

Guide for System Center Monitoring Pack for Windows Server Update Services

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The Operations Manager team encourages you to provide feedback on the monitoring pack by providing a review on the monitoring pack’s page in the [Management Pack Catalog](http://go.microsoft.com/fwlink/?LinkID=82105) (http://go.microsoft.com/fwlink/?LinkID=82105).

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# Guide for System Center Monitoring Pack for Windows Server Update Services (WSUS)

This guide was written based on version 7.0.8560.0 of the Monitoring Pack for Windows Server 2012 Windows Server Update Services (WSUS).

### Guide History

|  |  |
| --- | --- |
| Release Date | Changes |
| October 2012 | Original release of this guide |

### Supported Configurations

This monitoring pack requires System Center Operations Manager 2007 R2 or later. A dedicated Operations Manager management group is not required.

The following table details the supported configurations for the monitoring pack for WSUS:

|  |  |
| --- | --- |
| Configuration | Support |
| Windows Server 2012 | Yes |
| Clustered servers | Not tested |
| Agentless monitoring | Not tested |
| Virtual environment | Yes |

### Prerequisites

The following requirements must be met to run this monitoring pack:

 System Center Operations Manager 2007 R2 and later must be installed prior to running the monitoring pack.

 The WSUS server role must be installed prior to running the monitoring pack.

### Files in this Monitoring Pack

The Monitoring Pack for WSUS includes the following file:

Microsoft.Windows.Server.UpdateServices.2012.mp

# Monitoring Pack Purpose

The Windows Server Update Services (WSUS) Monitoring Pack helps you diagnose and resolve the issues reported as events by the WSUS server. There are four major event categories:

 Client Health includes update installation, the Windows Update Agent, client inventory, client self-update, and clients not reporting.

 Core Health includes content directory permissions, disk space, catalog synchronization, content synchronization, the WSUS service, and e-mail notification.

 Database Health includes the WSUS SQL database.

 Web Services Health includes the Reporting Web Service, API Remoting Service, Client WebService, Simple Web Authorization Service, Server Synchronization Service, and the Downstream Server Authentication Service.

WSUS can be managed locally on WSUS servers by using the command-line tool wsusutil. You can configure health monitoring settings, which include changing which events are logged and thresholds for logging. Because the WSUS Monitoring Pack monitors events on WSUS servers, changes to the settings made using wsusutil can affect monitoring. For more information on wsusutil, see [Managing WSUS from the Command Line](http://go.microsoft.com/fwlink/?LinkId=254930) on Microsoft TechNet.

# Monitoring Scenarios

The following tables describe the key monitoring scenarios that the monitoring pack for Windows Server Update Services (WSUS) enables.

### Client Health Rollup

The Client Health Rollup contains the following monitors.

|  |  |
| --- | --- |
| Monitoring scenario | Description |
| Clients exist | Monitors whether there are clients connected. |
| Clients Too Many | Monitors whether there are too many clients connected. |
| Inventory | Monitors client inventory collection. Clients report their software inventory to the server. |
| Self-Update | WSUS uses IIS to install the WSUS-compatible Automatic Updates (WSUS client) on most computers. This process is called client self-update. The WSUS setup process creates a virtual directory under the WSUS Web site named Selfupdate, which holds the WSUS-compatible Automatic Updates files. This virtual directory is called the self-update tree. |
| Silent Clients | Monitors for clients that do not report status to the WSUS server. Clients should check in with the server on a regular basis for updates. |
| Update Agent Install | Monitors for clients not installing updates. Clients need to install or upgrade the correct version of Windows Automatic Update software. |
| Updates Install | Monitors whether updates are being properly installed on client computers. |

### Core Health Rollup

The Core Health Rollup contains the following monitors.

|  |  |
| --- | --- |
| Monitoring scenario | Description |
| E-mail Notification | Monitors whether the e-mail notification functionality works. |
| Catalog Synchronization | Monitors whether the most recent synchronization failed. A WSUS server synchronizes with an upstream server or Microsoft Update. WSUS catalog synchronization depends on connectivity to the upstream server or Microsoft Update. |
| Content Directory ACLs | Monitors whether the content directory is accessible. The WSUS content directory must have the correct permissions set on specific accounts. |
| Content Directory Disk Space | Monitors whether the content storage is adequate. WSUS update content storage needs adequate disk space. |
| Content Synchronization | Monitors whether the synchronization update has failed. WSUS synchronization needs to download update content from the upstream server or Microsoft Update. |
| Service Status | Monitors whether the WSUS service has stopped. |

### Database Health Rollup

The Database Health Rollup contains the following monitor.

|  |  |
| --- | --- |
| Monitoring scenario | Description |
| Database | Monitors the WSUS database. The WSUS database needs to be configured correctly to provide information storage and retrieval for updates, approvals, subscriptions, and events. |

### Web Services Health Rollup

The Web Services Health Rollup contains the following monitors.

|  |  |
| --- | --- |
| Monitoring scenario | Description |
| API Remoting Web Service | Monitors the remoting service. The API Remoting Service allows remote applications to access the server. |
| Client Web Service | Monitors the Client Web Service, which is used to set up client-server communications. |
| Dss Auth Web Service | The Downstream Server Authentication Web service provides authentication of downstream servers. Servers need to authenticate to obtain downloads of content updates. |
| Reporting Web Service | Monitors the Reporting Web Service, which collects information on the state of installations and update history from each client. |
| Server Sync Web Service | Monitors the Server Synchronization Service, which provides server-to-server synchronization. |
| Simple Auth Web Service | The Simple Web Authentication Service provides authentication between the upstream and downstream WSUS servers. Servers need to authenticate to obtain downloads of content updates. |
| Web service content | The content updates are available in this directory and it should be anonymously accessed by the web request. |

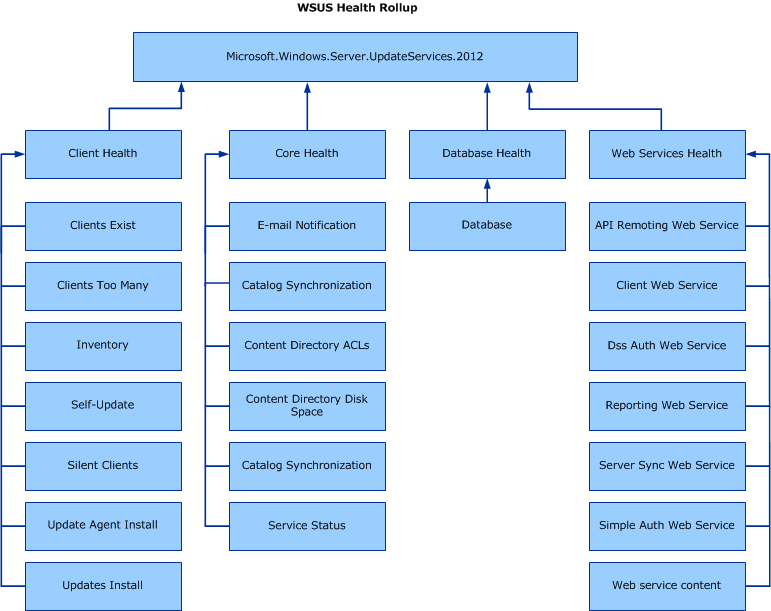
## WSUS Performance Counter Rules

The WSUS Monitoring Pack includes the following performance counter rules:

|  |  |
| --- | --- |
| Client Web Service Methods | Web method calls  Web method exceptions |
| Client Web Service | Average execution time  Cache hit ratio  Cache size  Calls per second  Last cache refresh time  Maximum cache refresh time  Maximum cache size |
| Server Web Methods | Web method calls  Web method exceptions |
| API Remoting Web Service | Calls per second  Maximum execution time  Average execution time |
| Reporting Web Service | Number of Events in Queue  Events per Second Reported  Events per Second Queued  Events per Second Dispatched  ReportEvent Calls per Second  Events per Second Handled (Debug)  Events per Second Processed (Raw Database)  Events per Second Inserted into the Database (Raw Database)  Events per Second Processed (Update Status)  Queue Locked %  Queue Enqueue Thread Count  Queue Dequeue %  Available worker threads.  Outstanding handler calls  Invalid Batches Dropped  Oversized Batches Dropped  Server rollups received  Computer rollups received  Computer rollups received (full)  Computer rollups received (partial)  Computer status rollups received  Computer status rollups received (full)  Computer status rollups received (delta)  Computer status rollups received (minor) |
| Server Web Service | Average execution time  Bytes per second  Calls per second  Maximum execution time |

# How Health Rolls Up

The following diagram shows how the health states of objects roll up in this monitoring pack.



# Links

The following links connect you to information about common tasks that are associated with System Center monitoring packs:

## System Center 2012 - Operations Manager

 [Management Pack Life Cycle](http://go.microsoft.com/fwlink/p/?LinkID=232986)

 [How to Import a Management Pack](http://go.microsoft.com/fwlink/p/?LinkID=219431)

 [Tuning Monitoring by Using Targeting and Overrides](http://go.microsoft.com/fwlink/p/?LinkID=217065)

 [How to Create a Run As Account](http://go.microsoft.com/fwlink/p/?LinkId=232988)

 [How to Export a Management Pack](http://go.microsoft.com/fwlink/p/?LinkId=232990)

 [How to Remove a Management Pack](http://go.microsoft.com/fwlink/p/?LinkId=232991)

## Operations Manager 2007 R2

 [Administering the Management Pack Life Cycle](http://go.microsoft.com/fwlink/?LinkId=211463)

 [How to Import a Management Pack in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkID=142351)

 [How to Monitor Using Overrides](http://go.microsoft.com/fwlink/?LinkID=117777)

 [How to Create a Run As Account in Operations Manager 2007](http://go.microsoft.com/fwlink/?LinkID=165410)

 [How to Modify an Existing Run As Profile](http://go.microsoft.com/fwlink/?LinkID=165412)

 [How to Export Management Pack Customizations](http://go.microsoft.com/fwlink/?LinkId=209940)

 [How to Remove a Management Pack](http://go.microsoft.com/fwlink/?LinkId=209941)

For questions about Operations Manager and monitoring packs, see the [System Center Operations Manager community forum](http://go.microsoft.com/fwlink/?LinkID=179635).

A useful resource is the [System Center Operations Manager Unleashed blog](http://go.microsoft.com/fwlink/?LinkId=246391), which contains “By Example” posts for specific monitoring packs.

For additional information about Operations Manager, see the [System Center 2012 - Operations Manager Survival Guide](http://go.microsoft.com/fwlink/?LinkId=246383) and [Operations Manager 2007 Management Pack and Report Authoring Resources](http://go.microsoft.com/fwlink/?LinkId=246388)

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# Appendix: Monitoring Pack Contents

The Monitoring Pack for WSUS discovers the object types described in the following sections. Not all of the objects are automatically discovered. Use overrides to discover those objects that are not discovered automatically.

## Microsoft.SystemCenter.License.Standard Discovery

The discovery of Microsoft.SystemCenter.License.Standard is defined in the System Center 2012 Monitoring Pack (Microsoft.SystemCenter.Library.mp). There are no monitors, rules, views, or reports associated with this discovery.

## Microsoft.Windows.Server.UpdateServices.2012.Server Discovery

Discovery Information

|  |  |  |  |
| --- | --- | --- | --- |
| Discovery Object | Interval | Enabled | When to Enable |
| Microsoft.Windows.Server.UpdateServices.2012.Server | 4 hours | True | Not applicable |

Related Monitors

|  |  |
| --- | --- |
| Monitor | Data source |
| All monitors in this table are enabled. | |
| Client Health Rollup | |
| Core Health Rollup | |
| Database Health Rollup | |
| Web Services Health Rollup | |
| All of the following monitors (except Service Status) are alerts logged by Windows Server Update Services in the Windows Application log. | |
| API Remoting Web Service | Event 12012, 12010,501 and 10000 |
| Catalog Synchronization | Event 10022, 10021, 10020, ,501 and 10000 |
| Clients Too Many | Event 13062, 13061, 13060,501 and 10000 |
| Clients Exist | Event, 13051, 13050, 501 and 10000 |
| Client Web Service | Event, 12022, 12020, 501 and 10000 |
| Content Directory ACLs | Event, 10012, 10010, 501 and 10000 |
| Content Directory Disk Space | Event, 10042, 10041, 10040, 501 and 10000 |
| Content Synchronization | Event, 10032, 10030, 501 and 10000 |
| Database | Event, 11002, 11000, 501 and 10000 |
| Dss Auth Web Service | Event, 12052, 12050, 501 and 10000 |
| E-mail Notification | Event, 10052, 10050, 501 and 10000 |
| Update Agent Install | Event, 13012, 13011, 13010, 501 and 10000 |
| Updates Install | Event, 13002, 13001, 13000, 501 and 10000 |
| Inventory | Event, 13021, 13021, 13020, 501 and 10000 |
| Reporting Web Service | Event, 12002, 12000, 501 and 10000 |
| Self Update | Event, 13042, 13040, 501 and 10000 |
| Server Sync Web Service | Event, 12032, 12030, 501 and 10000 |
| Service Status | Check the status of wsusservice  This monitor checks the start and stop status of the WSUS Service. It does not check the Windows Application log. |
| Silent Clients | Event, 13032, 13031, 13030, 501 and 10000 |
| Simple Auth Web Service | Event, 12042, 12042, 501 and 10000 |
| Web Service Content | Event, 12072, 12070, 501 and 10000 |

Note

If you are using connectors, you can disable the monitor and enable its corresponding rule to enable alerts without changing health status.

Related Rules

|  |  |
| --- | --- |
| Rule | Data source (Performance counter) |
| All of the rules in this table are enabled. | |
| Collect WSUS: API Remoting Web Service\Average execution time | WSUS: API Remoting Web Service\Average execution time |
| Collect WSUS: API Remoting Web Service\Calls per second | WSUS: API Remoting Web Service\Calls per second |
| Collect WSUS: API Remoting Web Service\Maximum execution time | WSUS: API Remoting Web Service\Maximum execution time |
| Collect WSUS: Client Web Service Methods\Web method calls | WSUS: Client Web Service Methods\Web method calls |
| Collect WSUS: Client Web Service Methods\Web method exceptions | WSUS: Client Web Service Methods\Web method exceptions |
| Collect WSUS: Client Web Service\Average execution time | WSUS: Client Web Service\Average execution time |
| Collect WSUS: Client Web Service\Cache hit ratio | WSUS: Client Web Service\Cache hit ratio |
| Collect WSUS: Client Web Service\Cache size | WSUS: Client Web Service\Cache size |
| Collect WSUS: Client Web Service\Calls per second | WSUS: Client Web Service\Calls per second |
| Collect WSUS: Client Web Service\Last cache refresh time | WSUS: Client Web Service\Last cache refresh time |
| Collect WSUS: Client Web Service\Maximum cache refresh time | WSUS: Client Web Service\Maximum cache refresh time |
| Collect WSUS: Client Web Service\Maximum cache size | WSUS: Client Web Service\Maximum cache size |
| Collect WSUS: Reporting Web Service\Available worker threads | WSUS: Reporting Web Service\Available worker threads |
| Collect WSUS: Reporting Web Service\Computer rollups received | WSUS: Reporting Web Service\Computer rollups received |
| Collect WSUS: Reporting Web Service\Computer rollups received (full) | WSUS: Reporting Web Service\Computer rollups received (full) |
| Collect WSUS: Reporting Web Service\Computer rollups received (partial) | WSUS: Reporting Web Service\Computer rollups received (partial) |
| Collect WSUS: Reporting Web Service\Computer status rollups received | WSUS: Reporting Web Service\Computer status rollups received |
| Collect WSUS: Reporting Web Service\Computer status rollups received (delta) | WSUS: Reporting Web Service\Computer status rollups received (delta) |
| Collect WSUS: Reporting Web Service\Computer status rollups received (full) | WSUS: Reporting Web Service\Computer status rollups received (full) |
| Collect WSUS: Reporting Web Service\Computer status rollups received (minor) | WSUS: Reporting Web Service\Computer status rollups received (minor) |
| Collect WSUS: Reporting Web Service\Events per Second Dispatched | WSUS: Reporting Web Service\Events per Second Dispatched |
| Collect WSUS: Reporting Web Service\Events per Second Handled (Debug) | WSUS: Reporting Web Service\Events per Second Handled (Debug) |
| Collect WSUS: Reporting Web Service\Events per Second Inserted into the Database (Raw Database) | WSUS: Reporting Web Service\Events per Second Inserted into the Database (Raw Database) |
| Collect WSUS: Reporting Web Service\Events per Second Processed (Raw Database) | WSUS: Reporting Web Service\Events per Second Processed (Raw Database) |
| Collect WSUS: Reporting Web Service\Events per Second Processed (Update Status) | WSUS: Reporting Web Service\Events per Second Processed (Update Status) |
| Collect WSUS: Reporting Web Service\Events per Second Queued | WSUS: Reporting Web Service\Events per Second Queued |
| Collect WSUS: Reporting Web Service\Events per Second Reported | WSUS: Reporting Web Service\Events per Second Reported |
| Collect WSUS: Reporting Web Service\Invalid Batches Dropped | WSUS: Reporting Web Service\Invalid Batches Dropped |
| Collect WSUS: Reporting Web Service\Number of Events in Queue | WSUS: Reporting Web Service\Number of Events in Queue |
| Collect WSUS: Reporting Web Service\Outstanding handler calls | WSUS: Reporting Web Service\Outstanding handler calls |
| Collect WSUS: Reporting Web Service\Oversized Batches Dropped | WSUS: Reporting Web Service\Oversized Batches Dropped |
| Collect WSUS: Reporting Web Service\Queue Dequeue % | WSUS: Reporting Web Service\Queue Dequeue % |
| Collect WSUS: Reporting Web Service\Queue Enqueue Thread Count | WSUS: Reporting Web Service\Queue Enqueue Thread Count |
| Collect WSUS: Reporting Web Service\Queue Locked % | WSUS: Reporting Web Service\Queue Locked % |
| Collect WSUS: Reporting Web Service\ReportEvent Calls per Second | WSUS: Reporting Web Service\ReportEvent Calls per Second |
| Collect WSUS: Reporting Web Service\Server rollups received | WSUS: Reporting Web Service\Server rollups received |
| Collect WSUS: Server Web Methods\Web method calls | WSUS: Server Web Methods\Web method calls |
| Collect WSUS: Server Web Methods\Web method exceptions | WSUS: Server Web Methods\Web method exceptions |
| Collect WSUS: Server Web Service\Average execution time | WSUS: Server Web Service\Average execution time |
| Collect WSUS: Server Web Service\Bytes per second | WSUS: Server Web Service\Bytes per second |
| Collect WSUS: Server Web Service\Calls per second | WSUS: Server Web Service\Calls per second |
| Collect WSUS: Server Web Service\Maximum execution time | WSUS: Server Web Service\Maximum execution time |

Note

Disable the rule and enable its corresponding monitor to enable alerts, state changes, and health rollup.

Related Views

|  |  |  |
| --- | --- | --- |
| View | Description | Rules and Monitors that Populate the View |
| Active Alert | The Alert view for the WSUS server | All monitors |
| Performance | The Performance view for the WSUS server | All rules |
| WSUS Server State | The overall state view for the WSUS server |  |