



# HP Retail Manageability

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## Introduction

Most client management systems are designed to support the needs of the IT department and therefore focus on system management features like hard drive imaging, OS and software patches, and system health monitoring. In a retail environment, peripheral device and out-of-band system management are also required to achieve maximum uptime and efficiency. Hewlett-Packard offers a variety of products and solutions to help retailers achieve these goals in ways that work best for their business.

## HP Client Management Interface (HP CMI)

The HP Client Management Interface allows IT administrators to receive health status information, manage system BIOS settings, and request client inventory in a straightforward, flexible manner. It enables seamless integration into managed IT environments and applications by using industry standards, including Microsoft Windows® Management Instrumentation (WMI), Distributed Management Task Force Desktop and Mobile Architecture for System Hardware (DASH), System Management BIOS (SMBIOS), and Advanced Configuration and Power Interface (ACPI). HP CMI is included in most HP Retail Point of Sale systems and a reduced-functionality software provider is available for legacy systems, please refer to Appendix A for more details.

There are classes for HP\_BIOSSensor, HP\_BIOSSettingInterface, HP\_PlatformEvents, HP\_BIOSSetting. For example, some HP\_PlatformEvents are

CPU Fan Speed, Front Chassis Fan Speed, Rear Chassis Fan Speed, Power Supply Fan Speed, and CPU Thermal Index.

With HP CMI, Power On Self Test (POST) events will be surfaced into WMI if the system successfully boots into Windows®. General WMI alerts will also be surfaced for the following conditions:

- Fan Stall: If one of the system fans falls below its specified threshold, the system will generate an alert indicating which fan has stalled. Note that this does not cover the fan built into the power supply.
- Thermal Over-temp: If one of the thermal sensors within the platform exceeds its threshold, an event is surfaced indicating which sensor triggered the fault (e.g., CPU or Chassis)
- Hood Removal: For systems with this feature, the platform will also fire a WMI event if the hood has been removed. This condition is only checked during the system POST operation and flagged once regardless if the hood was removed and replaced multiple times. On the next successive system boot, the flag is reported to WMI.

The fan stall and thermal over-temp sensors will also create WMI events when they de-assert or fall out of failing condition. Management agents can also forward all of these WMI events to the management console.

The namespace for HP CMI is root\hp\instrumentedbios, which can be viewed with WMI CIM Studio and similar tools. WMI CIM Studio is included in WMI Tools, which can be downloaded from the Microsoft Download Center [1]. It can be accessed programmatically using any language capable of supporting Component Object Model (COM), PowerShell, or scripting languages under Windows® Scripting Host. For example, the following VBScript enumerates the available sensors:

```
Const wbemFlagReturnImmediately = 16
Const wbemFlagForwardOnly = 32
lFlags = wbemFlagReturnImmediately +
wbemFlagForwardOnly
strService =
"winmgmts:{impersonationlevel=impersonate}://"
strComputer = "."
strNamespace = "/root/HP/InstrumentedBIOS"
strQuery = "select * from HP_BIOSSensor"
Set objWMIService = GetObject(strService & strComputer
& strNamespace)
Set colItems =
objWMIService.ExecQuery(strQuery, , lFlags)
Counter = 1
For Each objItem In colItems
    WScript.Echo Counter & vbTab & objItem.Name
    Counter = Counter + 1
Next
```

The same information can be obtained using PowerShell:

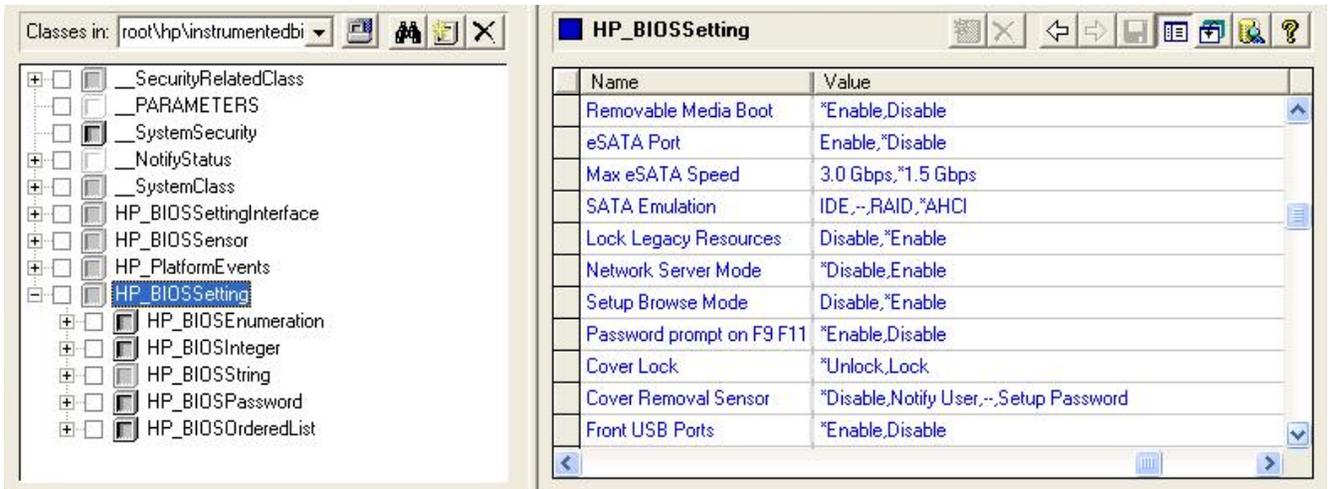
```

$strComputer = "."
$colItems = Get-WmiObject -Class HP_BIOSSensor -
Namespace "root\hp\instrumentedbios" `

    -computername $strComputer
$Counter=1
foreach($objItem in $colItems) {
    Write-Host ($Counter++) `t $objItem.Name
}

```

The image below shows some of the rp5800 BIOS settings that can be accessed using HP CMI.



For more details about HP CMI, please refer to <http://www.hp.com/go/clientmanagement>.

[1] <https://www.microsoft.com/download/en/details.aspx?id=24045>

## HP Retail Windows® Management Interface Provider

The HP Retail WMI Provider extends the concepts of CMI to HP retail peripherals, enabling access to information about the operational status of those devices. The WMI provider runs as a service and acts as a mediator between the Common Information Model (CIM) Object Manager and the managed point of sale peripherals. It supports the OLE for Retail POS (OPOS) implementation of the UnifiedPOS (UPOS) specification version 1.13, although most peripheral device service objects only support the properties and statistics that are most relevant to HP's retail customers.

The WMI Provider obtains statistics and property values from peripheral OPOS drivers and copies them into the CIM repository used by WMI. Please note that the current version of the UPOS specification allows only one application at a time to claim a device, so the data from the WMI provider may become stale if the retail application doesn't release devices regularly. The WMI provider will attempt to reclaim devices periodically to refresh its data, and will update the InformationLastUpdated property at the first opportunity, then release the device. The timestamp value uses the WMI default UTC date-time format.

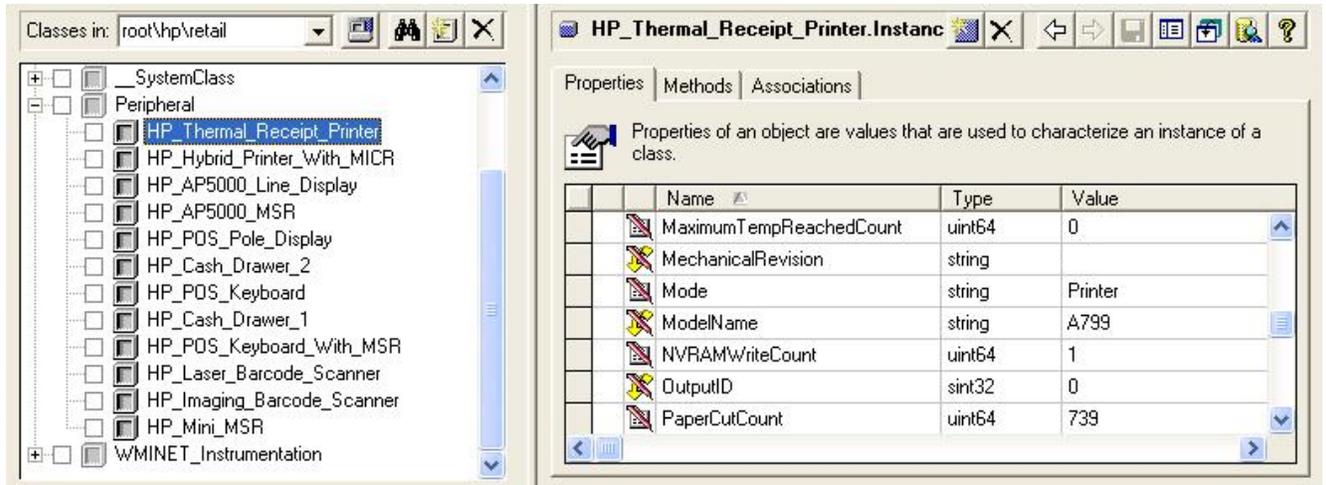
The namespace used is root\hp\retail, which can be accessed using all of the techniques described in the previous section. For example, use the following script to list when information was last updated for each claimed HP retail peripheral:

```
Const wbemFlagReturnImmediately = 16
Const wbemFlagForwardOnly = 32
lFlags = wbemFlagReturnImmediately +
wbemFlagForwardOnly
strService =
"winmgmts:{impersonationlevel=impersonate}//"
strComputer = "."
strNamespace = "/root/hp/retail"
strQuery = "select * from Peripheral"
Set objWMIService = GetObject(strService & strComputer
& strNamespace)
Set colItems =
objWMIService.ExecQuery(strQuery, ,lFlags)
Counter = 1
For Each objItem In colItems
    If (objItem.PhysicalDeviceDescription <> "") Then
        WScript.Echo Counter & vbTab &
objItem.InformationLastUpdated & vbTab &
objItem.PhysicalDeviceDescription
        Counter = Counter + 1
    End If
Next
```

The same information can be obtained using PowerShell:

```
$strComputer = "."
$colItems = Get-WmiObject -Class Peripheral -Namespace
"root\hp\retail" -computername $strComputer
$Counter=1
foreach($objItem in $colItems) {
    if ($objItem.PhysicalDeviceDescription -ne "") {
        Write-Host ($Counter++) `t
        $objItem.InformationLastUpdated `t `
        `t
        $objItem.PhysicalDeviceDescription
    }
}
```

The image below shows some of the HP Thermal Receipt Printer properties that can be accessed using the HP Retail WMI Provider.



The WMI provider also creates the HP Retail Log in Windows® Event Viewer. For more details about the HP WMI Provider, please refer to the documentation included with the provider, which can be downloaded from <http://www.hp.com/go/clientmanagement> or from the Support and Drivers portal associated with supported HP Retail Point of Sale systems.

## UnifiedPOS

The National Retail Federation's Association for Retail Technology Standards (ARTS) has developed the OLE for POS (OPOS) Retail Peripheral Architecture to standardize application to device interfaces. Support for asset tracking has been part of OPOS for years and more recent versions include new properties and methods for peripheral manageability, but these features are not comprehended by most leading systems management solutions. HP products provide access to these features through standards-based interfaces, allowing retailers to maintain optimal efficiency in their environments.

OPOS drivers are provided for supported operating systems for all HP peripherals. Applications can support manageability by accessing peripherals directly through OPOS or through the HP Retail Windows® Management Instrumentation driver. This architecture allows retailers to manage their devices using the most appropriate methods for their business at minimal implementation cost.

For more information about UnifiedPOS, please refer to <http://www.nrf-arts.org/content/unifiedpos>.

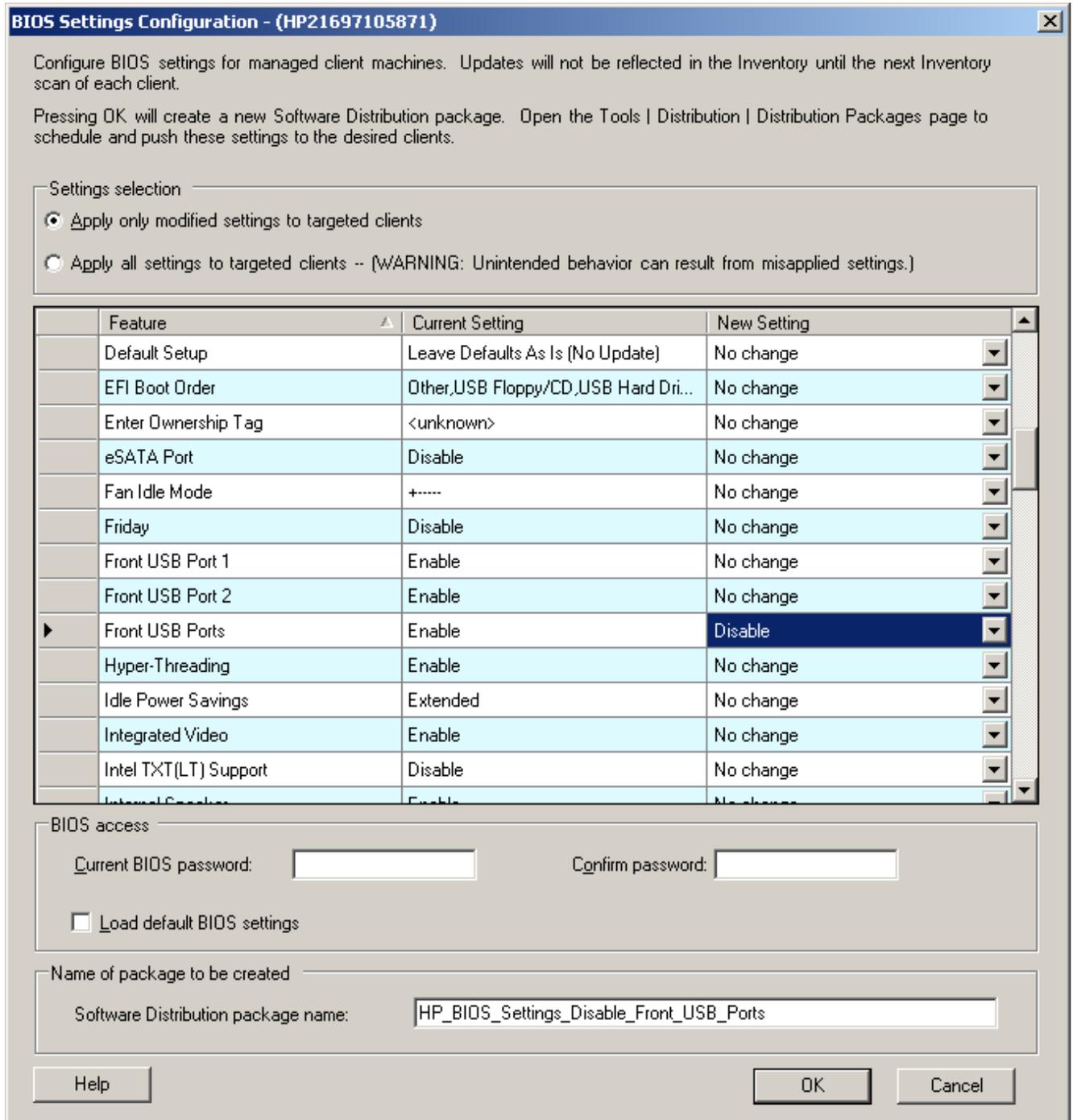
## LANDesk Management Suite

HP customers using LANDesk Management Suite can expedite the PC setup process from hours to minutes and remove the need to stage setup in their IT departments. The LANDesk software addresses some of the top IT concerns, including energy conservation, device and BIOS management, retail OS and reporting support, and hardware-failure alerts.

When used with the HP Retail WMI Provider, LANDesk also provides enhanced insight into HP retail peripherals. Flexible reports can be generated that can be grouped by cash lane or device category, and events can be triggered at user-defined peripheral property thresholds. For example, you may want to clean printers after a certain number of hours of operation or paper cuts, or wear-level all of your devices by moving them from more to less frequently used lanes.

The LANDesk console enables HP retail peripherals to be managed using the same easy to use interface and workflows as it provides for point of service systems. There's no need to use secondary applications or access them directly through WMI or OPOS, retail peripherals show up in the same inventory list as other system assets like hardware and software components. The console also understands how to access HP system BIOS information and can even take a snapshot of settings from a "golden" system to be applied to all similar systems in the retail environment or a grouping of your choice.

For example, the image below shows some of the BIOS settings described in the earlier section about CMI:



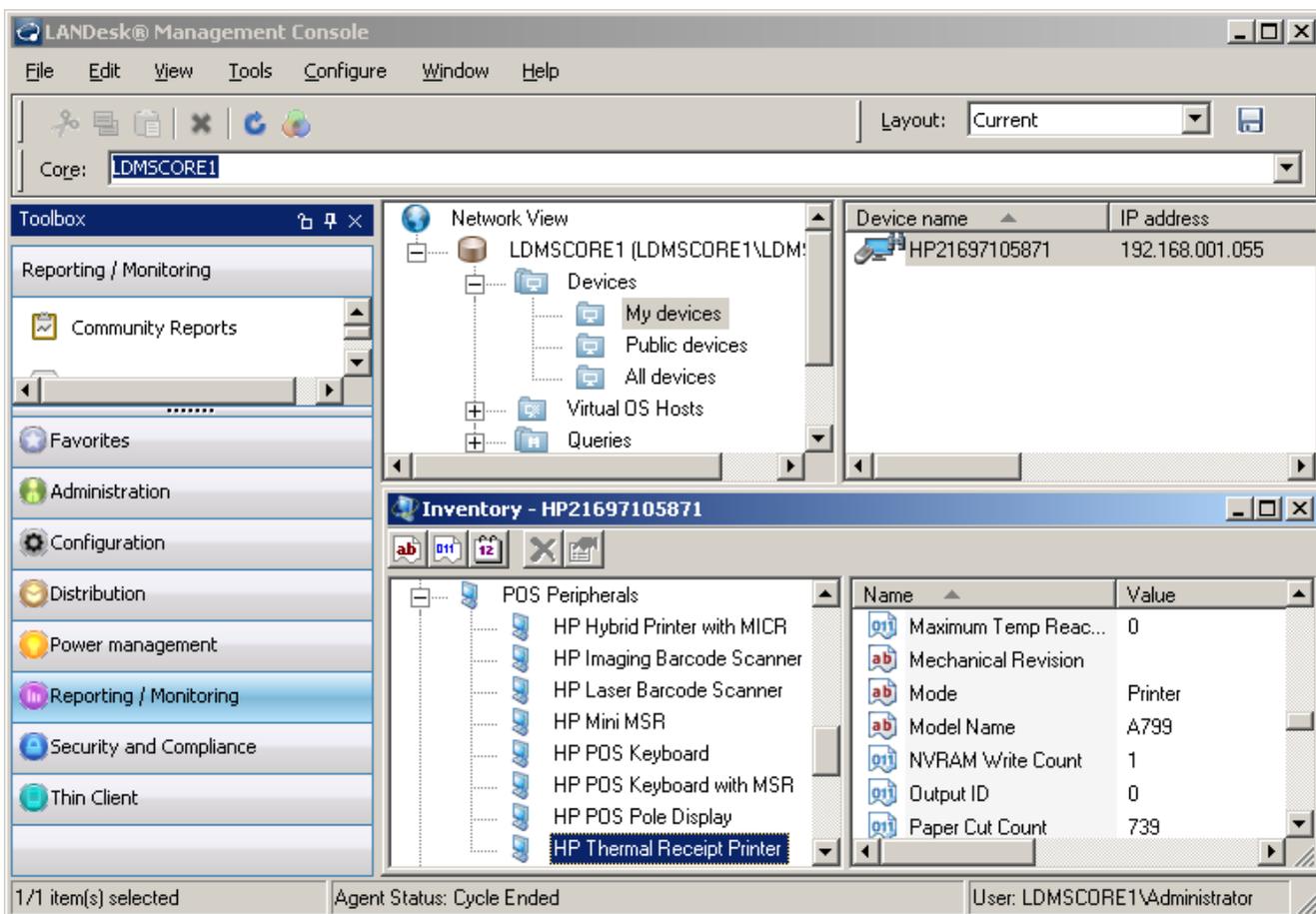
The LANdesk console allows individual or groups of settings to be changed or the default settings can be restored. Once the BIOS distribution package has been stored, it can be deployed just like any other software distribution package.

POS peripheral properties and statistics are listed in the inventory window of the LDMS console. This information is obtained from the HP Retail WMI Provider and

therefore has the same capabilities described in the previous section, but placing a copy into the management database enables use of LANDesk's extensive reporting and monitoring capabilities.

For example, an accountant may want a quarterly report of the configuration of each cash lane for asset amortization purposes or a VAR may need a weekly report summarizing the usage of all printers to perform wear leveling. LANDesk even enables thresholds to be set on many properties so an email, SMS, or report can be sent.

Note that although system hardware events like a fan stall occur in near real-time, the LANDesk agent will only capture inventory data once daily by default. Depending on your goals there may be several ways to increase this frequency so please consult with your LANDesk specialist for assistance if necessary.



LANDesk can also be used to easily deploy peripheral driver and firmware updates directly from HP SSM-compliant Softpaq's at a time that's convenient for you.

## Intel® Active Management Technology<sup>1</sup>

Systems with Intel® AMT can be remotely discovered, maintained, diagnosed, and in some cases repaired, even if the system can't boot its local operating system or if a management console can't communicate with its software agent, as long as the system is connected to power and the network. The HP rp5800 includes Intel® AMT to provide a comprehensive manageability solution to retailers who want to reduce or eliminate costly service visits.

Intel® AMT also allows retailers to reduce power costs by turning systems off during long idle periods and enabling them to be remotely turned back on at a convenient time to perform management tasks. Combining these features with LANDesk Management Suite provides a simple, robust manageability solution that lets you spend more time with your customers and growing your business.

### Summary

Keeping store systems running with maximum uptime and efficiency is essential in retail environments. HP offers a variety of products and solutions to help retailers achieve these goals in ways that work best for their business. Combining these features with LANDesk Management Suite provides a simple, robust manageability solution that lets retailers spend more time with customers and growing their business.

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<sup>1</sup> Intel® Active Management Technology requires an Intel® AMT-enabled chipset, network hardware and software, as well as a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications or implementation of new business processes. Microsoft® Windows® required.

## Appendix A:

	rp3000	ap5000	rp5700	rp5800
<b>Hardware Sensors</b>				
CPU Fan Speed			•	•
Front Chassis Fan Speed			•	•
Rear Chassis Fan Speed			•	•
Power Supply Fan Speed				•
CPU Thermal Index			•	•
Chassis Thermal Index			•	•
BIOS Post Error				•
<b>Platform Events</b>				
CPU Fan Stall			•	•
Front Chassis Fan Stall			•	•
Rear Chassis Fan Stall			•	•
Power Supply Fan Stall				•
Thermal Caution			•	•
Thermal Critical			•	•
BIOS Configuration Security			•	•
BIOS Configuration Change			•	
BIOS Configuration	•		•	•
HP CMI in BIOS			•	•
HP CMI Software Provider	•	•		
Retail WMI Provider	•	•	•	•
Intel® AMT				•

**Table 1: HP Retail Point of Sale Manageability Feature Support**



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