollment Application (optional)	(only for Administration PCs when card enrollment is manually done from a PC) From the Enrollment application for PC to the HP Access Control server (AD-Authenticator). Can be configured as https if desired, using port 443.
TCP 443 HTTPS		✓	Rules-based printing (IPM) (optional)	(required only if using IPM) IPM print client to connect to IPM web services in IPM Server for print rules check.
TCP 443 HTTPS		✓	Delegate/Group Printing (optional)	(required only if using Delegate/Group Printing - HP AC Enterprise only) For the HP AC Print Client to connect to the HP AC Pull Print Server and check the delegate and group print options.
TCP 80 HTTP		✓	Allocation (optional)	(only required when using the Allocation Client) Allocation client to connect to HP Access Control Server to check the possible Allocation codes.
TCP 139, 445 UDP 137, 138		✓	Windows shared queues (optional)	(only when using Windows shared queues) Needed to connect to Windows shared queues in the HP AC Server from Client PCs to submit print jobs.
TCP 443 HTTPS		✓	Mobile devices (optional)	(only when using a mobile printing app)

			Mobile printing app in the mobile device connecting to the HP AC Server for Kerberos authentication, job list, and job retrieval.
TCP 443 HTTPS	✓	Client-based Pull Printing configuration (optional)	(only when using Client-based Pull Printing - HP AC Enterprise only) During configuration, the HP AC Client application will connect to the HP AC Server to find some configuration parameters.
TCP 445	✓	IPM notification (optional)	(only when using IPM Desktop Notification Agent) Named pipes from the HP AC Server to the client PC
TCP 445	✓	HP AC Admin console web client (optional)	(only if using the web client version of the HP AC Admin Console) Used for communication between the admin console web service to the admin console web client.
TCP 515 LPR	✓	Sending Pull Print jobs to HP Access Control Server (optional)	(only for server-based Pull Printing when sending jobs from the Client to the HP AC Pull Print Server with LPR protocol - HP AC Enterprise only) Sending pull print jobs through LPR from a Client PC with a local queue to the HP AC Server, in case this is the protocol chosen. This port number can be changed.
TCP 631 IPP	✓	Sending Pull Print jobs to HP Access Control Server (optional)	(only for server-based Pull Printing when sending jobs from the Client to the HP AC Pull Print Server with IPP protocol - HP AC Enterprise only) Sending pull print jobs through IPP from a Client PC with a local queue to the HP AC Server, in case this is the protocol chosen. This port number can be changed.
TCP 5500	✓	PC client to HP Access Control Server (optional)	(only required when Client-based Pull Printing is used - HP AC Enterprise only) Used by the HP AC Enterprise print client to transfer job metadata from client PCs to the HP AC server when using local job storage. The port number is configurable.
TCP 7501	✓	Delete and print commands from Server to Client (optional)	(only required when Client-based Pull Printing is used – HP AC Enterprise only) Used by the HP AC Pull Print Server to launch a print or delete command to the client for client-based pull print jobs.
TCP 7515		Job transfer between components (optional)	(only required when Client-based Pull Printing is used – HP AC Enterprise only) Internal port used by the pull print queue for local job storage.
TCP 50101	✓	Rules-based Printing (IPM) (optional)	(only required when using IPM Desktop Notification)

			Print policy notification (IPM) with the IPM Desktop Notification Agent.
TCP 50102	✓		Rules-based Printing (IPM) (optional)
			(only required when using IPM Opt-in/Opt-out rules)
			Opt-in/Opt-out notification from the HP Access Control server to the client

16.5 Print device ports

Port	Incoming (Print device)	Outgoing (Print device)	Description	Used for
TCP 80 HTTP		✓	Print Devices to HP Access Control Job Accounting Server (optional)	(only required for in-printer tracking in HP non-FutureSmart-based print devices) Print device to send tracking device to Job Accounting server or to intermediate tracking server.
TCP 443 HTTPS	✓		Configuring Print Devices	Configuration data from server to printer
TCP 443 HTTPS		✓	Pull Print jobs metadata and commands (optional)	(only when using Pull Printing) Job list inquiry and job accounting data (unless SSL is configured)
UDP 161/UDP 162	✓	✓	Print devices configuration	Printer Discovery during the configuration.
TCP 443 HTTPS		✓	Authentication (optional)	(only when using authentication) Authentication data exchanged with HP AC Server
TCP 443 HTTPS	✓		Pull Print jobs (optional)	(only when using Pull Printing) Sending pull print jobs from the HP AC Server (for server-based pull printing) or from the client (for client-based pull printing) (used depending on the print protocol chosen).
TCP 515 LPR	✓		Pull Print jobs (optional)	(only when using Pull Printing) Sending pull print jobs from the HP AC Server (for server-based pull printing) or from the client (for client-based pull printing) (used depending on the print protocol chosen).
TCP 7627	✓		HP Access Control server to print devices (optional)	(only for FutureSmart devices) Configuration of HP FutureSmart devices by the HP AC Server configuring the Print Devices.
TCP 8081		✓	Configuration (optional)	(only for OfficeJet Pro X devices) Configuration of OfficeJet Pro X devices, pulled by the OfficeJet Pro X device.
TCP 9100	✓		Configuration	Printer configuration by HP AC Server.
TCP 9100	✓		Print jobs (optional)	(only when using Pull Printing) Sending pull print jobs from the HP AC Pull Print Server (for server-based pull printing) or from

the client (for client-based pull printing) (used depending on the print protocol chosen).

16.6 Multi-server communication

Port	Incoming (Print device)	Outgoing (Print device)	Description	Used for
TCP Port 5600	✓		ServerX	Used to monitor HP AC connections. All servers communicate with ServerX using this port number. Can be disabled in a single server installation.
TCP port 5601	✓		Inbound API requests	Communication between NetX and ServerX. Can be disabled on single server installations.
TCP port 5700	✓		Web page requests	Used by NetX to route inbound web page requests. Can be disabled on single server installations.

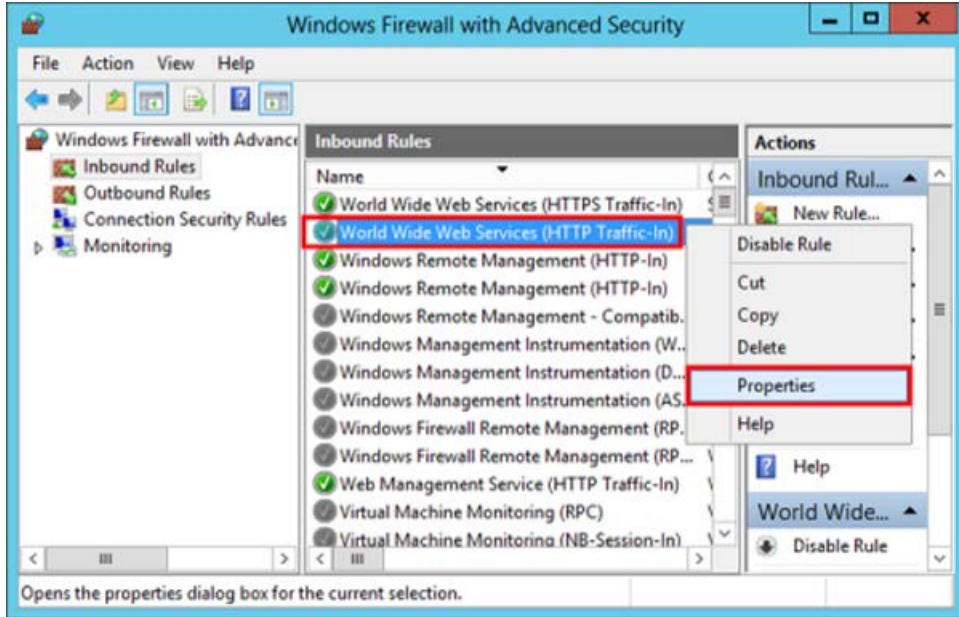
16.7 Firewall

To establish reliable connections between the server and devices, it is highly recommended to turn off the Windows Firewall on the HP Access Control server.

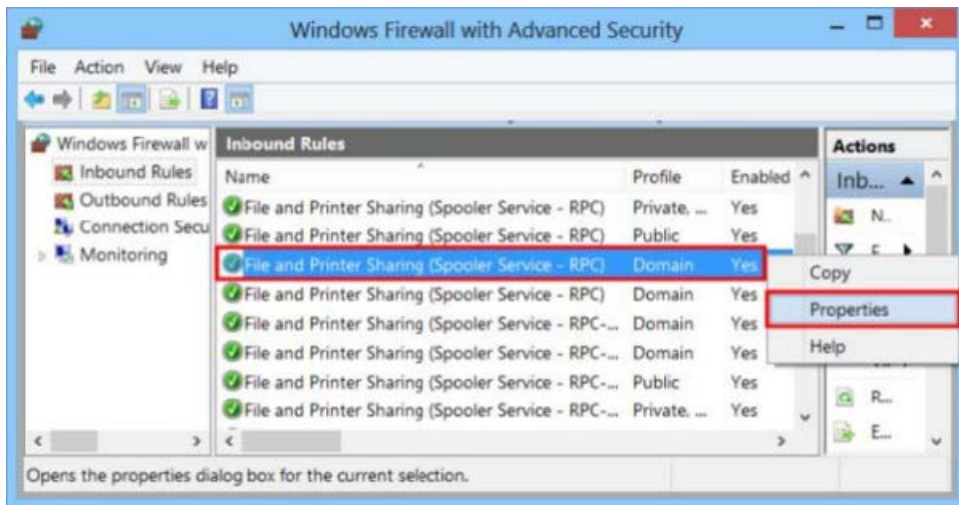
However, if the firewall cannot be turned off, perform ONE of the following steps to establish stable communication with devices:

- Allow the server to accept inbound packets from devices that have passed through the firewall by changing the World Wide Web Services properties
 1. On the HP Access Control server, go to Control Panel > Windows Firewall > Advanced Settings > Inbound Rules.

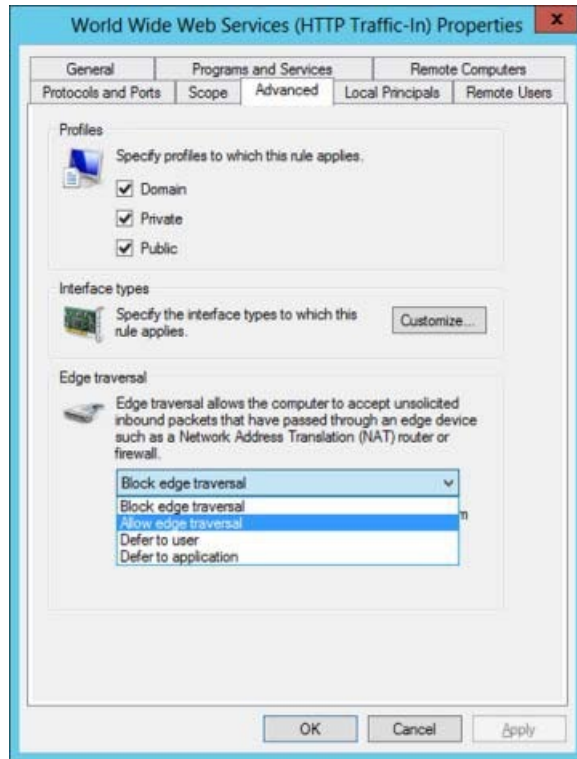
- Right-click World Wide Web Services (HTTP Traffic-In) and select **Properties**.



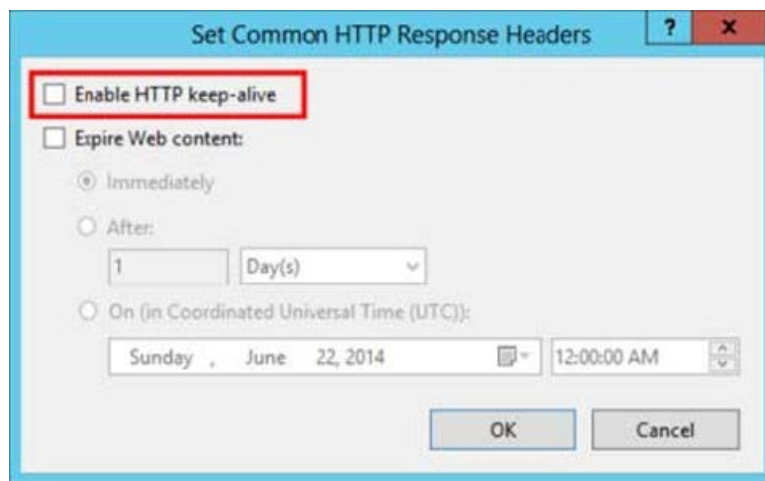
- In the Advanced tab under **Edge traversal**, select **Allow edge traversal**. Click **OK**.
- Allow the server to accept inbound packets from devices that have passed through the firewall by changing the Spooler Service properties.
 - On the HP Access Control server, go to Control Panel > Windows Firewall > Advanced Settings > Inbound Rules.
 - Right-click **File and Printer Sharing (Spooler Service — RPC)**



- In the Advanced tab under **Edge traversal**, select **Allow edge traversal**. Click **OK**.



- Disable the HTTP keep-alive response header to force new connections to be established between the server and devices.
 - Open Internet Information Services (IIS) Manager and go to the local machine > Sites > Default Web Site.
 - Double-click **HTTP Response Headers**.
 - In the Actions page on the right, click **Set Common Headers**
 - Unselect **Enable HTTP keep-alive** and click **OK**.



17 Appendix B: Remote SQL Server requirements

17.1 HP Access Control (HP AC) Job Accounting Remote SQL Server

If the remote SQL Server is running SQL 2005 or a later version, the database must be created using an SQL login. The setup will not create an SQL login for HP AC Job Accounting, and a trusted connection will be used with named pipes. The Job Accounting Agent must be started with a domain account to connect to the remote database.

If the remote server is running SQL 2000 version, either Windows or SQL authentication can be used to create the database. The setup will not create an SQL login for Job Accounting, and a trusted connection will be used with named pipes. The Job Accounting Agent must be started with a domain account to connect to the remote database.

17.2 Database access when HP Access Control (HP AC) Job Accounting is installed using a remote SQL Server

When the Job Accounting database is installed on a remote server, the database connection must be configured for the following activities:

- To allow Job Accounting to process job accounting files.
- To allow the end user to connect to the Job Accounting website to schedule and view reports.

Two methods are available to connect to the remote database: Windows Authentication and SQL Authentication.

17.2.1 Using Windows Authentication (default)

When Windows authentication is used, anonymous authentication must be enabled in IIS using a Windows account with database access to the Job Accounting database. The Job Accounting Agent service must be started with the same account.

1. Create a Windows account with dbo access to the Job Accounting database.
2. Log onto the Job Accounting application server using your new Windows account login information (Step 1, above).
3. From your desktop, navigate to Start > All Programs > HP Access Control, and click **Configuration Utility**.
4. Go to the **Options** tab and select **Database Server**.
5. Select **Windows authentication**.
6. Unselect **Local System account**.
7. Enter the Windows account user and password (created in step 1) to replace 'Local System'. This login will be used to start the HP AC Job Accounting Agent service and for **Anonymous Authentication** in IIS.
8. Select **Enable IIS anonymous authentication**.
9. Select **Restart services after update**.

17.2.2 Using SQL Authentication

When SQL authentication is used, the SQL password will be stored non-encrypted in the HP AC Job Accounting Agent service configuration file (Agent.exe.config). The HP AC Job Accounting application will store the SQL password encrypted in the registry.

1. Create an SQL user and password on the remote SQL Server and give this account dbo access to the HP AC Job Accounting database.
2. From your desktop, navigate to Start > All Programs > HP Access Control, and click **Configuration Utility**.
3. Go to the **Options** tab and select **Database Server**.
4. Select **SQL Authentication** and enter the SQL login and password you created above (Step 1).
5. Un-select **Use Local System account**.
6. Enter a Windows domain user account and password to replace 'Local System'. This login will be used to start the HP AC Job Accounting Agent service. This step is required for **Active Directory** connection and if polling mode is selected. This login does not require any access to the database.
7. Unselect Enable IIS anonymous authentication.
8. Select **Restart services after update**.

17.2.3 Common steps for Windows and SQL authentication


Common steps for Windows and SQL authentication include the following:

1. Click **Test connection**. If any errors are reported for the database connection or HP AC Job Accounting Agent login, verify that the login has access to the database and credentials to start a service.
2. Click **Update**. A series of popup messages displays:
 - Database connection updated successfully
 - Service login changed successfully
 - ApplicationPool created successfully
 - IIS anonymous authentication changed successfully
 - Agent configuration updated successfully
 - Quota web service configuration updated successfully
 - Report server configuration updated successfully
 - Report manager configuration updated successfully
 - HP AC Job Accounting Agent service restarted
 - w3svc service restarted
 - HP AC Job Accounting Agent service restarted
3. Log on to HP AC Job Accounting and run a simple report.

18 Appendix C: Installing and configuring HP AC on the ScanJet Enterprise 8500

18.1 Overview

This section provides the steps necessary to install and configure the HP AC agent to utilize card or code authentication on the HP ScanJet 8500 xx. The HP AC Admin Console utilizes port 9100 to install and configure the solution. Previous generations of ScanJets had supported port 9100, however, this port is no longer supported on the SJ 8500, and an alternate method of installation and configuration was required. This section outlines the steps to install and configure HP AC on an individual basis.

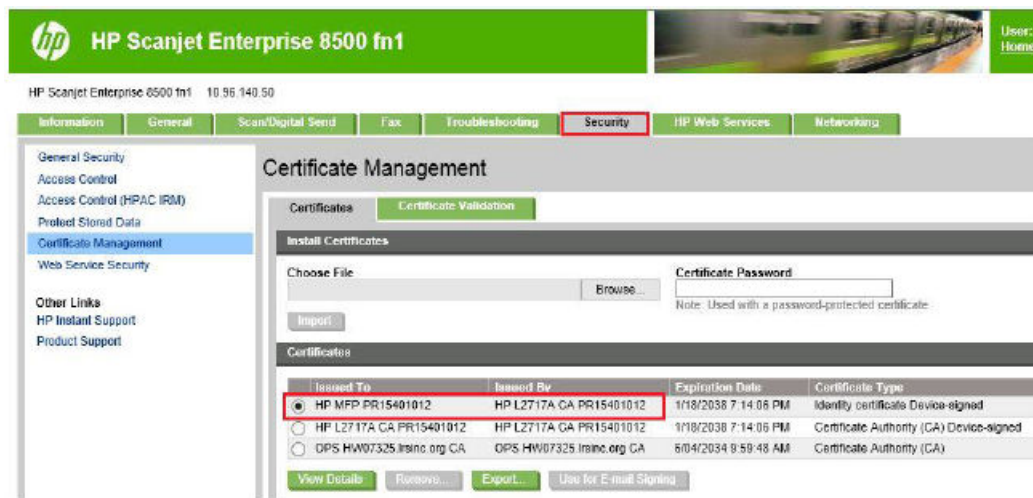
 **NOTE:** This configuration does not support Scan to Home Folder workflow.

Prerequisites

- Verify the password has been set in the EWS.
- It is suggested, but not required, to perform a partial disk clean.

 **CAUTION:** Stored information and settings may be lost when performing a partial disk clean.

- To license the device: Go to the Devices tile and add the HP ScanJet device. Then select the device and click Pull Printing > Deploy Workflows, and select the “Agent is manually deployed” checkbox. The server will do the required set up for licensing but will not actually deploy the agent to the device.
- Open the printer EWS and check for a valid certificate. The example below is pointing to a certificate installed on an HP MFP.



The screenshot shows the HP ScanJet Enterprise 8500 EWS interface. The top navigation bar includes 'Information', 'General', 'Scan/Digital Send', 'Fax', 'Troubleshooting', 'Security' (highlighted), 'HP Web Services', and 'Networking'. The left sidebar lists 'General Security', 'Access Control', 'Access Control (HPAC IRM)', 'Protect Stored Data', 'Certificate Management' (selected), and 'Web Service Security'. The main content area is titled 'Certificate Management' and has two tabs: 'Certificates' and 'Certificate Validation'. Under 'Certificates', there is an 'Install Certificates' section with a 'Choose File' button and a 'Certificate Password' field. Below this is a table of installed certificates:


Issued To	Issued By	Expiration Date	Certificate Type
HP MFP PR15401012	HP L2717A CA PR15401012	1/18/2038 7:14:06 PM	Identity certificate Device-signed
HP L2717A CA PR15401012	HP L2717A GA PR15401012	1/18/2038 7:14:06 PM	Certificate Authority (CA) Device-signed
OPS HW07325.linsinc.org CA	OPS HW07325.linsinc.org CA	6/04/2034 9:59:48 AM	Certificate Authority (CA)

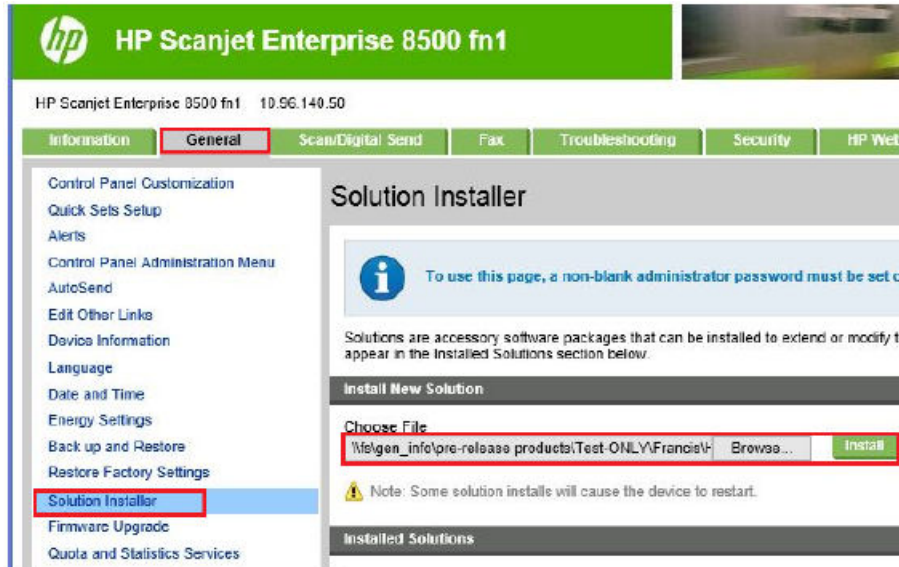
Buttons for 'View Details', 'Follows...', 'Export...', and 'Use for E-mail Signing' are located at the bottom of the table.

18.2 Installing the Agent

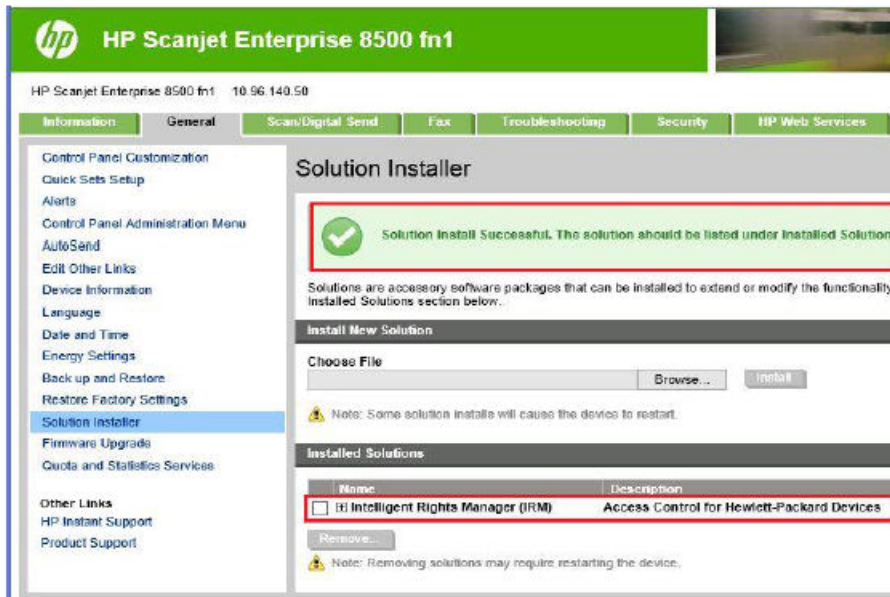
1. Go to the device EWS > General tab > Solution Installer page.

2. Click **Choose File**, browse to the location of where the HP AC Agent is stored, and select the HP AC Agent BDL file. Then click the **Install** button.

 **NOTE:** The current build is HPAC-SPPE-Agent-XXXXXXXX-FutureSmart-10.bdl. Please note that this may change, so it is important that you have the most current version.



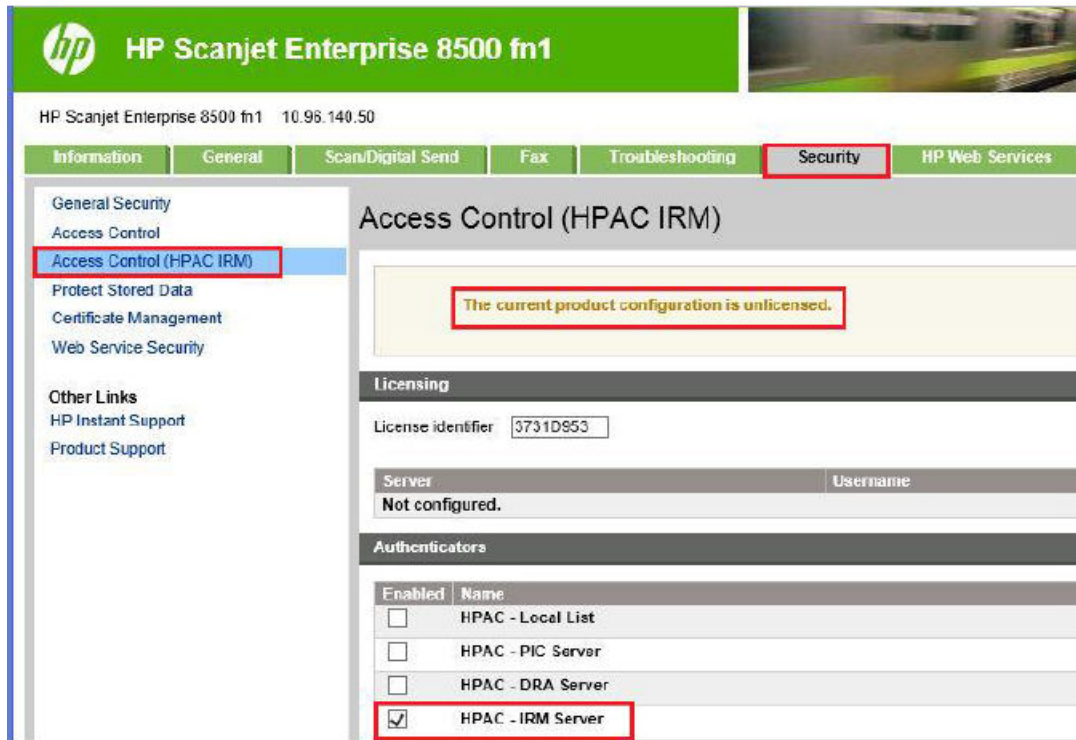
3. After the HP AC Agent file is successfully installed, **Intelligent Rights Management Manger (IRM)** displays under the Installed Solutions section.



18.3 Configuring the Agent

1. Go to the device EWS > Security tab > Access Control (HPAC IRM) page.

- Under the Authenticators section, select the **HPAC - IRM Server** checkbox. Then click **Update**. You will notice that the solution is not licensed. The following steps will address licensing the product.



- In the printer's URL, append the following "**?page=services**" and hit enter. Your URL string should now look like the example below:



4. In the License Service URI field, enter the following:

`https://HPAC serverIP or DNS/licenses/license.asmx`

In the Authentication Service URI field, enter the following:

`https://HPAC server IP or DNS/AD-Authenticator/AD-Authenticator.asmx`

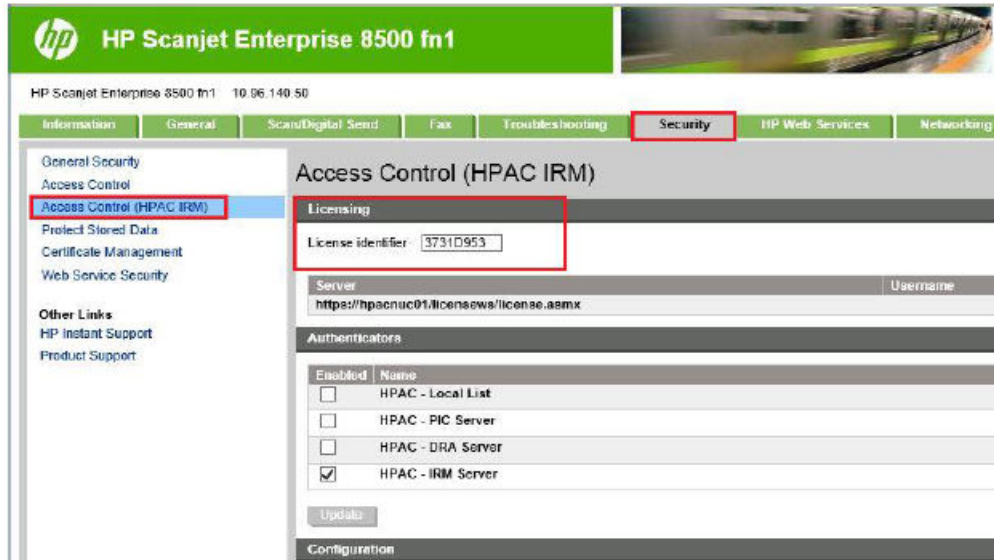
Click **Apply**.

The screenshot shows the HP Scanjet Enterprise 8500 f1 web interface. The top navigation bar includes 'Information', 'General', 'Scan/Digital Send', 'Fax', 'Troubleshooting', 'Security' (highlighted with a red box), and 'HP Web Services'. The left sidebar lists 'General Security', 'Access Control', 'Access Control (HPAC IRM)' (highlighted with a red box), 'Protect Stored Data', 'Certificate Management', 'Web Service Security', 'Other Links', 'HP Instant Support', and 'Product Support'. The main content area is titled 'Access Control (HPAC IRM)'. Under 'Web Services', there are two sections: 'License Service' and 'Authentication Service'. Each section has a 'License Service URI' or 'Authentication Service URI' field (highlighted with a red box) and a 'Username' field. The status for both is 'Not configured'.

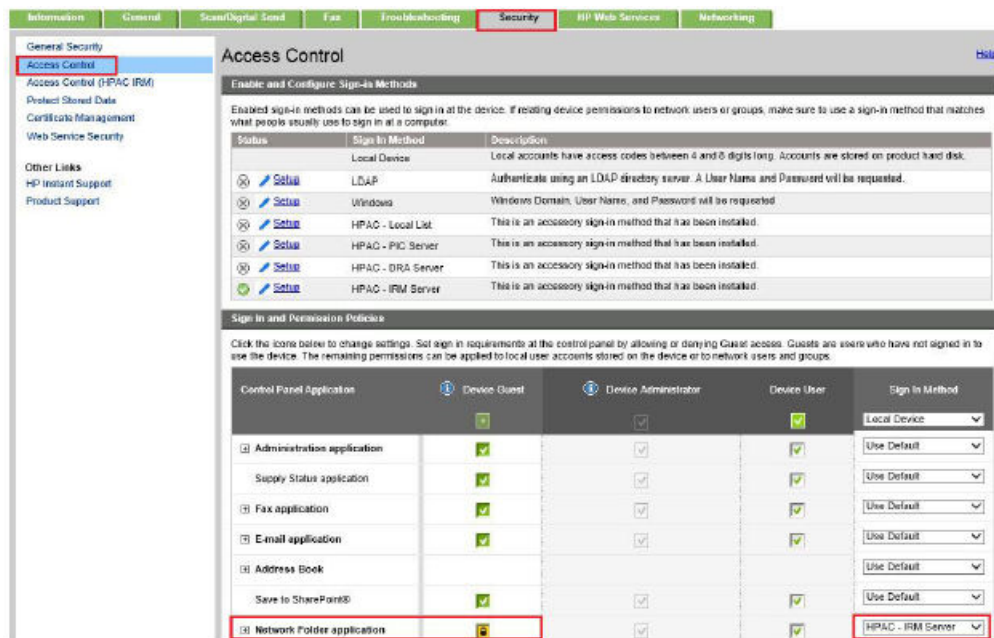
5. Power cycle the device and review the **Access Control (HPAC IRM)** page to ensure the settings have not changed.

The screenshot shows the HP Scanjet Enterprise 8500 f1 web interface after a power cycle. The top navigation bar includes 'Information', 'General', 'Scan/Digital Send', 'Fax', 'Troubleshooting', 'Security' (highlighted with a red box), 'HP Web Services', and 'Networking'. The left sidebar is the same as in the previous screenshot. The main content area is titled 'Access Control (HPAC IRM)'. Under 'Web Services', there are three sections: 'License Service', 'Authentication Service', and 'Quota Service'. The 'License Service' and 'Authentication Service' sections have their 'License Service URI' and 'Authentication Service URI' fields (highlighted with red boxes) and 'Username' fields. The status for both is now 'OK' with timestamps: '2014/06/13 15:46:40.5430 : OK' and '2014/06/13 15:58:13.1800 : OK'. The 'Quota Service' section has empty fields and a status of 'Not configured'. At the bottom, there are 'Apply' and 'Cancel' buttons.

6. Check to see the license is now valid. There should be no error message displayed at this time.



7. Go to the Security tab > Access Control page. Configure the **Network Folder** application to use **HP AC – IRM Server** as the Sign In Method. Remember to press **Apply** after changing the setting.



8. Install the reader and configure your Scan to Folder as required.

NOTE: If you change the authentication method in IRM, make sure to go to the <https://serverIP/hp/device/Solution.AccessControl.Jedi.WebSetup/Index?page=services> page and click **Apply** to reapply the IRM settings.