

# Using Microsoft® Baseline Security Analyzer 2.2 and Windows® Update

For HP Thin Clients running Microsoft Windows Embedded Standard 7

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# Microsoft Baseline Security Analyzer 2.2

## Preface

The scope of this document is focused on how customers can identify the most current Microsoft Quick Fix Engineering (QFE) releases and Security Updates that are applicable to their *Golden Master* image and is not concerned with the process of downloading and deploying these items.

The Microsoft Baseline Security Analyzer (MBSA) solution presents a Microsoft-supported method for discovering and identifying security updates, on-demand, without the customer having to wait for the same update to be packaged, tested, and then delivered to <http://www.hp.com/>. This process is recommended by HP for identifying necessary security updates.

## Introduction

This white paper describes the application of MBSA on HP thin clients with WES 7 for the purpose of assessing the security state and detecting missing security updates for this platform.

### Background

To easily assess the security state of Windows machines, Microsoft offers the free Microsoft Baseline Security Analyzer (MBSA) scan tool. MBSA includes a graphical and command line interface that can perform local or remote scans of Microsoft Windows systems.

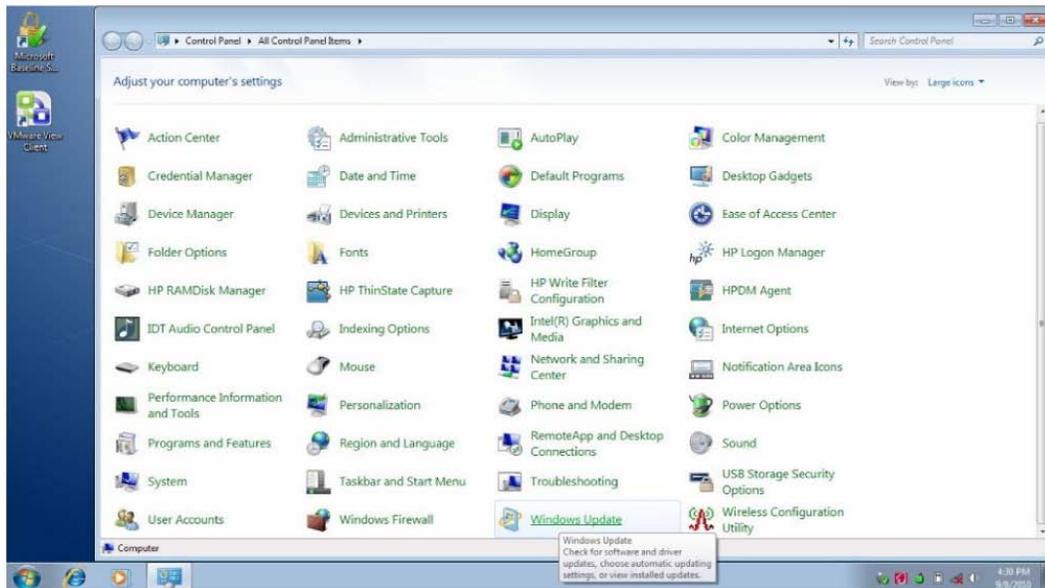
MBSA 2.2 runs on Windows Server® 2008 R2, Windows 7, Windows Server 2008, Windows Vista™, Windows Server 2003, Windows XP and Windows 2000 systems and will scan for missing security updates, rollups, and service packs using Microsoft Update technologies. MBSA also scans for common security misconfigurations (also called Vulnerability Assessment checks) using a known list of less secure settings and configurations for all versions of Windows; Internet Information Server (IIS) 5.0, 6.0, and 6.1; SQL Server 2000 and 2005; Internet Explorer® (IE) 5.01 and later; and Office 2000, 2002, and 2003 only.

To assess missing security updates, MBSA only scans for missing security updates, update rollups, and service packs available from Microsoft Update. MBSA does not scan or report missing non-security updates, tools, or drivers.

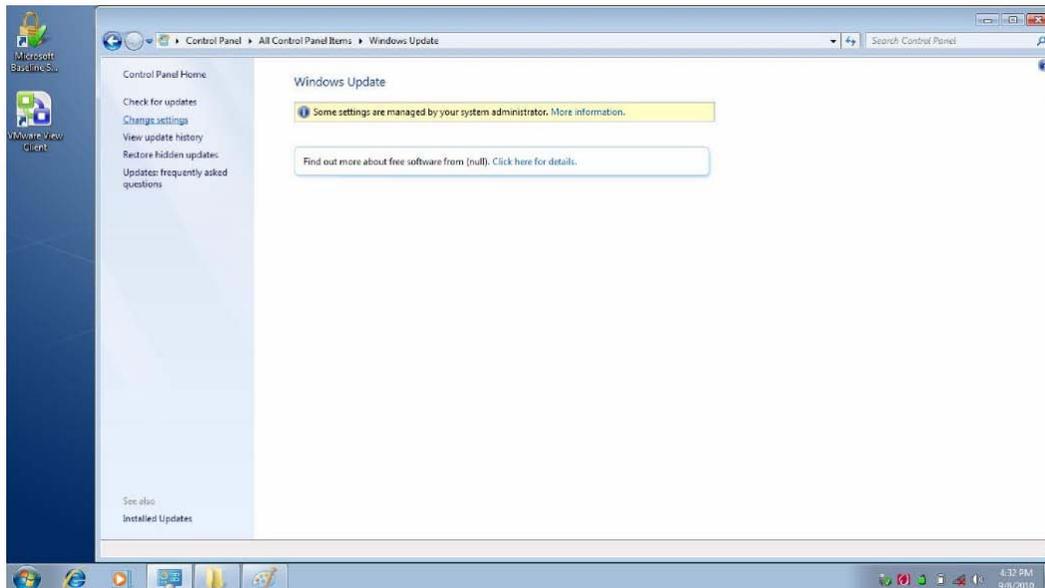
## Installation on WES 7

The MBSA graphical user interface (GUI) is a simple and seamless installation process for WES 7 that only takes approximately 2 Mb of disk space.

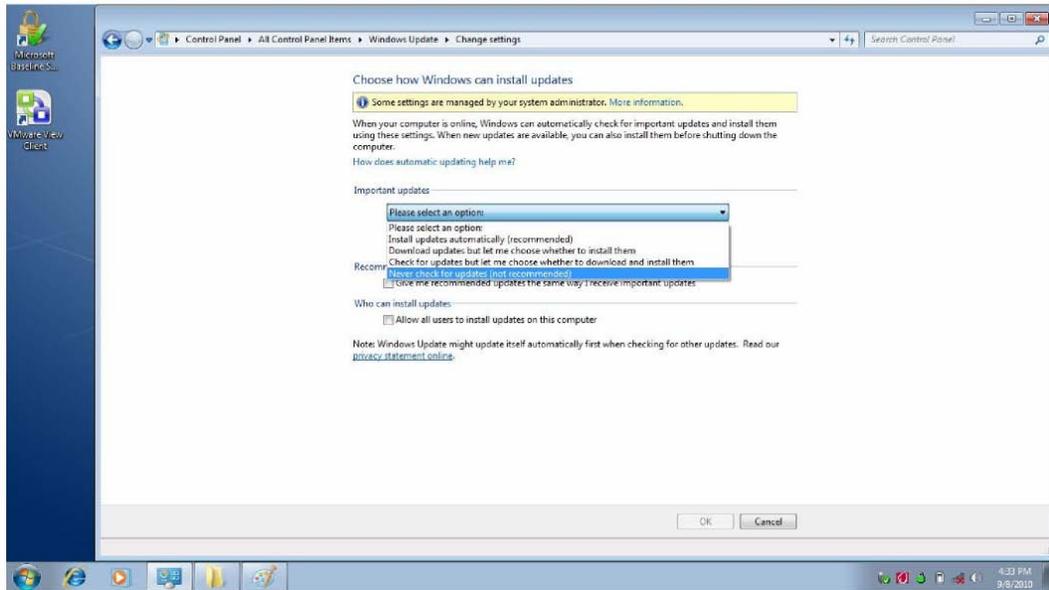
Windows Update must be enabled first, go to Control Panel and open Windows Update:



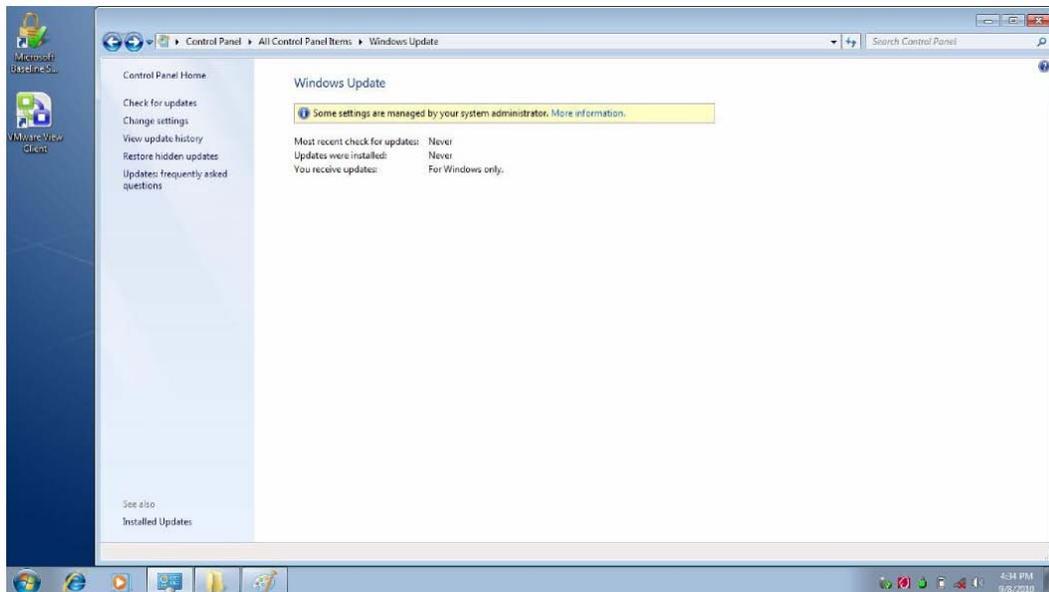
1. Click Change **Settings**.



2. Under **Important Updates**, choose **Never check for updates...**, then click **OK**.



Windows Update is now active:



3. Install MBSA 2.2.

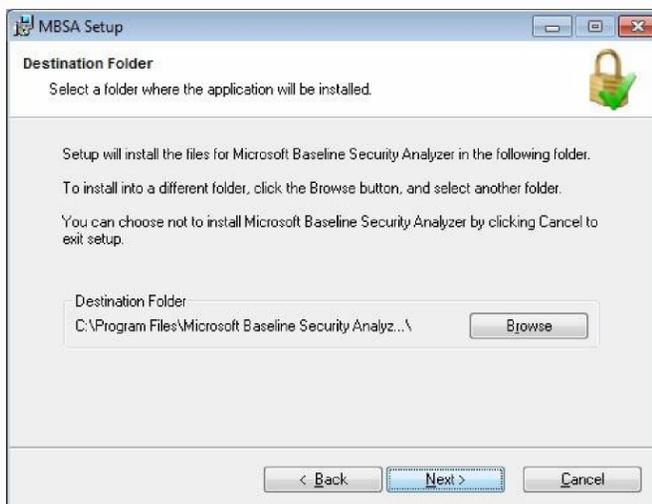
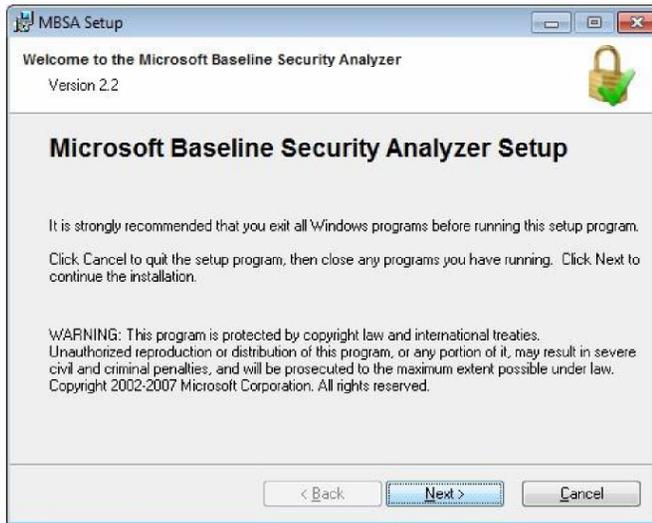
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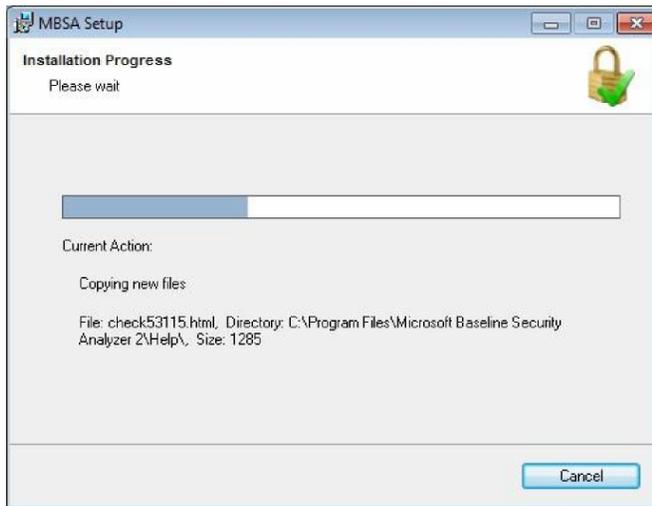
### Note

The Microsoft Baseline Security Analyzer 2.2 is available from the Microsoft website: <http://www.microsoft.com>.

---

Once finished, the Write Filter must be committed and the system rebooted:





## Scanning Options

### Key Options for Thin Clients:

#### *Check for Security Updates*

Select this option to check the target computer for missing Microsoft Windows updates. When you select this option, you can also specify the following options:

#### *Configure Computers for Microsoft Update and Scanning Prerequisites*

Select this option to install the current version of the Windows Update Agent on the target computer, if it is absent or out of date, and to configure the target computer to meet other requirements for scanning for security updates.

#### *Scan Using Update Services Servers Only*

Select this option to scan only for those security updates that are approved on the computer's assigned Windows Server Update Services (WSUS) server. The Microsoft Update website or an offline catalog is not used.

#### *Scan using Microsoft Update Only*

Select this option to use only the security update catalog downloaded from the Microsoft Update website to determine the updates to be checked. Updates that are not approved on the computer's WSUS server are reported as though they were approved. If the Microsoft Update website cannot be reached by the client, an error is reported.

## Features

### Enhanced Reporting:

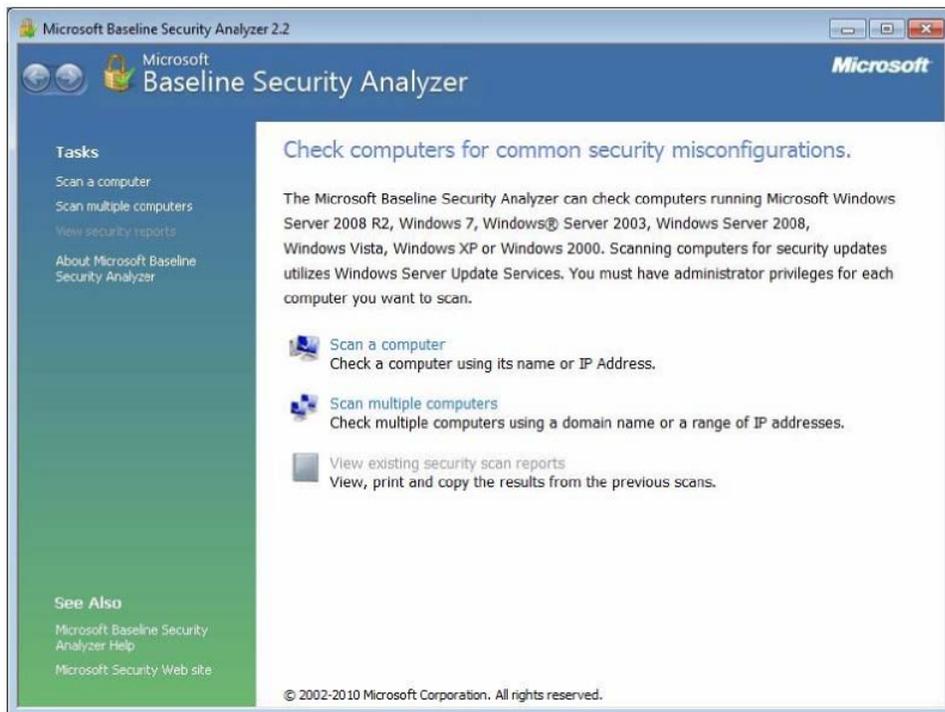
- Current Update Compliance appears in the report; installed and needed updates are reported together in a single scan report.
- Maximum bulletin severity and update package download links are now available in report details.
- Access to the live Microsoft Update site for published content for live (online) security update assessment, as well as an off line catalog for customers with limited or secure internet access are provided.
- Command-line option to redirect reports to a user-selected directory or network share using /rd option is available.
- Reports can now be easily shared and viewed.
- Multiple copies of MBSA can be run for increased scanning performance.
- Structured XML output offers simplified integration for update scanning.
- Specific web links are available for locating updates and taking necessary actions.

## Using Microsoft Baseline Security Analyzer 2.2

### Using the MBSA GUI with WES 7

The target system must be connected to the Internet in order to download the current Microsoft Security Update database.

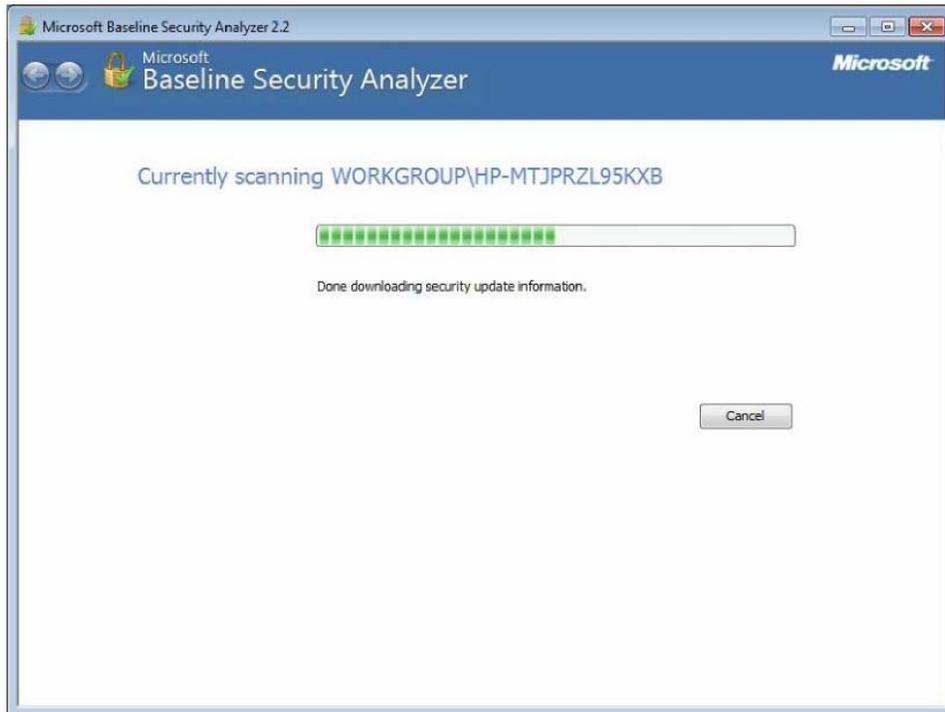
1. Click **Scan a computer**.



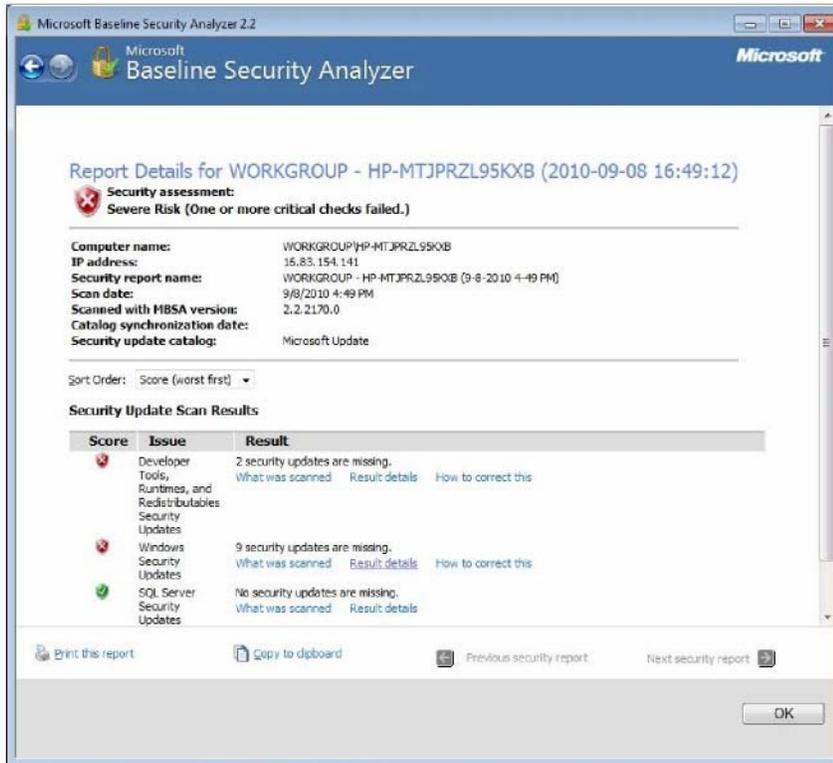
2. Select options and click **Start Scan**.



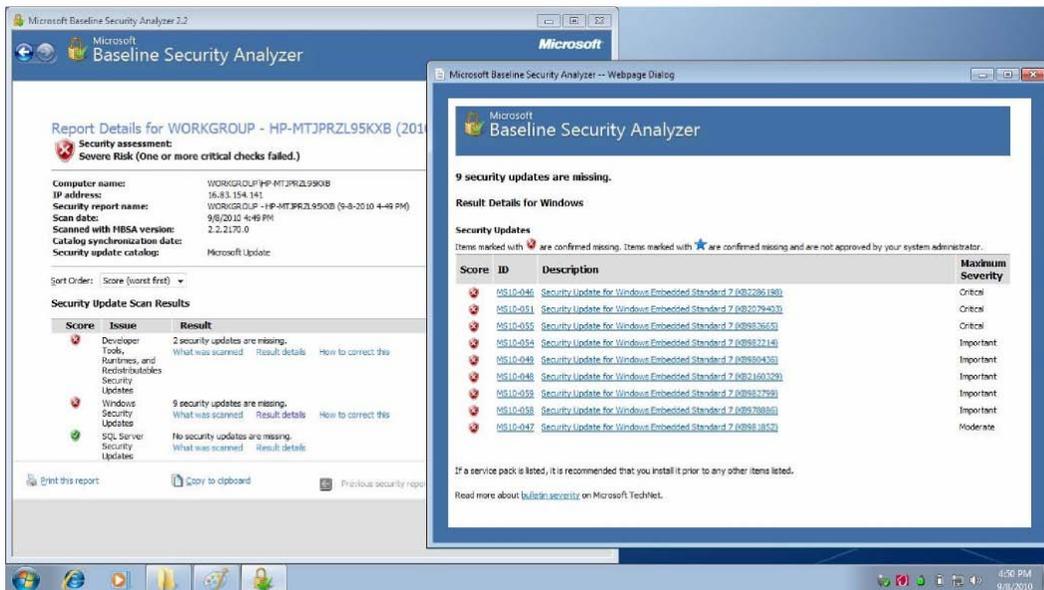
MBSA downloads the current Security Update Database and scans the target system.



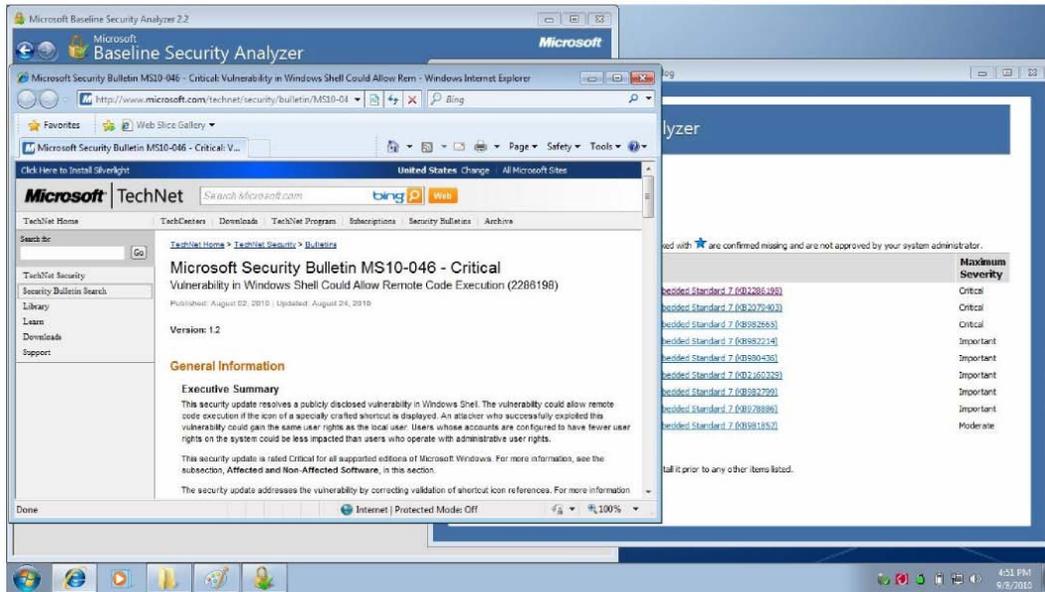
After scanning is complete, the report is immediately generated.



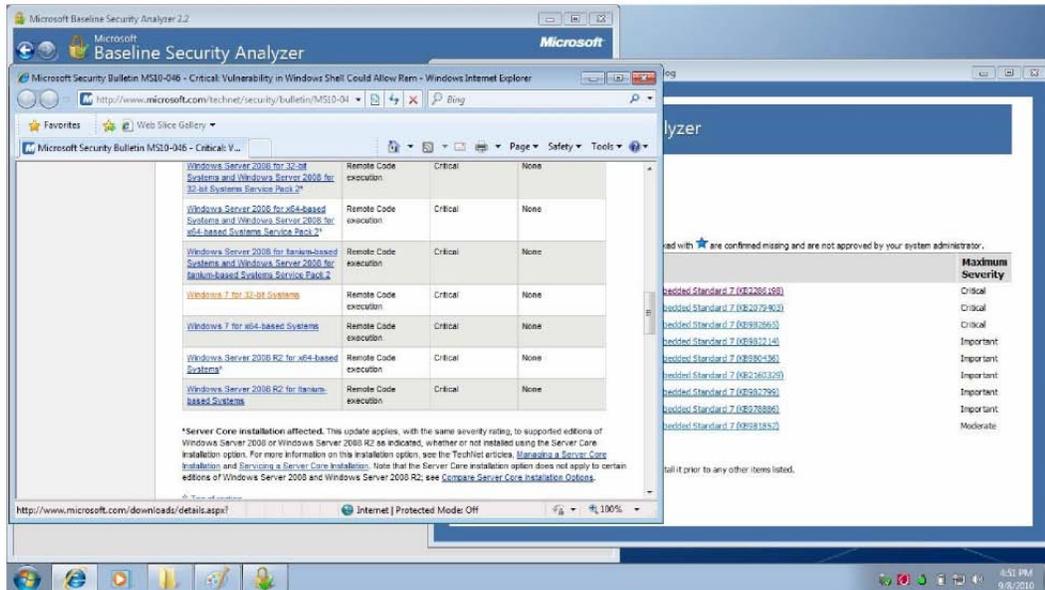
3. In the **Security Update Scan Results**, select the top **Security Update** listed (MS10-046).



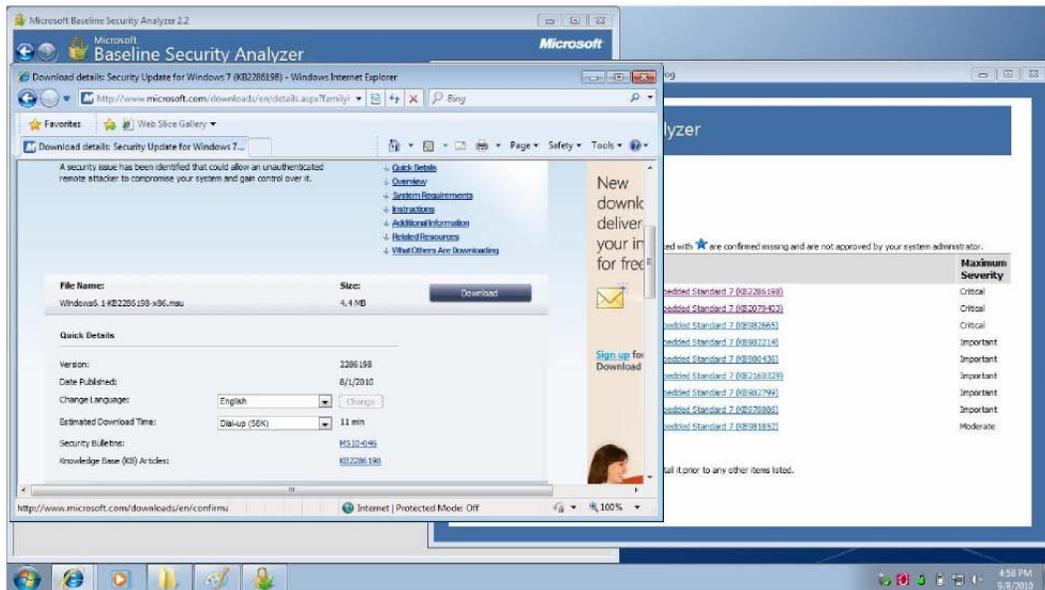
The Microsoft webpage for the Security Update (MS10-046) appears.



4. Scroll down and select the applicable operating system. For WES 7, it is **Windows 7 for 32-bit Systems**.

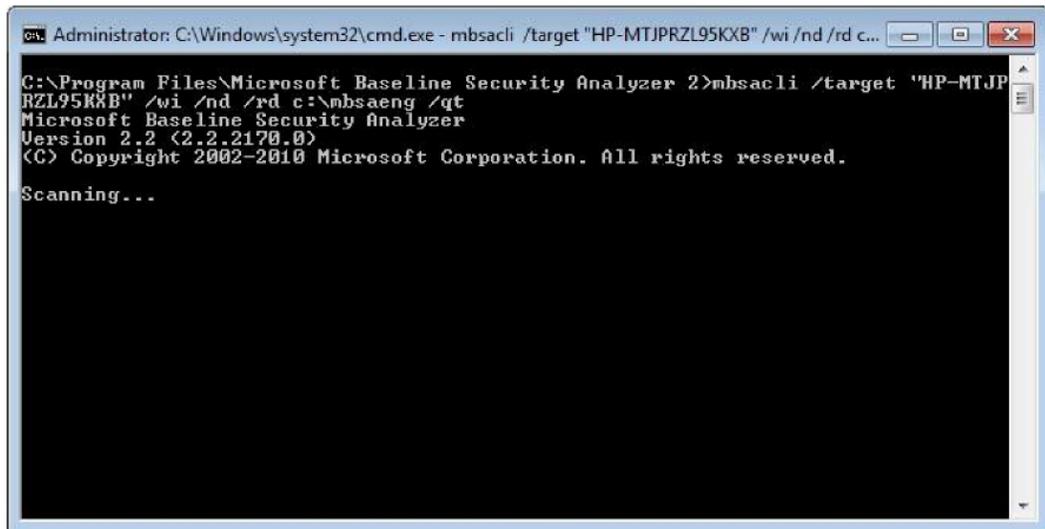


You can then download the Security Update in .msu or .exe format for later use.



### Using MBSA Command-line with WES 7

Having completed the process for installing the MBSA GUI, the Command-line utility can also be used to scan a target system or systems for security updates, generating a report in .mbsa (rich format report viewable in MBSA), .xml or .txt format as needed to then be used on Microsoft Security Bulletin Search website: <http://www.microsoft.com/technet/security/current.aspx>



```

Administrator: C:\Windows\system32\cmd.exe

C:\Program Files\Microsoft Baseline Security Analyzer 2>mbsacli /target "HP-MTJPRZL95KXB" /wi /nd /rd c:\mbsaeng /qt
Microsoft Baseline Security Analyzer
Version 2.2 (2.2.2170.0)
(C) Copyright 2002-2010 Microsoft Corporation. All rights reserved.

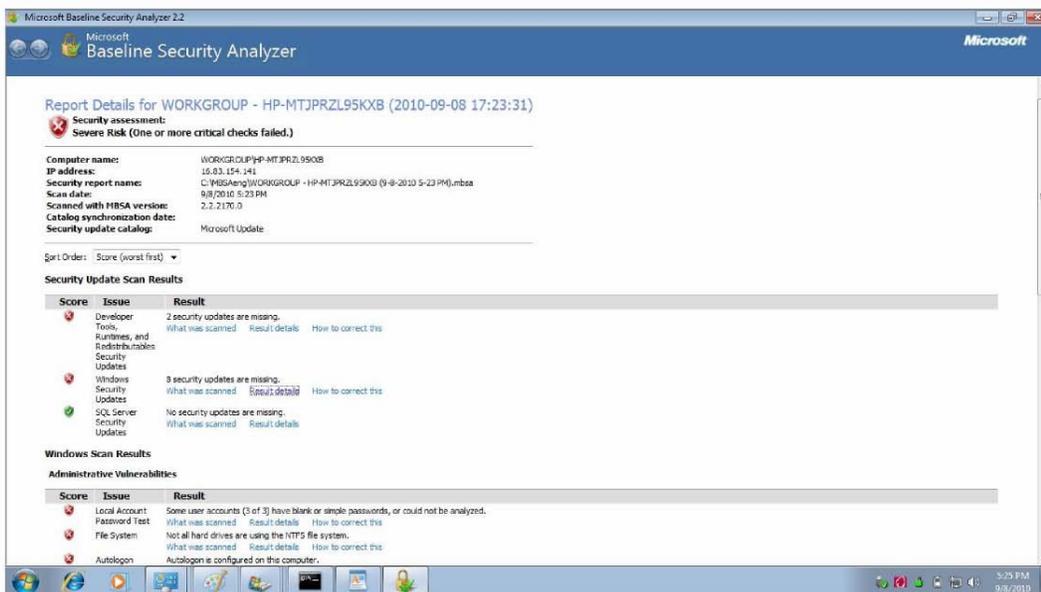
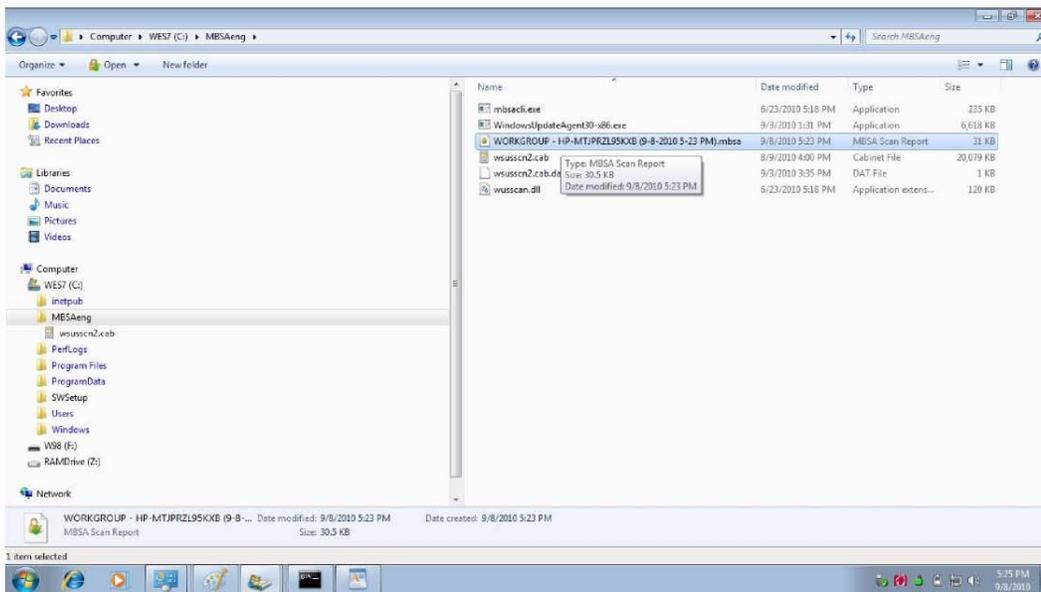
Scanning...
1 of 1 computer scans complete.

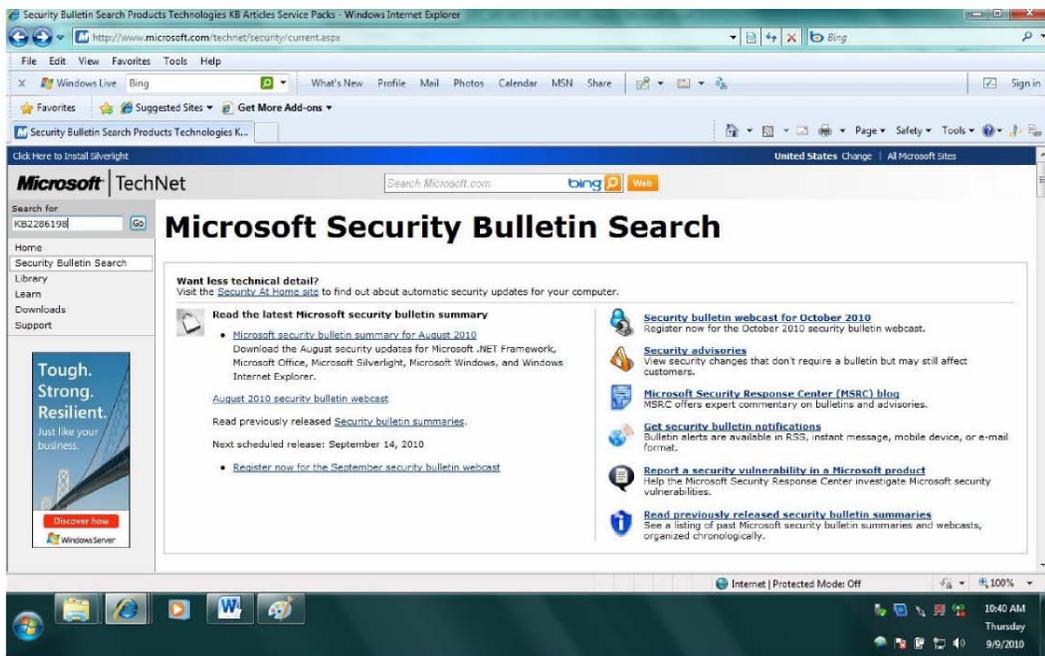
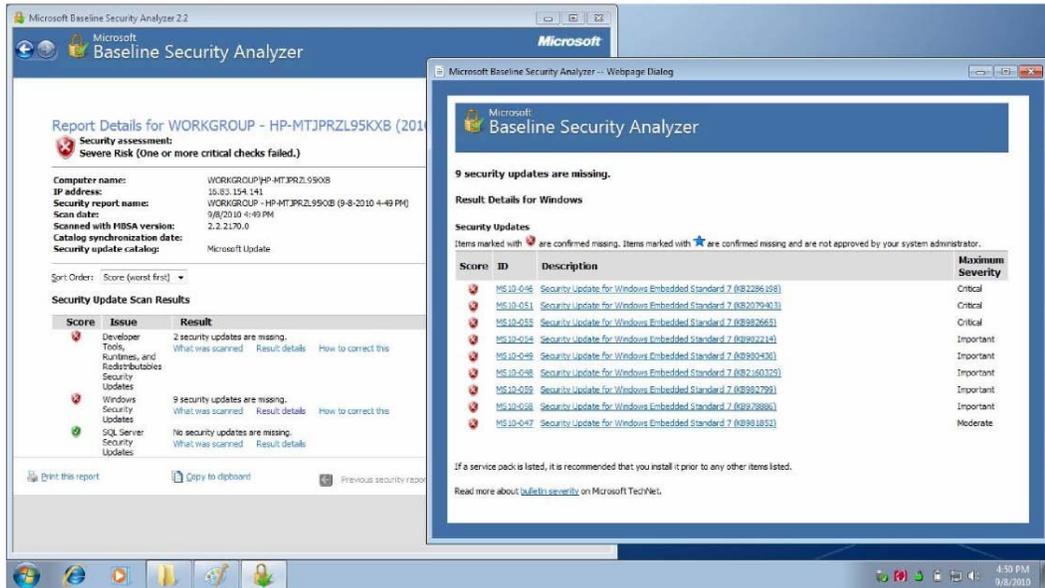
Scan Complete.

Computer Name, IP Address, Assessment, Report Name
-----
WORKGROUP\HP-MTJPRZL95KXB, 16.83.154.141, Severe Risk, WORKGROUP - HP-MTJPRZL95KXB (9-8-2010 5-23 PM)

C:\Program Files\Microsoft Baseline Security Analyzer 2>_

```





## Using MBSA in OFF-line Mode with WES 7

MBSA uses files that it downloads from the Internet, but the computer I want to use to scan my network doesn't have Internet access. How can I use MBSA in an offline and secure environment?

You can either perform the scan using the mbsacli command-line utility with the /nd (do not download) parameter, or you can perform the scan using the GUI. Before scanning you must copy the necessary files to the computer performing the scan. Four types of files are required:

- Security update catalog (wsusscn2.cab), available from the Microsoft website:  
<http://go.microsoft.com/fwlink/?LinkID=74689>
- Windows Update Redistribution Catalog (wu redist.cab) at  
<http://update.microsoft.com/redist/wuredist.cab>
- Authorization catalog (muauth.cab) for Windows Update site access, available from the Microsoft website or by examining the contents of the wuredist.cab file at  
<http://update.microsoft.com/redist/wuredist.cab>

- Windows Update Agent standalone installers (if not already installed)

The latest versions are available by examining the contents of the wuredist.cab file at <http://update.microsoft.com/redist/wuredist.cab>.

After downloading the files from the Microsoft website, copy all files listed above to the following folder on the computer performing the security update scan:

```
C:\Documents and Settings\\Local Settings\Application Data\Microsoft\MBSA\2.1\Cache
```

---

### Important

To ensure that MBSA has access to the most current versions of these files, you should download them on a weekly basis or after any release of security bulletins from Microsoft. This is especially important in the case of the security update catalog (Wsusscn2.cab), because Microsoft releases an updated version of this file whenever a new security bulletin is released or updated.

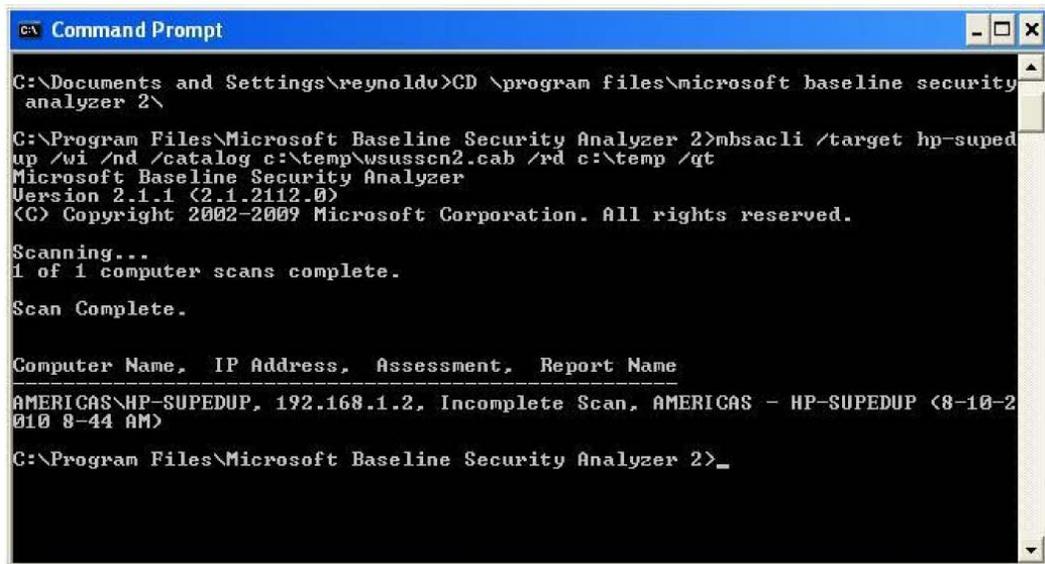
When you run MBSA to perform security update checks on remote computers, MBSA deploys the Windows Update Agent to the remote computer.

### Example:

```
c:\Program Files\Microsoft Baseline Security Analyzer 2>mbsacli /target "target computer name" /wi /nd /catalog c:\temp\wsusscn2.cab /rd c:\temp /qt
```

(Generates an .mbsa rich format, detailed report inside the MBSA utility)

OFF-line mode Scanning:



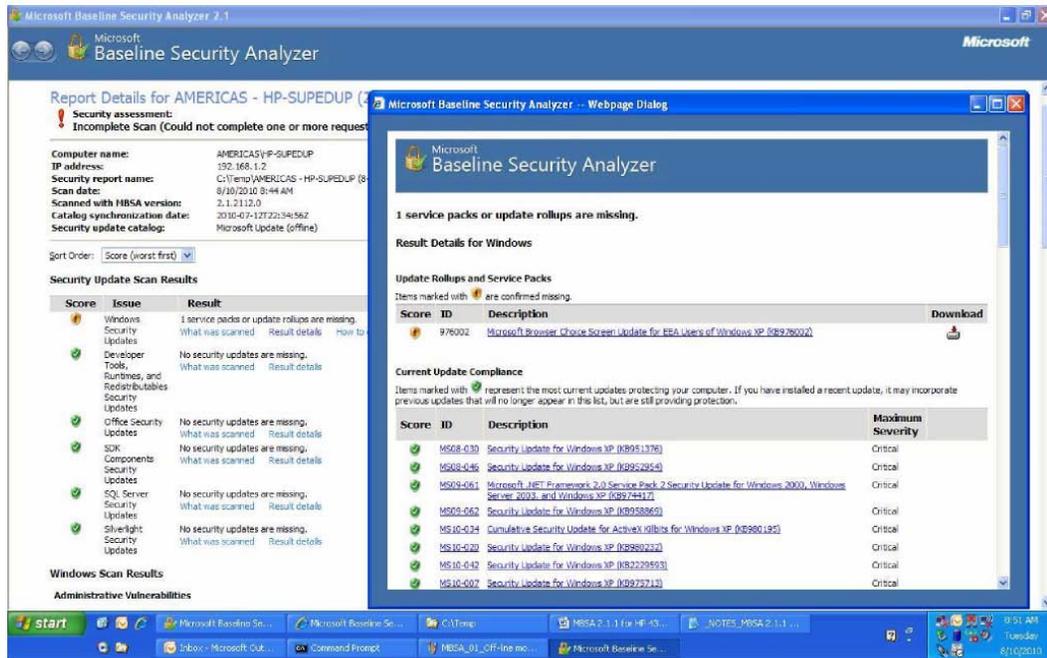
```
Command Prompt
C:\Documents and Settings\reynoldv>CD \program files\microsoft baseline security analyzer 2\
C:\Program Files\Microsoft Baseline Security Analyzer 2>mbsacli /target hp-supedup /wi /nd /catalog c:\temp\wsusscn2.cab /rd c:\temp /qt
Microsoft Baseline Security Analyzer
Version 2.1.1 (2.1.2112.0)
(C) Copyright 2002-2009 Microsoft Corporation. All rights reserved.

Scanning...
1 of 1 computer scans complete.

Scan Complete.

Computer Name, IP Address, Assessment, Report Name
-----
AMERICAS\HP-SUPEDUP, 192.168.1.2, Incomplete Scan, AMERICAS - HP-SUPEDUP (8-10-2010 8:44 AM)
C:\Program Files\Microsoft Baseline Security Analyzer 2>_
```

And the resulting report sent to C:\Temp:



### MBSACLI Switches:

- MBSACLI [/target | /r | /d domain] [/n option] [/o file] [/qp] [/qe] [/qr] [/qt] [/listfile file] [/xmlout] [/wa | /wi] [/catalog file] [/nvc] [/ia] [/mu] [/nd] [/rd directory] [/?]
- MBSACLI [/l] [/ls] [/lr file] [/ld file] [/unicode] [/nvc] [/?]

### Description: This is a command line interface for Microsoft Baseline Security Analyzer Parameter List:

/target	domain\computer	Scan named computer.
/target	IP	Scan named IP address.
/r	IP-IP	Scan named IP addresses range.
/listfile	file	Scan named IP address or computer listed in the specified file.
/d	domain	Scan named domain (Use NetBIOS compatible domain name (Ex: MyDomain) instead of Fully Qualified Domain Name (Ex:Mydomain.com) ).
/n	option	Select which scans to NOT perform. All checks are performed by default. Valid values: "OS", "SQL", "IIS", "Updates", "Password", Can be concatenated with "+" (no spaces).
/wa		Show only updates approved on the WSUS server.
/wi		Show all updates even if not approved on the WSUS server.
/nvc		Do not check for a new version of MBSA.
/o	filename	Output XML file name template. Default: %D% - %C% (%T%).
/qp		Do not display scan progress.

/qt		Do not display the report by default following a single-computer scan.
/qe		Do not display error list.
/qr		Do not display report list.
/q		Do not display any of the preceding items.
/unicode		Output Unicode.
/u	username	Scan using the specified username.
/p	password	Scan using the specified password.
/catalog	filename	Specify the data source that contains the available security update information.
/ia		Update the prerequisite Windows Update Agent components during a scan.
/mu		Configure computers to use the Microsoft Update website for scanning.
/nd		Do not download any files from the Microsoft website when scanning.
/xmlout		Run in updates only mode using only mbsaccli.exe and wusscan.dll. Only these switches can be used with this option: /catalog, /wa, /wi, /nvc, /unicode
/l		List all reports available.
/ls		List reports from the latest scan.
/lr	filename	Display overview report.
/ld	filename	Display detailed report.
/rd	directory	Save or Retrieve reports from the specified directory.
/?		Display this help/usage.

**Executing MBSACLI with no parameters scans the local computer for all checks and displays the report in text-mode.**

### Examples:

```
MBSACLI
```

```
MBSACLI /n Password+IIS+OS+SQL
```

```
MBSACLI /d MyDomain MBSACLI /target 200.0.0.1 MBSACLI /r 200.0.0.1-200.0.0.50 MBSACLI /listfile export.txt
```

```
MBSACLI /ld "Domain - Computer (03-01 -2002 1 2-00 AM)"
```

```
MBSACLI >c:\results.txt
```

```
MBSACLI /catalog c:\wsusscn2.cab /ia /nvc
```

```
MBSACLI /wa
```

```
MBSACLI /xmlout /catalog c:\temp\wsusscn2.cab /unicode >results.xml
```

```
MBSACLI /l /rd c:\scanreports
```

## Localizations

MBSA releases are available for German, Japanese, and French.

The `WSUSSCN2.CAB` file is localized to all supported languages and is automatically downloaded and used by the tool for any client language or locale being scanned. Results are stored in the report based on the MBSA installation language.

## Issues

Problems discovered during the scoping of this project:

- Microsoft is not supporting the *Nobackup* feature for WES 7 Security Updates. This is a crucial and impacting change, as the addition of monthly Security Updates expands the Image footprint from month to month.
- The current catalog files must be downloaded from the Internet before an OFF-line mode scan. It is strongly recommended that these files be downloaded on a weekly basis to ensure that the current security database is being used for scanning.
- Installation history (explicitly installed/effectively installed) no longer reflects those updates that have been superseded by another update. The behavior of this feature follows the behavior for missing updates, where only the most recent non-superseded update is shown.
- Workaround: Refer to the bulletin, fixlist, or TechNet search page to identify each previous bulletin that has been included in the update in question from the Current Update Compliance listing.

# Using Windows Update on WES 7

## Introduction

This section discusses the pros and cons of enabling Windows Update on HP Windows Embedded Standard 7 (WES 7) images.

The section also covers the level of support Microsoft and HP have for Windows Update and what the customer can expect if Windows Update is enabled on HP thin clients.

It concludes with some special notes regarding installing WES 7 QFEs with a write filter enabled.

## Audience

This section is intended for technical audiences and implies a working knowledge of editing the system registry, reconfiguring HP thin client utilities, and modifying aspects of the WES 7 operating system.

The section does not include detailed instructions needed to complete each modification, as ample information is available in the public domain to achieve the desired results.

## Overview

Microsoft has included full support for Windows Update in WES 7. In prior versions of Windows Embedded operating systems, the Windows Update website would not always recognize Windows XP Embedded clients and some, but not all, QFEs or updates would be available for download.

One drawback to Windows Update on WES 7 is that the in-box Windows Update client is not write filter-aware, and it does not know to manage the write filters if they are enabled.

This presents a serious challenge for HP thin client users that wish to take advantage of Windows Update support for QFE servicing. Microsoft provides no native solution or workaround for this situation, which leaves it up to the users to implement an end-to-end solution.

## RAM Drive Considerations

A possible blocking issue for HP thin client users is the RAM Drive. Implemented as a performance enhancement, HP redirects the TEMP, TMP, and Temporary Internet Files environment variables to the Z:\ RAM Drive. These redirected folders are commonly used during installation of software applications and QFEs.

As a matter of best practices, HP strongly recommends that users change the redirected folders to the C:\ drive before downloading and installing QFEs and feature updates from Windows Update. This may prevent the system from running out of disk space on the RAM Drive and causing unexpected errors when updating the system.

If users see unexpected installation failures or odd errors during QFE installation, modifying the RAM Drive size or even redirecting the folder to the C: drive for installation may be required to complete the installation successfully. This may occur when installing any of the following:

- New versions of Internet Explorer or Windows Media® Player
- New .Net Framework revisions or service packs
- New WES 7 Service Packs (SP1, SP2, etc...)
- Large numbers of QFEs installing simultaneously

## Good News about WES 7 Quick Fix Engineering (QFE) Releases

Fortunately, most WES 7 QFEs download and install from the C:\Windows\SoftwareDistribution\Download folder. This means that it may not be necessary to modify the environment variables for monthly QFE updates.

No data is available from Microsoft about the requirements for available TEMP space for any given QFE, so individual QFEs may behave differently, depending on how the feature team at Microsoft developed and delivered the package to the Windows Update team.

The rule of thumb is that most monthly QFEs do not require modification of environment variables in HP thin clients, but watch out for large packages and feature upgrades such as IE, WMP, or .Net Framework.

## Disk Space Concerns

A flaw in the Microsoft QFE strategy for WES 7 is the lack of a *nobackup* switch for QFEs. In XP Embedded, Microsoft QFEs could be passed a /nobackup argument that would prevent the QFE from creating a backup folder on the disk (typically in the C:\Windows folder). This was helpful in preventing the limited disk space on thin clients from filling up over time.

It is unclear if Microsoft will implement the /nobackup switch option for individual WES 7 QFEs, or if QFEs downloaded and installed via Windows Update will automatically have the /nobackup option enabled. HP will continue to engage Microsoft to improve this scenario in WES 7.

Because the nobackup switch is not available, QFEs can also be uninstalled. This is also a major change in behavior in Windows Embedded QFEs. HP will not test and qualify all of the permutations of the install/uninstall scenarios around MS QFEs. It is recommended that QFEs only be uninstalled if there is cause to believe a regression or issue is a direct result of a QFE installation.

## HP Windows Update Perspective

HP officially discourages customers from using Windows Update because of the known limitations with the Microsoft implementation.

The *client pull* servicing schema that Windows Update offers is not consistent with the way thin clients are typically serviced industry wide. A *server push* schema is the more deterministic and successful way to manage thin clients in the enterprise environment.

For all the virtues of the client pull servicing scenario, risks are still involved with user managed devices. Best examples are:

- Users can opt to not install QFEs for vulnerabilities, if they don't want to (disable WU or change settings to ignore availability notices).
- Microsoft does not guarantee that QFEs and updates will not harm or conflict with your system or configuration.
- Administrator rights and privileges are required.
- The device is end user-managed—not IT-managed.
- More than one reboot may be required to complete full installation of QFEs on WES 7.
- Modifications of system environment variables may be required to install QFEs and the restore system to prior state.
- The Windows Update agent will be disabled via system policies by default in the HP WES 7 image.

HP recommends that HP customers use the Microsoft Base Line Security Analyzers to identify needed QFEs, and then utilize a server push model to deliver QFEs and updates to deployed units. Preferably, all QFEs and updates would be pretested and qualified against a Golden Master image before being mass deployed. HP strongly recommends this model to prevent QFEs and updates from corrupting or adversely modifying deployed images.

See Microsoft Baseline Security Analyzer 2.2 for more information.

# How to Enable Windows Update

The following section explains how to enable Windows Update on HP WES 7 images.

Two OS policies need to be disabled before Windows Update website will recognize and communicate with the client system. One policy is a global system policy in HKEY Local Machine and the other is user profile-specific that needs to be disabled on each user profile on the system:

## HKEY Local Machine

HKEY\_LOCAL\_MACHINE\Software\Microsoft\Windows\CurrentVersion\Policies\WindowsUpdate

1. DisableWindowsUpdateAccess = REG\_DWORD 0x00000001
2. Change DWORD to 0 to disable.
3. Change DWORD to 1 to enable.

## HKEY Current User

HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer

1. NoWindowsUpdate = REG\_DWORD 0x00000001
2. Change DWORD to 0 to disable.
3. Change DWORD to 1 to enable.

A reboot is required after changing registry settings to enable support.

If the File-Based Write Filer (FBWF) is enabled, remember to disable the write filer before making any registry changes.

If the Enhanced Write Filter (EWF) is enabled, either disable the write filter before making registry modifications or commit the overlay after making registry changes so the settings are persisted.

---

### Note

In order to manage the Enhanced or File-Based Write Filter in WES 7, the user must have Administrator's privileges. Without Administrator's privileges, the write filters cannot be disabled, enabled, or committed.

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