



IPSWITCH

WhatsUp Gold

Application Profile Reference Guide

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CHAPTER 1

Active Directory

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Active Directory Controller 2003

This application profile monitors the health of the Active Directory controller on a Windows Server 2003 system.

Prerequisites

WMI access to the Windows Server 2003 system hosting the active directory controller

Credentials

Windows credentials with administrative privileges on the Windows Server 2003 system hosting the Active Directory controller

Components

- **Certificate Service.** Monitors the certificate service.
- **Distributed File System.** Monitors the Distributed File System (DFS) namespace service provider which allows shared folders located on multiple servers to be grouped into one or more logically structured namespaces.
- **File Replication Service.** Monitors the File Replication Service (FRS) which synchronizes folders with file servers that use FRS as opposed to servers that use newer DFS Replication technology.
- **Intersite Messaging Service.** Monitors the Intersite Messaging Service which enables messages communication between Windows servers. If this service is stopped, messages are not exchanged, and routing site information is not calculated for other services.
- **Kerberos Key Distribution Service.** Monitors the Kerberos Key Distribution Service which enables users to log on to the network using the Kerberos authentication protocol and manages tickets and sessions. If this service is stopped on the domain controller, users are unable to logon to the network. Further, services that depend on this service running fail to start.
- **Name Service.** Monitors the DNS Server service which enables client computers on your network to register and resolve DNS domain names.

- **Network Logon Service.** Monitors the Network Logon service which verifies logon requests, registers, authenticates and locates domain controllers.
- **Remote Procedure Call.** Monitors the Remote Procedure Call service which performs object activation requests, object explorer resolutions, and distributed garbage collection for COM and DCOM servers. If this service is stopped or disabled, programs using COM and DCOM function improperly.
- **Security Accounts Manager.** Monitors the Security Accounts Manager service which signals readiness to accept requests. If this service is stopped, other services will not be notified that the SAM is ready to accept requests and could cause other services to fail.
- **Server Service.** Monitors the Server service that supports file, print, and named-pipe sharing over the network. If this service stops, these functions will be unavailable.
- **Time Service.** Monitors the Windows Time service which maintains date and time synchronization on all clients and servers in the network. If this service stops, date and time synchronization is unavailable.
- **Workstation Service.** Monitors the Workstation service that creates and maintains client network connections to remote servers using the SMB protocol.
- **Context Switches.** Monitors the number of context switches per second. A high context-switch rate often indicates that there are too many threads competing for the processors on the system.
- **Processor Queue Length.** Monitors the number of processes waiting to be executed. Sustained values greater than 2 indicate insufficient CPU resources (number of processors).
- **Address Book Clients.** Monitors the number of connected Address Book Client sessions.
- **Bind Rate.** Monitors the number of binds per second serviced by the domain control.
- **Directory Reads.** Monitors the number of directory reads per second.
- **Directory Searches.** Monitors the number of directory searches per second.
- **Directory Service Threads.** Monitors the number of threads in use by the directory services; that is, the number of threads currently servicing API calls. High values indicate additional processing resources may be needed.
- **Directory Writes.** Monitors the number of directory writes per second.
- **Inbound Replication Object Rate.** Monitors the number of objects received from neighbors through inbound replication. A neighbor is a domain controller from which the local domain controller replicates locally.
- **LDAP Active Threads.** Monitors the number of threads in use by the LDAP subsystem of the local directory service.
- **LDAP Bind Rate.** Monitors the LDAP binds per second.
- **LDAP Bind Time.** Monitors the time, in milliseconds, it takes to successfully bind to LDAP objects.
- **LDAP Client Sessions.** Monitors the number of currently connected LDAP client sessions.
- **LDAP Search Rate.** Monitors the rate at which LDAP clients perform search operations.

- **Notify Queue Size.** Monitors the number of pending update notifications that have been queued, but not yet transmitted to clients.
- **Outbound Replication Object Rate.** Monitors the number of object property values containing Distinguished Names sent to outbound replication partners.
- **Pending Inbound Sync Objects.** Monitors the number of objects remaining until the full synchronization process is completed.
- **Pending Replication Operations.** Monitors the number of replication operations that are pending.
- **Pending Replication Synchronizations.** Monitors the number of directory synchronizations that are queued for this server but not yet processed. This counter helps in determining replication backlog - the larger the number, the larger the backlog.
- **Translation Rate.** Monitors the number of domain controller-to-domain controller name translations per second serviced by this domain controller.

Active Directory Controller 2008

This application profile monitors the health of the Active Directory controller on a Windows Server 2008 system.

Prerequisites

WMI access to the Windows Server 2008 system hosting the Active Directory controller

Credentials

Windows credentials with administrative privileges on the Windows Server 2008 system hosting the Active Directory controller

Components

- **Certificate Service.** Monitors the certificate service.
- **Distributed File System.** Monitors the Distributed File System (DFS) namespace service provider which allows shared folders located on multiple servers to be grouped into one or more logically structured namespaces.
- **Domain Service.** Monitors the Active Directory Domain Services service.
- **File Replication Service.** Monitors the File Replication Service (FRS) which synchronizes folders with file servers that use FRS as opposed to servers that use newer DFS Replication technology.
- **Intersite Messaging Service.** Monitors the Intersite Messaging Service which enables messages communication between Windows servers. If this service is stopped, messages are not exchanged, and routing site information is not calculated for other services.
- **Kerberos Key Distribution Service.** Monitors the Kerberos Key Distribution Service which enables users to logon to the network using the Kerberos authentication protocol and manages tickets and sessions. If this service is stopped on the domain controller, users are unable to logon to the network. Further, services that depend on this service running fail to start.

- **Name Service.** Monitors the DNS Server service which enables client computers on your network to register and resolve DNS domain names.
- **Network Logon Service.** Monitors the Network Logon service which verifies logon requests, registers, authenticates and locates domain controllers.
- **Remote Procedure Call.** Monitors the Remote Procedure Call service which performs object activation requests, object explorer resolutions, and distributed garbage collection for COM and DCOM servers. If this service is stopped or disabled, programs using COM and DCOM function improperly.
- **Security Accounts Manager.** Monitors the Security Accounts Manager service which signals readiness to accept requests. If this service is stopped, other services will not be notified that the SAM is ready to accept requests and could cause other services to fail.
- **Server Service.** Monitors the Server service that supports file, print, and named-pipe sharing over the network. If this service stops, these functions will be unavailable.
- **Time Service.** Monitors the Windows Time service which maintains date and time synchronization on all clients and servers in the network. If this service stops, date and time synchronization is unavailable.
- **Web Service.** Monitors the Active Directory web services provider service.
- **Workstation Service.** Monitors the Workstation service that creates and maintains client network connections to remote servers using the SMB protocol.
- **Context Switches.** Monitors the number of context switches per second. A high context-switch rate often indicates that there are too many threads competing for the processors on the system.
- **Processor Queue Length.** Monitors the number of processes waiting to be executed. Sustained values greater than 2 indicate insufficient CPU resources (number of processors).
- **Address Book Clients.** Monitors the number of connected Address Book Client sessions.
- **Bind Rate.** Monitors the number of binds per second serviced by the domain control.
- **Directory Reads.** Monitors the number of directory reads per second.
- **Directory Searches.** Monitors the number of directory searches per second.
- **Directory Service Threads.** Monitors the number of threads in use by the directory services; that is, the number of threads currently servicing API calls. High values indicate additional processing resources may be needed.
- **Directory Writes.** Monitors the number of directory writes per second.
- **Inbound File Replication Orders.** Monitors the number of replication change orders received.
- **Inbound Replication Object Rate.** Monitors the number of objects received from neighbors through inbound replication. A neighbor is a domain controller from which the local domain controller replicates locally.
- **LDAP Active Threads.** Monitors the number of threads in use by the LDAP subsystem of the local directory service.
- **LDAP Bind Rate.** Monitors the LDAP binds per second.
- **LDAP Bind Time.** Monitors the time, in milliseconds, it takes to successfully bind to LDAP objects.

- **LDAP Client Sessions.** Monitors the number of currently connected LDAP client sessions.
- **LDAP Search Rate.** Monitors the rate at which LDAP clients perform search operations.
- **Notify Queue Size.** Monitors the number of pending update notifications that have been queued, but not yet transmitted to clients.
- **Outbound File Replication Orders.** Monitors the number of replication change orders sent.
- **Outbound Replication Object Rate.** Monitors the number of object property values containing Distinguished Names sent to outbound replication partners.
- **Pending Inbound Sync Objects.** Monitors the number of objects remaining until the full synchronization process is completed.
- **Pending Replication Operations.** Monitors the number of replication operations that are pending.
- **Pending Replication Synchronizations.** Monitors the number of directory synchronizations that are queued for this server but not yet processed. This counter helps in determining replication backlog - the larger the number, the larger the backlog.
- **Translation Rate.** Monitors the number of domain controller-to-domain controller name translations per second serviced by this domain controller.

Active Directory Controller 2012

This application profile monitors the health of the Active Directory controller on a Windows Server 2008 system.

Prerequisites

WMI access to the Windows Server 2012 system hosting the Active Directory controller

Credentials

Windows credentials with administrative privileges on the Windows Server 2012 system hosting the Active Directory controller

Components

- **Service: Active Directory Web Services.** Monitors the service which provides a Web Service interface to instances of the directory service (AD DS and AD LDS) running locally on this server.
- **Service: Active Directory Domain Services.** Monitors the core AD DS Domain Controller service. If this service is stopped, users are unable to log on to the network. If this service is disabled, any services that explicitly depend on it fail to start.
- **System: Processor Queue Length.** Monitors the number of processes waiting to be executed. Sustained values greater than 2 indicate insufficient CPU resources (number of processors).

- **System: Context Switches/sec.** Monitors the number of context switches per second. A high context-switch rate often indicates there are too many threads competing for the processors on the system.
- **DRA Pending Replication Synchronizations.** Monitors the number of directory synchronizations queued for this server but not yet processed.
- **DS Directory Writes/sec.** Monitors the number of directory writes per second.
- **DS Directory Reads/sec.** Monitors the number of directory reads per second.
- **LDAP Searches/sec.** Monitors the number of search operations per second performed by LDAP clients. This counter should show activity over time. If it does not, it usually indicates network problems are hindering client requests.
- **LDAP Successful Binds/sec.** Monitors the number of LDAP bindings (per second) that occurred successfully. This counter should show activity over time. If it does not, it usually indicates that network problems are occurring.
- **DS Threads in Use.** Monitors the current number of threads in use by the directory service.
- **DRA Outbound Values (DNs only)/sec.** Monitors the number of object property values containing DN's sent to outbound replication partners.
- **DRA Inbound Values (DNs only)/sec.** Monitors the number of object property values received from inbound replication partners that are distinguished names (DNs) that reference other objects.
- **DRA Inbound Full Sync Objects Remaining.** Monitors the number of objects remaining until the full synchronization is complete (while replication is done). This value should be as low as possible.
- **Directory Service Notify Queue Size.** Monitors the number of pending update notifications which have been queued, but not yet transmitted to clients. This value should be as low as possible.
- **Address Book Client Sessions.** Monitors the number of connected Address Book client sessions.
- **Directory Service Threads in Use.** Monitors the current number of threads in use by the directory service. This counter should show activity over time. If it does not, it usually indicates that network problems are hindering client requests.
- **LDAP Client Sessions.** Monitors the number of currently connected LDAP client sessions. This counter should show activity over time. If it does not, it usually indicates that network-related problems are occurring.
- **LDAP Bind Time.** Monitors the time (in milliseconds) required for the completion of the last successful LDAP binding. This value should be as low as possible. If it is not, it usually indicates that hardware or network problems are occurring.
- **LDAP Active Threads.** Monitors the current number of threads in use by the LDAP subsystem of the local directory service.
- **Service: Net Logon.** Monitors the service that maintains a secure channel between the computer and the domain controller for authenticating users and services.
- **Service: Remote Procedure Call (RPC).** Monitors the service that acts as the Service Control Manager for COM and DCOM servers. It performs object activation requests, object exporter resolutions, and distributed garbage collection for COM and DCOM servers.

- **Service: Workstation.** Monitors the service that creates and maintains client network connections to remote servers using the SMB protocol. If this service is stopped, these connections are unavailable.
- **Service: Server.** Monitors the service that supports file, print, and named-pipe sharing over the network for the computer.
- **Service: Security Accounts Manager.** Monitors the service whose startup signals other services that the Security Accounts Manager (SAM) is ready to accept requests.
- **Service: DNS Client.** Monitors the DNS Client service (dnscache) caches Domain Name System (DNS) names and registers the full computer name for the computer.
- **Service: Windows Time.** Monitors the service that maintains date and time synchronization on all clients and servers in the network. If this service is stopped, date and time synchronization are unavailable.
- **Service: Kerberos Key Distribution Center.** Monitors the service that enables users to log on to the network using the Kerberos authentication protocol. If this service is stopped on a domain controller, users are unable to log on to the network.
- **Service: Intersite Messaging.** Monitors the service that enables messages to be exchanged between computers running Windows Server sites. If this service is stopped, messages can not be exchanged and site routing information can not be calculated for other services.
- **Service: DFS Replication.** Monitors the service that enables synchronization of folders on multiple servers across local or wide area network (WAN) network connections.
- **Service: DNS Server.** Monitors the service that enables DNS clients to resolve DNS names by answering DNS queries and dynamic DNS update requests. If this service is stopped, DNS updates do not occur.
- **Service: Distributed File System.** Monitors the service that enables grouping of shared folders located on different servers into one or more logically structured namespaces. Each namespace appears to users as a single shared folder with a series of subfolders.

CHAPTER 2

Apache

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Apache Web Server - Windows

This application profile monitors the overall health and performance of Apache Web Server on Windows.

Prerequisites

WMI to the Windows system hosting Apache Web Server. Access to the Apache server-status web page.

Configure Apache to display the server-status page:

- 1 Log in to the Windows server hosting Apache using an account with Administrator privileges.
- 2 Locate the `httpd.conf` file. This file is typically found under the `conf` directory where Apache is installed.
- 3 Ensure the status module is loaded by adding or uncommenting the following line:
`LoadModule status_module modules/mod_status.so`
- 4 Enable the Extended Server Status report by adding the following lines to the end of the file. <<IP.ADDRESS>> should be the IP address or hostname of your WhatsUp Gold Server.

```
<Location /server-status>  
  SetHandler server-status  
  Order deny, allow  
  Deny from all  
  Allow from <<IP.ADDRESS>>  
</Location>  
ExtendedStatus On
```

- 5 Restart the Apache Web Server.
`# httpd.exe -k restart`

Credentials

Windows credentials with administrative privileges on the Windows system hosting Apache Web Server.

Application Attributes

Apache_Web_Server_Port. Identifies the port number to use for monitoring the Apache Web Server's server-status page. Default is 80.

Components

- **Total Accesses.** Monitors the total number of accesses.
- **Total Traffic.** Monitors the total number of kilobytes this server has served.
- **Nb Requests per Second.** Monitors the average number of Nb requests per second.
- **Bytes per Second.** Monitors the average number of bytes per second.
- **Bytes per Request.** Monitors the average number of bytes per request.
- **Busy Workers.** Monitors the number of busy workers serving requests.
- **Idle Workers.** Monitors the number of free workers ready to handle client connections.
- **Apache Service Uptime.** Monitors the amount of time(in seconds) the Apache service is working and available. It is used to measure the reliability or stability of the Apache service.
- **HTTP Monitor.** Monitors the web server's ability to accept incoming sessions and transmit the requested page.
- **Server Load.** Monitors the amount of Load to the Server over the last minute.
- **Apache Service Check.** Monitors the status of Apache Web server.

Apache Web Server - Linux

This application profile monitors the overall health and performance of Apache Web Server on Linux.

Prerequisites

SNMP enabled on the Linux system hosting Apache Web Server. Access to the Apache server-status web page.

Configure Apache to display the server-status page

- 1 Log on to the Linux server hosting Apache and grant yourself root permissions.
- 2 Locate the `httpd.conf` file. This file is typically found under the `/etc/httpd/conf` directory.
- 3 Ensure the status module is loaded by adding or uncommenting the following line:
`LoadModule status_module modules/mod_status.so`
- 4 Enable the Extended Server Status report by adding the following lines to the end of the file. <<IP.ADDRESS>> should be the IP address or hostname of your WhatsUp Gold Server.

```
<Location /server-status>
  SetHandler server-status
  Order deny, allow
  Deny from all
  Allow from <<IP.ADDRESS>>
```

```
</Location>
```

```
ExtendedStatus On
```

5 Restart the Apache Web Server.

```
# apache2ctl -k graceful
```

Credentials

Requires Linux system hosting Apache Web Server has SNMP credentials assigned to it.

Application Attributes

Apache_Web_Server_Port. Identifies the port number to use for monitoring the Apache Web Server's server-status page. Default is 80.

Components

- **Total Accesses.** Monitors the total number of accesses.
- **Total Traffic.** Monitors the total number of kilobytes this server has served.
- **Nb Requests per Second.** Monitors the average number of Nb requests per second.
- **Bytes per Second.** Monitors the average number of bytes per second.
- **Bytes per Request.** Monitors the average number of bytes per request.
- **CPU Load.** Monitors the percentage of CPU load of the server.
- **Busy Workers.** Monitors the number of busy workers serving requests.
- **Idle Workers.** Monitors the number of free workers ready to handle client connections.
- **Apache Service Uptime.** Monitors the amount of time(in seconds) the Apache service is working and available. It is used to measure the reliability or stability of the Apache service.
- **HTTP Monitor.** Monitors the web server's ability to accept incoming sessions and transmit the requested page.
- **Server Load.** Monitors the amount of Load to the Server over the last minute.
- **Apache Service Check.** Monitors the status of Apache Web server.

CHAPTER 3

Cisco

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Cisco Unified Communications Manager (CUCM)

This application profile monitors the health of Cisco Unified Communications Manager.

Prerequisites

Requires that the SNMP agent on the device hosting Cisco Unified Communications Manager is running

Credentials

Requires that the device hosting Cisco Unified Communications Manager has SNMP credentials assigned to it

Components

- **Call Manager.** Monitors call manager process. This is the main service critical to proper functioning of Cisco Call Manager.
- **TFTP.** Monitors the TFTP process. The Cisco TFTP service builds configuration files and serves embedded component executables, ringer files, and device configuration files.
- **Certificate Authority Proxy Function (CAPF).** Monitors the CAPF process. CAPF is responsible for various certificate based authentication tasks.
- **TAPS.** Monitors the TAPS process. The Tool for Auto-Registered Phones Support (TAPS) works in conjunction with the Bulk Administration Tool (BAT) to enable auto-registration of phones.
- **DirSync.** Monitors the DirSync process. The DirSync application performs the synchronization of data in the Cisco Unified Communications Manager database with the LDAP directory information.
- **CTL Provider.** Monitors the CTL provider process. The Cisco Certificate Trust List (CTL) Provider service handles authentication and certificate requests from the Cisco CTL Client plugin and creates the CTL file.
- **Bulk Provisioning.** Monitors bulk provisioning process. If you use the Bulk Administration Tool (BAT) to administer phones and users, you must activate this service.
- **Extended Functions.** Monitors the extended functions process. Supports the Quality Report Tool (QRT).

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- **CDROnDemand.** Monitors the Cisco SOAP-CDROnDemand Service.
- **CAR Web.** Monitors CAR web process. CallManager Serviceability CDR Analysis and Reporting (CAR) tool generates reports of information for quality of service, traffic, user call volume, billing, and gateways.
- **Number of registered phones.** Monitors the number of phones that are registered and actively in communication with the local call manager.
- **Number of rejected phones.** Monitors the number of phones whose registration requests were rejected by the local call manager.
- **Number of registered gateways.** Monitors the number of gateways that are registered and actively in communication with the local call manager.
- **Number of rejected gateways.** Monitors the number of gateways whose registration requests were rejected by the local call manager.

CHAPTER 4

IIS

In This Chapter

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Internet Information Services (IIS) v7 and later

This application profile monitors the health of Microsoft Internet Information Services (IIS) v7 and later.

Prerequisites

WMI access to the Windows system hosting the IIS server

Credentials

Windows credentials with administrative privileges on the Windows system hosting the IIS server

Components

- **HTTP Port Check.** Monitors the HTTP port to verify HTTP service is functioning.
- **Web Publishing Service.** Monitors the World Wide Web Publishing service that provides Web connectivity and administration through the Internet Information Services Manager.
- **Free Memory (MB).** Monitors the amount of physical memory in megabytes (MB) immediately available for allocation to a process or for system use. The amount of memory available is equal to the sum of memory assigned to the standby (cached), free, and zero page lists.
- **Processor Utilization.** Monitors the percentage of time the processor is busy. This measurement is the amount of processor utilization.
- **Cache Hit Rate.** Monitors percentage of successful cache hits.
- **CGI Requests/sec.** Monitors the rate of Common Gateway Interface (CGI) requests per second.
- **Connect Attempts/sec.** Monitors the rate of attempted connections to the web service per second.
- **GET Requests.** Monitors the number of Hyper Text Transfer Protocol (HTTP) GET requests per second.
- **Locks Request/sec.** Monitors the rate of lock requests per second.
- **Total Connections.** Monitors the total number of connections to the Web service.

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- **URI Cache hits/sec.** Monitors the rate of successful lookups performed per second in the Uniform Resource Identifier (URI) cache.
- **URI Cache misses/sec.** Monitors the rate of unsuccessful lookups performed per second in the URI cache.
- **URI Flushes.** Monitors the number of URI cache flushes since the WWW service started.
- **Web Bytes received/sec.** Monitors the rate at which the web service is receiving data from clients per second.
- **Web Bytes sent/sec.** Monitors the rate at which the web service is sends data to clients per second.

CHAPTER 5

Ipswitch

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Ipswitch IMail 11.5 - 12.2

This application profile monitors the health of Ipswitch IMail server versions 11.5 - 12.2.

Prerequisites

WMI access to the Windows system hosting the Ipswitch IMail server

Credentials

Requires that the device hosting Ipswitch IMail server has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting the Ipswitch IMail server

Components

- **IMAP4 Port Check.** Monitors the IMAP4 port.
- **POP3 Port Check.** Monitors the POP3 port.
- **SMTP Port Check.** Monitors the SMTP port.
- **IMAP Service Check.** Monitors the IMAP service.
- **POP Service Check.** Monitors the POP service.
- **Queue Manager Service Check.** Monitors the Queue Manager service.
- **SMTP Service Check.** Monitors the SMTP service.

- **Free Memory (MB).** Monitors the amount of free memory available.
- **Processor Utilization.** Monitors the processor utilization.
- **Web Server.** Monitors the IIS server that hosts IMAIL web interface.
- **Open SMTP Sessions.** Monitors the number of open SMTP sessions.
- **Disk Utilization.** Monitors disk utilization.

Ipswitch MOVEit Central

This application profile monitors the health of Ipswitch MOVEit Central.

Prerequisites

WMI access to the Windows system hosting the Ipswitch MOVEit Central.

Credentials

Requires that the device hosting Ipswitch MOVEit Central has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting MOVEit Central.

Components

- **Admin Port Check (Port 3471).** Monitors port used by MOVEit Central Admin to connect to MOVEit Central.
- **Fail-over Port Check.** Monitors port used by MOVEit Central to communicate with other MOVEit Central installations in a fail-over configuration.
- **Admin Port Check (Port 3473).** Monitors port used by MOVEit Central Admin to connect to MOVEit Central.
- **MOVEit Central Service.** Monitors the MOVEit Central service responsible for advanced file transfer and process manager.

Ipswitch MOVEit DMZ

This application profile monitors the health of Ipswitch MOVEit DMZ.

Prerequisites

WMI access to the Windows system hosting Ipswitch MOVEit DMZ

Credentials

Requires that the device hosting Ipswitch MOVEit DMZ has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting MOVEit DMZ.

Components

- **AS2 Receiver.** Monitors AS2 (protocol) receiver function.
- **Explicit FTPS.** Monitors the explicit FTPS interface on MOVEit DMZ server.
- **Home Page.** Monitors to make sure that the home page of MOVEit web interface is accessible.
- **Implicit FTPS.** Monitors the implicit FTP/SSL interface on the MOVEit DMZ server.
- **Internet Server Application Programming Interface (ISAPI).** Monitors the optimized web transfer interface used by the Upload/Download Wizard, MOVEit Central and various MOVEit clients.
- **SSH Interface.** Monitors the SSH interface that provides SFTP and some SCP2 services.
- **XML Interface.** Monitors the XML interface used by the MOVEit DMZ API and other MOVEit clients.
- **FTP.** Monitors the FTP service that provides secure FTP access to MOVEit DMZ files.
- **Helper Service.** Monitors the helper service that provides miscellaneous functions to MOVEit DMZ web server nodes.
- **SSH.** Monitors the SSH service that provides secure SSH access to MOVEit DMZ files.

Ipswitch WhatsUp Gold v15.x

This application profile monitors the health of Ipswitch WhatsUp Gold v15.x.

Prerequisites

WMI access to the Windows system hosting Ipswitch WhatsUp Gold v15.x

Credentials

Requires that the device hosting Ipswitch WhatsUp Gold v15.x has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting Ipswitch WhatsUp Gold v15.x.

Components

- **Ipswitch Service Control Manager.** Monitors the Ipswitch Service Control Manager (ISCM) service.
- **Network Monitoring Service.** Monitors the WhatsUp Gold poller process.
- **Alert Center.** Monitors the alert center process.
- **Web Server.** Monitors the IIS server hosting the web interface of WhatsUp Gold.

- **Database Server.** Monitors the SQL Server hosting the database used by WhatsUp Gold.

Ipswitch WhatsUp Gold v16.0.x

This application profile monitors the health of Ipswitch WhatsUp Gold v16.0.x.

Prerequisites

WMI access to the Windows system hosting Ipswitch WhatsUp Gold v16.0.x

Credentials

Requires that the device hosting Ipswitch WhatsUp Gold v16.0.x has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting Ipswitch WhatsUp Gold v16.0.x.

Components

- **Ipswitch Service Control Manager.** Monitors the Ipswitch Service Control Manager (ISCM) service.
- **Service Bus.** Monitors the Service Bus process.
- **Polling Controller.** Monitors the Polling Controller process.
- **Task Controller.** Monitors the Task Controller process.
- **Data Collector.** Monitors the Data Collector process.
- **Alert Center.** Monitors the Alert Center process.
- **Web Server.** Monitors the IIS server hosting the WhatsUp Gold web interface.
- **Poller Lag Time.** Monitors the number of seconds the polling engine is lagging.
- **Outstanding group updates.** Monitors the number of outstanding group update files awaiting processing.
- **Outstanding active monitor results.** Monitors the total outstanding active monitor results.
- **Outstanding data collector results.** Monitors the total outstanding data collector results.
- **Active Monitor polls/sec.** Monitors the rate at which active monitors are being polled.
- **Performance Monitor polls/sec.** Monitors the rate at which performance monitors are being polled.
- **Database Server.** Monitors the SQL Server hosting the database used by WhatsUp Gold.
- **Discovery Service.** Monitors the Discovery Service process.
- **Network Viewer Data Service.** Monitors the Network Viewer Data Service process.
- **Processor Utilization.** Monitors the processor utilization.

- **Free Memory (MB).** Monitors the amount of free memory.
- **Wireless.** Monitors the process that provides polling and reporting functionality for wireless devices.

Ipswitch WhatsUp Gold v16.1.x

This application profile monitors the health of Ipswitch WhatsUp Gold v16.1.x.

Prerequisites

WMI access to the Windows system hosting Ipswitch WhatsUp Gold v16.1.x

Credentials

Requires that the device hosting Ipswitch WhatsUp Gold v16.1.x has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting Ipswitch WhatsUp Gold v16.1.x.

Components

- **Ipswitch Service Control Manager.** Monitors the Ipswitch Service Control Manager (ISCM) service.
- **Service Bus.** Monitors the Service Bus process.
- **Polling Controller.** Monitors the Polling Controller process.
- **Task Controller.** Monitors the Task Controller process.
- **Data Collector.** Monitors the Data Collector process.
- **Alert Center.** Monitors the Alert Center process.
- **Web Server.** Monitors the IIS server hosting the WhatsUp Gold web interface.
- **Poller Lag Time.** Monitors the number of seconds the polling engine is lagging.
- **Outstanding group updates.** Monitors the number of outstanding group update files awaiting processing.
- **Outstanding active monitor results.** Monitors the total outstanding active monitor results.
- **Outstanding data collector results.** Monitors the total outstanding data collector results.
- **Active Monitor polls/sec.** Monitors the rate at which active monitors are being polled.
- **Performance Monitor polls/sec.** Monitors the rate at which performance monitors are being polled.
- **Database Server.** Monitors the SQL Server hosting the database used by WhatsUp Gold.
- **Discovery Service.** Monitors the Discovery Service process.
- **Network Viewer Data Service.** Monitors the Network Viewer Data Service process.

- **Processor Utilization.** Monitors the processor utilization.
- **Free Memory (MB).** Monitors the amount of free memory.
- **APM Discovery.** Monitors the process that provides application discovery related functionality in APM.
- **APM State Manager.** Monitors the process that provides state management in APM.
- **APM Action Manager.** Monitors the process that provides action management functionality in APM.
- **Wireless.** Monitors the process that provides polling and reporting functionality for wireless devices.

Ipswitch WhatsUp Gold v16.2.x

This application profile monitors the health of Ipswitch WhatsUp Gold v16.1.x.

Prerequisites

WMI access to the Windows system hosting Ipswitch WhatsUp Gold v16.1.x

Credentials

Requires that the device hosting Ipswitch WhatsUp Gold v16.1.x has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting Ipswitch WhatsUp Gold v16.1.x.

Components

- **Virtual.** Monitors the process that collects the data for virtual infrastructure.
- **Drone Manager.** Monitors the process that manages the data sent by remote iDrones.
- **Wireless.** Monitors the process that provides polling and reporting functionality for wireless devices.
- **APM Action Manager.** Monitors the process that provides action management functionality in APM.
- **APM State Manager.** Monitors the process that provides state management in APM.
- **APM Discovery.** Monitors the process that provides application discovery related functionality in APM.
- **Free Memory (MB).** Monitors the amount of free memory.
- **Processor Utilization.** Monitors the processor utilization.
- **Network Viewer Data Service.** Monitors the Network Viewer Data Service process.
- **Discovery Service.** Monitors the Discovery Service process.
- **Database Server.** Monitors the SQL Server hosting the database used by WhatsUp Gold.
- **Performance Monitor polls/sec.** Monitors the rate at which performance monitors are being polled.

- **Active Monitor polls/sec.** Monitors the rate at which active monitors are being polled.
- **Outstanding data collector results.** Monitors the total outstanding data collector results.
- **Outstanding active monitor results.** Monitors the total outstanding active monitor results.
- **Outstanding group updates.** Monitors the number of outstanding group update files awaiting processing.
- **Poller Lag Time.** Monitors the number of seconds the polling engine is lagging.
- **Web Server.** Monitors the IIS server hosting the WhatsUp Gold web interface.
- **Alert Center.** Monitors the Alert Center process.
- **Data Collector.** Monitors the Data Collector process.
- **Task Controller.** Monitors the Task Controller process.
- **Polling Controller.** Monitors the Polling Controller process.
- **Service Bus.** Monitors the Service Bus process.
- **Ipswitch Service Control Manager.** Monitors the Ipswitch Service Control Manager (ISCM) service.

Ipswitch WhatsUp Gold v16.3.x

This application profile monitors the health of Ipswitch WhatsUp Gold v16.3.x.

Prerequisites

WMI access to the Windows system hosting Ipswitch WhatsUp Gold v16.3.x

Credentials

Requires that the device hosting Ipswitch WhatsUp Gold v16.3.x has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting Ipswitch WhatsUp Gold v16.3.x.

Components

- **Ipswitch Service Control Manager.** Monitors the Ipswitch Service Control Manager (ISCM) service.
- **Service Bus.** Monitors the Service Bus process.
- **Polling Controller.** Monitors the Polling Controller process.
- **Task Controller.** Monitors the Task Controller process.
- **Data Collector.** Monitors the Data Collector process.
- **Alert Center.** Monitors the Alert Center process.
- **Web Server.** Monitors the IIS server hosting the WhatsUp Gold web interface.
- **Poller Lag Time.** Monitors the number of seconds the polling engine is lagging.
- **Outstanding group updates.** Monitors the number of outstanding group update files awaiting processing.

- **Outstanding active monitor results.** Monitors the total outstanding active monitor results.
- **Outstanding data collector results.** Monitors the total outstanding data collector results.
- **Active Monitor polls/sec.** Monitors the rate at which active monitors are being polled.
- **Performance Monitor polls/sec.** Monitors the rate at which performance monitors are being polled.
- **Database Server.** Monitors the SQL Server hosting the database used by WhatsUp Gold.
- **Discovery Service.** Monitors the Discovery Service process.
- **Network Viewer Data Service.** Monitors the Network Viewer Data Service process.
- **Processor Utilization.** Monitors the processor utilization.
- **Free Memory (MB).** Monitors the amount of free memory.
- **APM Discovery.** Monitors the process that provides application discovery related functionality in APM.
- **APM State Manager.** Monitors the process that provides state management in APM.
- **APM Action Manager.** Monitors the process that provides action management functionality in APM.
- **Wireless.** Monitors the process that provides polling and reporting functionality for wireless devices.
- **Drone Manager.** Monitors the process that manages the data sent by remote iDrones.
- **Virtual.** Monitors the process that collects the data for virtual infrastructure.

Ipswitch WhatsUp Gold v16.4.x

This application profile monitors the health of Ipswitch WhatsUp Gold v16.4.x.

Prerequisites

WMI access to the Windows system hosting Ipswitch WhatsUp Gold v16.4.x

Credentials

Requires that the device hosting Ipswitch WhatsUp Gold v16.4.x has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting Ipswitch WhatsUp Gold v16.4.x.

Components

- **Ipswitch Service Control Manager.** Monitors the Ipswitch Service Control Manager (ISCM) service.
- **Service Bus.** Monitors the Service Bus process.

- **Polling Controller.** Monitors the Polling Controller process.
- **Task Controller.** Monitors the Task Controller process.
- **Data Collector.** Monitors the Data Collector process.
- **Alert Center.** Monitors the Alert Center process.
- **Web Server.** Monitors the IIS server hosting the WhatsUp Gold web interface.
- **Poller Lag Time.** Monitors the number of seconds the polling engine is lagging.
- **Outstanding group updates.** Monitors the number of outstanding group update files awaiting processing.
- **Outstanding active monitor results.** Monitors the total outstanding active monitor results.
- **Outstanding data collector results.** Monitors the total outstanding data collector results.
- **Active Monitor polls/sec.** Monitors the rate at which active monitors are being polled.
- **Performance Monitor polls/sec.** Monitors the rate at which performance monitors are being polled.
- **Database Server.** Monitors the SQL Server hosting the database used by WhatsUp Gold.
- **Discovery Service.** Monitors the Discovery Service process.
- **Network Viewer Data Service.** Monitors the Network Viewer Data Service process.
- **Processor Utilization.** Monitors the processor utilization.
- **Free Memory (MB).** Monitors the amount of free memory.
- **APM Discovery.** Monitors the process that provides application discovery related functionality in APM.
- **APM State Manager.** Monitors the process that provides state management in APM.
- **APM Action Manager.** Monitors the process that provides action management functionality in APM.
- **Wireless.** Monitors the process that provides polling and reporting functionality for wireless devices.
- **Drone Manager.** Monitors the process that manages the data sent by remote iDrones.
- **Virtual.** Monitors the process that collects the data for virtual infrastructure.

Ipswitch WS_FTP Server 6 - 7.5

This application profile monitors the health of Ipswitch WS_FTP server versions 6 - 7.5.

Prerequisites

SNMP access to the system hosting the Ipswitch WS_FTP server

Credentials

Requires that the device hosting Ipswitch WS_FTP server has SNMP credentials assigned to it

Components

- **Disk Utilization.** Monitors disk utilization.
- **CPU Utilization.** Monitors CPU utilization.
- **FTP Port Check.** Monitors FTP port.
- **Logging Server Service Check.** Monitors the Logging Server service.
- **Notification Server Service Check.** Monitors the Notification Server service.
- **SSH Server Service Check.** Monitors the SSH Server service.
- **FTP Server Service Check.** Monitors the FTP Server service.
- **SFTP Port Check.** Monitors SFTP port.

CHAPTER 6

Lync Server

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Lync Server 2010 - 2013 (Edge Role)

This application profile monitors the health of a Microsoft Lync Server 2010-2013 (Edge Role).

Prerequisites

RPC and WMI access to the Windows system hosting the Microsoft Lync Server 2010-2013 (Edge Role)

Credentials

Windows credentials with administrative privileges on the Windows system hosting the Microsoft Lync Server 2010-2013 (Edge Role)

Components

- **SIP Peers: Active Connections.** Monitors the number of established connections that are currently active. This returned value should be less than 15,000 connections per Front-End.
- **SIP Peers: Average Outgoing Queue Delay.** Monitor returns the average time, in seconds, that messages have been delayed in outgoing queues.
- **SIP Peers: Incoming Requests/sec.** Monitors the rate of received requests, per second. You will need to baseline this counter by testing and monitoring the user load.
- **SIP Protocol: Incoming Messages/sec.** Monitors the rate of received messages, per second. You will need to baseline this counter by testing and monitoring the user load.
- **SIP Load Management: Average Holding Time For Incoming Messages.** Monitors the average time that the server held the incoming messages currently being processed.
- **SIP Peers: Active TLS Connections.** Monitors the number of established TLS connections that are currently active. A TLS connection is considered established when the peer certificate, and possibly the host name, are verified for a trust relationship.

- **SIP Access Edge Server: External Messages/sec With Internally Supported Domain.** Monitors the per-second rate of messages received at the external edge with an internally supported domain.
- **SIP Access Edge Server: External Messages/sec Received With Allowed Partner Server Domain.** Monitors the per-second rate of messages received at the external edge with an allowed partner server domain.
- **SIP Access Edge Server: External Messages/sec Received With a Configured Allowed Domain.** Monitors the per-second rate of messages received at the external edge with a configured allowed domain.
- **A/V Edge UDP: Active Relay Sessions - Authenticated.** Monitors the number of active relay sessions over UDP.
- **A/V Edge UDP: Active Relay Sessions - Allocated Port.** Monitors the number of active relay sessions with a UDP port allocation.
- **A/V Edge UDP: Active Relay Sessions - Data.** Monitors the number of active relay data sessions over UDP.
- **A/V Edge UDP: Allocated Port Pool Count.** Monitors the number of UDP ports available in the Allocated Port Pool. This monitor should be more than zero. If it reaches zero there is a resource issue.
- **A/V Edge UDP: Allocate Requests/sec.** Monitors the per-second rate of Allocate Requests over UDP. You will need to baseline this counter by testing and monitoring the user load.
- **A/V Edge UDP: Authentication Failures/sec.** Monitors the per-second rate of failed attempts to authenticate with the relay over UDP. The returned value should be as low as possible.
- **A/V Edge UDP: Allocate Requests Exceeding Port Limit.** Monitors the number of allocate requests over UDP that exceeded the port limit. If the value is greater than zero, this could indicate an attempt to misuse the port.
- **A/V Edge UDP: Packets Received/sec.** Monitors the number of packets, received per second, by the relay over UDP. You will need to baseline this counter by testing and monitoring the user load.
- **A/V Edge UDP: Packets Sent/sec.** Monitors the number of packets sent per second by the relay over UDP. You will need to baseline this counter by testing and monitoring the user load.
- **A/V Edge UDP: Average Data Packet Latency (milliseconds).** Monitors the average latency for a valid data request over UDP in milliseconds. The returned value should be as low as possible.
- **A/V Edge UDP: Packets Dropped/sec.** Monitors the per-second rate of packets over UDP dropped by the relay. The returned value should be as low as possible.
- **A/V Edge TCP: Active Relay Sessions - Authenticated.** Monitors the number of active relay sessions over TCP.
- **A/V Edge TCP: Active Relay Sessions - Allocated Port.** Monitors the number of active relay sessions with a TCP port allocation.
- **A/V Edge TCP: Active Relay Sessions - Data.** Monitors the number of active relay data sessions over TCP.

- **A/V Edge TCP: Allocated Port Pool Count.** Monitors the number of TCP ports available in the Allocated Port Pool. This monitor should be greater than zero. If zero is reached, a resource issue exists.
- **A/V Edge TCP: Allocate Requests/sec.** Monitors the per-second rate of Allocate Requests over TCP. You will need to baseline this counter by testing and monitoring the user load.
- **A/V Edge TCP: Authentication Failures/sec.** Monitors the per-second rate of failed attempts to authenticate with the relay over TCP. The returned value should be as low as possible.
- **A/V Edge TCP: Allocate Requests Exceeding Port Limit.** Monitors the number of allocate requests over TCP that exceeded the port limit. If the value is greater than zero, this could indicate an attempt to misuse the port.
- **A/V Edge TCP: Packets Received/sec.** Monitors the number of packets received per second by the relay over TCP. You will need to baseline this counter by testing and monitoring the user load.
- **A/V Edge TCP: Packets Sent/sec.** Monitors the number of packets sent per second by the relay over TCP. You will need to baseline this counter by testing and monitoring the user load.
- **A/V Edge TCP: Average Data Packet Latency (milliseconds).** Monitors the average latency for a valid data request over TCP in milliseconds. The returned value should be as low as possible.
- **A/V Edge TCP: Packets Dropped/sec.** Monitors the per-second rate of packets over TCP dropped by the relay. The returned value should be as low as possible.
- **Replica Replicator Agent Service.** Monitors the Lync Server Replica Replicator Agent service. This service is used by the File Transfer Agent for replication configuration settings.
- **Access Edge Service.** Monitors the Access Edge service that provides a single, trusted connection point for both outbound and inbound Session Initiation Protocol (SIP) traffic.
- **Audio/Video Authentication Service.** Monitors the Lync Server Audio/Video Authentication service.
- **Audio/Video Edge Service.** Monitors the service that makes audio, video, application sharing, and file transfer available to external users. The A/V Edge service also provides support for desktop sharing and file transfer.
- **Web Conferencing Edge Service.** Monitors the Web Conferencing Edge service that enables external users to join meetings that are hosted on your internal Lync Server deployment.

Lync Server 2010 - 2013 (Front-End Role)

This application profile monitors the health of a Microsoft Lync Server 2010-2013 (Front-End Role).

Prerequisites

RPC and WMI access to the Windows system hosting the Microsoft Lync Server 2010-2013 (Front-End Role)

Credentials

Windows credentials with administrative privileges on the Windows system hosting the Microsoft Lync Server 2010-2013 (Front-End Role)

Components

- **SIP Peers: Active Connections.** Monitors the number of established connections that are currently active. This returned value should be less than 15,000 connections per Front-End.
- **SIP Peers: Outstanding Sends.** Monitor returns the number of messages that are currently present in the outgoing queues.
- **SIP Peers: Average Outgoing Queue Delay.** Monitors the average time, in seconds, that messages have been delayed in outgoing queues.
- **SIP Peers: Connections Dropped Due To Flow-control.** Monitors the total number of connections dropped because of excessive flow-control. The returned value should be as low as possible.
- **SIP Peers: Average Flow-Control Delay.** Monitors the average delay, in seconds, in message processing when the socket is flow-controlled. The returned value should be as low as possible.
- **SIP Peers: Incoming Requests/sec.** Monitors the rate of received requests, per second. You will need to baseline this counter by testing and monitoring the user load.
- **SIP Protocol: Incoming Messages/sec.** Monitors the rate of received messages, per second. You will need to baseline this counter by testing and monitoring the user load.
- **SIP Protocol: Events In Processing.** Monitors the number of SIP transactions, or dialog state change events, that are currently being processed.
- **SIP Responses: Local 500 Responses/sec.** Monitors the rate of 500 responses generated by the server, per second. This can indicate that there is a server component that is not functioning correctly.
- **SIP Responses: Local 503 Responses/sec.** Monitors the rate of 503 responses generated by the server, per second. On a healthy server, you should not receive this code at a steady rate.
- **SIP Responses: Local 504 Responses/sec.** Monitor returns the rate of 504 responses generated by the server, per second. It can indicate connection failures or delays connecting to remote servers.
- **SIP Load Management: Average Holding Time For Incoming Messages.** Monitors the average time that the server held the incoming messages currently being processed.
- **SIP Load Management: Address space usage.** Monitors the percentage of available address space currently in use by the server process. The returned value should be as low as possible.

- **SIP Load Management: Page file usage.** Monitors the percentage of available page file space currently in use by the server process. The returned value should be as low as possible.
- **IM Conferences: Active Conferences.** Monitors the number of active conferences. You will need to baseline this counter by testing and monitoring the user load.
- **IM Conferences: Connected Users.** Monitors the number of connected users in all conferences. You will need to baseline this counter by testing and monitoring the user load.
- **IM Conferences: Throttled Sip Connections.** Monitors the number of throttled Sip connections. If the value is greater than ten, it could indicate that Peer is not processing requests in a timely fashion.
- **IM MCU Health And Performance: MCU Health State.** Monitors the current health of the MCU.
Possible values:
0 = Normal.
1 = Loaded.
2 = Full.
3 = Unavailable.
- **IM MCU Health And Performance: MCU Draining State.** Monitors the current draining status of the MCU.
Possible values:
0 = Not requesting to drain.
1 = Requesting to drain.
2 = Draining.
When a server is drained, it stops taking new connections and calls.
- **User Services - DBStore: Queue Latency (msec).** Monitors the average time, in milliseconds, that a request is held in the database queue. If the topology is healthy, this counter averages less than 100 ms.
- **User Services - DBStore: Sproc Latency (msec).** Monitors the average time, in milliseconds, it takes to execute a stored procedure call. A healthy state is considered to be less than 100 ms.
- **User Services - HTTPS Transport: Number of failed connection attempts / sec.** Monitors the rate of connection attempt failures, per second. You will need to baseline this counter by testing and monitoring the server's health.
- **SIP Peers: Active TLS Connections.** Monitors the number of established TLS connections that are currently active. A TLS connection is considered established when the peer certificate, and possibly the host name, are verified for a trust relationship.
- **Audio Test Service.** Monitors the Lync Server Audio Test Service. This service offers users the ability to subjectively test the quality of a call before placing the call.
- **File Transfer Agent Service.** Monitors the Lync Server File Transfer Agent. The File Transfer Agent is responsible for replicating configuration settings with the Replica Replicator Agent that runs on every Lync Server.
- **Front-End Service.** Monitors the Front-End Lync Server. The Front-End Servers maintain transient information, such as logged-on state and control information for an IM, Web, or audio/video (A/V) conference.

- **IM Conferencing Service.** Monitors the Lync Server IM Conferencing. The IM Conferencing service is responsible for multiplexing the instant messages data feed from the leader to all participants in the session.
- **Master Replicator Agent Service.** Monitors the Lync Server Master Replicator Agent. This service is used by File Transfer Agent for replication configuration settings.
- **Replica Replicator Agent Service.** Monitors the Lync Server Replica Replicator Agent service. This service is used by the File Transfer Agent for replication configuration settings.
- **Web Conferencing Service.** Monitors the Lync Server Web Conferencing service that provides document collaboration, application sharing, and desktop sharing.
- **Web Conferencing Compatibility Service.** Monitors the Lync Server Web Conferencing Compatibility service.
- **Response Group Service.** Monitors the Lync Server Response Group service that allows administrators to create and configure response groups to route and queue incoming calls to designated agents. Only needed if you use response groups in Lync.

Lync Server 2010 - 2013 (Mediation Role)

This application profile monitors the health of a Microsoft Lync Server 2010-2013 (Front-End Role).

Prerequisites

RPC and WMI access to the Windows system hosting the Microsoft Lync Server 2010-2013 (Front-End Role)

Credentials

Windows credentials with administrative privileges on the Windows system hosting the Microsoft Lync Server 2010-2013 (Front-End Role)

Components

- **Total failed calls caused by unexpected interaction from a gateway.** Monitors the number of calls that failed because of an unexpected response from a gateway peer. The returned value should be as low as possible.
- **Global Counters: Current audio channels with PSM quality reporting.** Monitors the total number of active channels that are having Phase Shift Modulation (PSM) quality reported. Calculating PSM quality has a processing overhead so this should be taken into account when measuring performance.
- **Health Indices: Load Call Failure Index.** Monitors the scaled index between zero and 100 that is related to all call failures due to Global Health Index as a heavy load.
- **Total failed calls caused by unexpected interaction from the Proxy.** Monitors the number of calls that failed because of an unexpected response from the Front End Server. The returned value should be as low as possible.

- **Outbound Calls: Current.** Monitors the total number of active calls going through the Mediation Server.
- **Outbound Calls: Active media bypass calls.** Monitors the total number of active calls going through Mediation Server that are in Media Bypass mode. Calls using Media Bypass use significantly fewer Mediation Server resources because the media is not flowing through the Mediation Server.
- **Inbound Calls: Current.** Monitors the number of inbound calls in progress.
- **Media Relay: Media Connectivity Check Failure.** Monitors the number of calls where media connectivity between the Mediation Server and the remote endpoints could not be established. The returned value should be as low as possible.
- **Inbound Calls: Active media bypass calls.** Monitor the number of media bypass calls in progress.
- **Replica Replicator Agent Service.** Monitors the Lync Server Replica Replicator Agent service. This service is used by the File Transfer Agent for replication configuration settings.
- **Mediation Service.** Monitors the Lync Server Mediation service. Only needed if you have SIP Trunk or PSTN.

CHAPTER 7

Microsoft

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Exchange 2007-2010

This application profile monitors the health of Microsoft Exchange Server 2007-2010.

Prerequisites

WMI access to the Windows Server system hosting the Exchange 2007/2010 server.

Credentials

Windows credentials with administrative privileges on the system hosting the Exchange 2007/2010 server.

Components

- **IMAP4 Port Check.** Monitors connectivity to the port on which IMAP4 has been configured to use.
- **POP3 Port Check.** Monitors connectivity to the port on which POP3 has been configured to use.
- **SMTP Port Check.** Monitors connectivity to the port on which SMTP has been configured to use.
- **Active Directory Topology Service.** Monitors Active Directory Topology service that provides Active Directory topology information to Exchange services. If this service is stopped, most Exchange services are unable to start.

- **Forms-Based Authentication Service.** Monitors forms-based authentication to Outlook Web Application and Exchange Control Panel. If this service is stopped, Outlook Web Application and Exchange Control Panel cannot authenticate the user.
- **IMAP4 Service.** Monitors the IMAP4 service that provides Internet Message Access Protocol service to clients. If this service stops, clients are unable to connect to this computer using the IMAP4 protocol.
- **Mail Submission Service.** Monitors the Mail Submission Service that submits messages from the mailbox server to the hub transport servers.
- **Microsoft Exchange Service Host.** Monitors the Microsoft Exchange Service Host that provides a host for Microsoft Exchange services.
- **POP3 Service.** Monitors the POP3 service that provides the Post Office Protocol version 3 service to clients. If this service stops, clients are unable to connect to this computer using the POP3 protocol.
- **Protected Service Host.** Monitors the Protected Service Host that provides a host for several Microsoft Exchange services that require protection from other services.
- **Replication Service.** Monitors the Replication Service that provides replication functionality for mailbox databases on mailbox servers in a database utility group.
- **RPC Client Access Service.** Monitors the RPC Client Access Service which manages client RPC connections for Microsoft Exchange.
- **System Attendant.** Monitors System Attendant which forwards directory lookups to a global catalog server for legacy Outlook clients, generates email addresses and offline address books, updates free and busy information for legacy clients, and maintains permissions and group memberships.
- **Average Document Indexing Time (Total).** Monitors the average, in milliseconds, of how long it takes to index documents.
- **Messages Queued For Submission (Mailbox Total).** Monitors the current number of submitted messages that are not yet processed by the transport layer. Sustained higher values may indicate that there are connectivity issues to the transport servers or that backpressure is occurring.
- **Messages Queued For Submission (Public Total).** Monitors the current number of submitted messages that are not yet processed by the transport layer. Sustained higher values may indicate that there are connectivity issues to the transport servers or that backpressure is occurring.
- **Outlook Web Access. Average Response Time.** Monitors the average time (in milliseconds) that elapsed between the beginning and end of an OEH or ASPX request. Higher values may indicate high user load or higher than normal CPU time.
- **Outlook Web Access. Average Search Time.** Monitors the average time that elapsed while waiting for a search to complete.
- **Processor - Privileged Time (Total).** Monitors the percentage of time the processor spends on execution of Microsoft Windows kernel commands, such as processing of SQL Server I/O requests.
- **Processor - Processor Time (Total).** Monitors the percentage of time the processor is busy. This measurement is the amount of processor utilization.
- **Processor - User Time (Total).** Monitors the percentage of time a process was running in user mode.

- **Replication Receive Queue Size.** Monitors the number of replication messages waiting to be processed. This value should return to a minimum value between replication intervals.
- **RPC Averaged Latency.** Monitors the RPC latency, in milliseconds, averaged for all operations in the last 1,024 packets.
- **RPC Number of Slow Packets.** Monitors the number of RPC packets in the past 1,024 packets that have latency longer than 2 seconds.
- **RPC Requests.** Monitors the number of overall RPC requests currently executing in the information store process.
- **Search Task Rate (Total).** Monitors the number of search tasks created per second.
- **Slow Find Row Rate (Total).** Monitors the rate at which the slower FindRow needs to be used in the mailbox store. This value should not exceed 10 for any reason, for any mailbox store.
- **Active Mailbox Queue Length.** Monitors the number of messages in the active mailbox queues.
- **Active Non-SMTP Delivery Queue Length.** Monitors the number of messages in the Drop directory used by a Foreign connector.
- **Active Remote Delivery Queue Length.** Monitors the number of messages in the active remote delivery queues.
- **Aggregate Delivery Queue Length (All Queues).** Monitors the number of messages queued for delivery in all queues.
- **Largest Delivery Queue Length.** Monitors the number of messages in the largest delivery queues.
- **Poison Queue Length.** Monitors the number of messages in the poison message queue. This value should be 0 at all times.
- **Processor Queue Length.** Monitors the number of threads that are in the processor queue. Values greater than 2 indicate insufficient processor cores.
- **Retry Mailbox Delivery Queue Length.** Monitors the number of messages in a retry state attempting to deliver a message to a remote mailbox.
- **Retry Non-SMTP Delivery Queue Length.** Monitors the number of messages in a retry state in the non-SMTP gateway delivery queues.
- **Retry Remote Delivery Queue Length.** Monitors the number of messages in a retry state in the remote delivery queues. Check the next hop to determine the causes for queuing.
- **Submission Queue Length.** Monitors the number of messages in the submission queue. If sustained high values are occurring, investigate Active Directory and Mailbox servers for bottlenecks or performance-related issues.
- **Unreachable Queue Length.** Monitors the number of messages in the unreachable queue.

Exchange 2013 - Client Access Role (Front end)

This application profile monitors the health of Microsoft Exchange Server 2013 Client Access Role.

Prerequisites

WMI access to the Windows Server system hosting the Exchange 2013 server.

Credentials

Windows credentials with administrative privileges on the system hosting the Exchange 2013 server.

Components

- **Proxy: Hub Selection Routing Failures.** Monitors the number of messages that failed to be routed.
- **Proxy: Hub Selection Resolver Failures.** Monitors the number of messages that encountered recipient AD lookup errors in Hub selection.
- **Proxy: Hub Selection Organization Mailbox Failures.** Monitors the number of messages that encountered organization mailbox lookup errors in Hub selection.
- **Proxy Routing: Messages Failed to Route.** Monitors the total number of messages that failed to be routed.
- **SMTP Send: Connection Failures.** Monitors the number of connection failures encountered by the SMTPSend connector.
- **SMTP Send: Protocol Errors.** Monitors the number of protocol errors encountered by the SMTPSend connector.
- **SMTP Send: Connections Current.** Monitors the number of outbound connections from the SMTPSend connector.
- **SMTP Send: Bytes Sent/sec.** Monitors the number of bytes sent per second.
- **SMTP Receive: Connections Current.** Monitors the number of connections to the SMTP server.
- **SMTP Receive: Bytes Received/sec.** Monitors the number of bytes that are received per second.
- **Total Inbound Calls Rejected by the UM Call Router.** Monitors the total number of inbound calls that were rejected by the Microsoft Exchange Unified Messaging Call Router since the service was started.
- **Total Inbound Calls Received by the UM Call Router.** Monitors the total number of inbound calls that were received by the Microsoft Exchange Unified Messaging Call Router since the service was started.
- **% of Missed Call Notification Proxy Failed at UM Call Router Over the Last Hour.** Monitors the percentage of missed call notifications that were proxied to and rejected by the Microsoft Exchange Unified Messaging over the last hour.
- **% of Inbound Calls Rejected by the UM Call Router Over the Last Hour.** Monitors the percentage of inbound calls that were rejected by the Microsoft Exchange Unified Messaging Call Router over the last hour.
- **Service: Microsoft Exchange Unified Messaging Call Router.** Monitors the service that enables Microsoft Exchange Unified Messaging Call Router features.
- **Service: Microsoft Exchange Service Host.** Monitors the service that provides a host for several Microsoft Exchange services.
- **Service: Microsoft Exchange Health Manager.** Monitors the service that manages Exchange server health.

- **Service: Microsoft Exchange Frontend Transport.** Monitors the service that proxies SMTP connections inbound to Hub servers and outbound from Hub servers.
- **Service: Microsoft Exchange Diagnostics.** Monitors Exchange Diagnostics agent. This is the agent that monitors server health.
- **Service: Microsoft Exchange Active Directory Topology.** Monitors the service that provides Active Directory topology information to Exchange services. If this service is stopped, most Exchange services are unable to start.

Exchange 2013 - IMAP

This application profile monitors the health of Microsoft Exchange Server 2013 IMAP protocol.

Prerequisites

WMI access to the Windows Server system hosting the Exchange 2013 server.

Credentials

Windows credentials with administrative privileges on the system hosting the Exchange 2013 server.

Components

- **Service: Microsoft Exchange IMAP4.** Monitors the service that provides Internet Message Access Protocol service to clients. If this service is stopped, clients are not be able to connect to this computer using the IMAP4 protocol.
- **IMAP4: Active SSL Connections.** Monitors the number of SSL or TLS connections that are currently open on the POP3 service.
- **IMAP4: Average LDAP Latency.** Monitors the average time, in milliseconds, it takes for an LDAP call to return results from a domain controller, averaged over LDAP calls in the last minute.
- **IMAP4: Average RPC Latency.** Monitors the average time, in milliseconds, it takes for a remote procedure call to return results from a Mailbox server, averaged over RPC calls in the last minute.
- **IMAP4: Current Connections.** Monitors the number of connections currently open on the POP3 service.
- **IMAP4: Current Unauthenticated Connections.** Monitors the number of current connections that aren't authenticated.
- **IMAP4: Proxy Current Connections.** Monitors the number of proxy connections that are currently open on the POP service.
- **IMAP4: Request Rate.** Monitors the number of requests per second.

Exchange 2013 - Mailbox Role (Back end)

This application profile monitors the health of Microsoft Exchange Server 2013 Mailbox Role.

Prerequisites

WMI access to the Windows Server system hosting the Exchange 2013 server.

Credentials

Windows credentials with administrative privileges on the system hosting the Exchange 2013 server.

Components

- **Service: Microsoft Exchange Unified Messaging.** Monitors the service that enables Microsoft Exchange Unified Messaging features. This allows voice and fax messages to be stored in Microsoft Exchange and gives users telephone access to e-mail, voice mail, calendar, contacts, or an auto-attendant.
- **Service: Microsoft Exchange Transport Log Search.** Monitors the service that provides remote search capability for Microsoft Exchange Transport log files.
- **Service: Microsoft Exchange Transport.** Monitors the Microsoft Exchange Transport Service.
- **Service: Microsoft Exchange Throttling.** Monitors the service that limits the rate of user operations.
- **Service: Microsoft Exchange Mailbox Transport Submission.** Monitors the service that, running on the Mailbox servers, receives the Submit events, processes the messages by converting them from MAPI to MIME, and then hands them over to the Transport service on a Mailbox server.
- **Service: Microsoft Exchange Service Host.** Monitors the service that provides a host for several Microsoft Exchange services.
- **Service: Microsoft Exchange RPC Client Access.** Monitors the service that manages client RPC connections for Exchange.
- **Service: Microsoft Exchange Replication.** Monitors the service that provides replication functionality for mailbox databases on Mailbox servers in a database availability group.
- **Service: Microsoft Exchange POP3 Backend.** Monitors the service that provides Post Office Protocol version 3 service to mailboxes. If this service is stopped, mailboxes on this server cannot be accessed using the POP3 protocol.
- **Service: Microsoft Exchange Migration Workflow.** Monitors the service that processes migration related tasks.
- **Service: Microsoft Exchange Mailbox Replication.** Monitors the service that processes mailbox move requests.
- **Service: Microsoft Exchange Mailbox Assistants.** Monitors the service that performs background processing of mailboxes in the Exchange store.

- **Service: Microsoft Exchange Information Store.** Monitors the service that manages the Microsoft Exchange Information Store. This includes mailbox databases and public folder databases. If this service is stopped, mailbox databases and public folder databases on this computer are unavailable.
- **Service: Microsoft Exchange IMAP4 Backend.** Monitors the service that provides Internet Message Access Protocol service to mailboxes. If this service is stopped, mailboxes on this server cannot be accessed using the IMAP4 protocol.
- **Service: Microsoft Exchange Health Manager.** Monitors the service that manages Exchange server health.
- **Service: Microsoft Exchange Search.** Monitors the service that drives indexing and querying of data for Exchange.
- **Service: Microsoft Exchange EdgeSync.** Monitors the service that replicates configuration and recipient data from the Hub Transport servers to the Edge Transport servers.
- **Service: Microsoft Exchange Diagnostics.** Monitors the agent that monitors server health.
- **Service: Microsoft Exchange Mailbox Transport Delivery.** Monitors the service that, running on the Mailbox servers, receives mail items from the Transport service on Mailbox servers, submits them to extension modules for processing, and then commits them into a mailbox database.
- **Service: Microsoft Exchange DAG Management.** Monitors the service that provides storage management and database layout management functionality for Mailbox servers in a database availability group.
- **Service: Microsoft Exchange Anti-spam Update.** Monitors the Microsoft Exchange Anti-spam Update Service.
- **Service: Microsoft Exchange Active Directory Topology.** Monitor the service that provides Active Directory topology information to Exchange services. If this service is stopped, most Exchange services are unable to start.
- **Service: Microsoft Exchange Search Host Controller.** Monitors the service that provides host level deployment and management services for applications.
- **Transport Queues: Retry Non-Smtp Delivery Queue Length.** Monitors the number of messages in a retry state in the non-SMTP gateway delivery queues. Returned values should not exceed 100.
- **Transport Queues: Messages Submitted Per Second.** Monitors the number of messages queued in the Submission queue per second. This determines current load. Compare these values to historical baselines.
- **Transport Queues: Messages Completed Delivery Per Second.** Monitors the number of messages delivered per second. This determines current load. Compare these values to historical baselines.
- **Transport Queues: Messages Queued for Delivery Per Second.** Monitors the number of messages queued for delivery per second. This determines current load. Compare these values to historical baselines.
- **Transport SMTP Send: Messages Sent/sec.** Monitors the number of messages sent by the SMTP send connector each second. This determines current load. Compare these values to historical baselines.

- **Transport SMTP Receive: Messages Received/sec.** Monitors the number of messages received by the SMTP server each second. This determines current load. Compare these values to historical baselines.
- **Transport SMTP Receive: Average bytes/message.** Monitors the average number of message bytes per inbound message received. This determines sizes of messages being received for an SMTP receive connector.
- **Database Instances (edgetransport): Log Threads Waiting.** Monitors the number of threads waiting for their data to be written to the log to complete an update of the database. If this number is too high, the log may be bottlenecking.
- **Database Instances (edgetransport): Log Record Stalls/sec.** Monitors the number of log records that cannot be added to the log buffers, per second, because they are full. If this counter is nonzero most of the time, the log buffer size may be bottlenecking.
- **Database Instances (edgetransport): I/O Database Writes/sec.** Monitors the rate of database write operations completed. This determines the current load. Compare these values to historical baselines.
- **Database Instances (edgetransport): I/O Database Reads/sec.** Monitors the rate of database read operations completed. This determines the current load. Compare these values to historical baselines.
- **Database Instances (edgetransport): Version buckets allocated.** Monitors the total number of version buckets allocated. This shows the default backpressure values as listed in the edgetransport.exe.config file. Returned values should be less than 200 at all times.
- **Database Instances (edgetransport): Log Generation Checkpoint Depth.** Monitors the amount of work (in count of log files) that needs to be redone or undone to the database files if the process fails.
- **Database Instances (edgetransport): I/O Log Reads/sec.** Monitors the rate of log file read operations completed. This determines the current load. Compare these values to historical baselines.
- **Database Instances (edgetransport): I/O Log Writes/sec.** Monitors the rate of log file write operations completed. This determines the current load. Compare these values to historical baselines.
- **Replication: ReplayQueueLength.** Monitors the number of transaction log files waiting to be replayed into the passive copy. This indicates the current replay queue length. Higher values cause longer store mount times when a handoff, failover, or activation is performed.
- **Replication: CopyQueueLength.** Monitors the number of transaction log files waiting to be copied to the passive copy log file folder. A copy is not considered complete until it has been checked for corruption. Returned values should be less than 1 at all times.
- **Submission: Temporary Submission Failures/sec.** Monitors the number of temporary submission failures per second. Returned values should be 0 at all times.
- **Submission: Failed Submissions Per Second.** Monitors the number of failed submissions per second. Returned values should be 0 at all times.
- **Store Interface: RPC Slow requests (%).** Monitors the percentage of slow RPC requests among all RPC requests. A slow RPC request is one that has taken more than 500ms. Returned values be less than 1 at all times.

- **Store Interface: RPC Requests failed (%)**. Monitors the percentage of failed requests in the total number of RPC requests. Failed means the sum of failed with error code plus failed with exception. Returned values should be less than 1 at all times.
- **Store Interface: RPC Slow requests latency average (msec)**. Monitors the average latency, in ms, of slow requests. Used for determining the average latencies of RPC slow requests.
- **Store Interface: RPC Requests sent/sec**. Monitors the current rate of initiated RPC requests per second. This is used for determining the current load.
- **Store Interface: RPC Requests outstanding**. Monitors the current number of outstanding RPC requests. Returned values should be 0 at all times.
- **Store Interface: ROP Requests outstanding**. Monitors the total number of outstanding remote operations requests. This is used for determining the current load.
- **Calendar Attendant: Requests Failed**. Monitors the total number of failures that occurred while the Calendar Attendant was processing events. Returned values should be 0 at all times.
- **Calendar Attendant: Average Calendar Attendant Processing time**. Monitors the average time to process an event in the Calendar Attendant. Returned values should be low at all times. High values may indicate a performance bottleneck.
- **Resource Booking: Requests Failed**. Monitors the total number of failures that occurred while the Resource Booking Attendant was processing events. Returned values should be 0 at all times.
- **Resource Booking: Average Resource Booking Processing Time**. Monitors the average time to process an event in the Resource Booking Attendant. Returned values should be a low value at all times. High values may indicate a performance bottleneck.
- **Assistants: Events Polled/sec. Monitors the number of events polled per second**. This determines current load statistics for this counter.
- **Assistants: Mailboxes processed/sec**. Monitors the rate of mailboxes processed by time-based assistants per second. This determines current load statistics for this counter.
- **Assistants: Average Event Processing Time in Seconds**. Monitors the average processing time of the events chosen. The returned values should be less than two at all times.
- **Assistants: Events in queue**. Monitors the number of events in the in-memory queue waiting to be processed by the assistants. The returned values should be a low value at all times. High values may indicate a performance bottleneck.
- **Database: Log Bytes Write/sec**. Monitors the rate of bytes written to the log. The returned values should be less than 10,000,000 at all times. With each log file being 1,000,000 bytes in size, 10,000,000 bytes/sec would yield 10 logs per second.
- **Database: Database Cache Size (MB)**. Monitors the amount of system memory, in megabytes (MB), used by the database cache manager to hold commonly used information from the database files to prevent file operations.
- **Database: Version buckets allocated**. Monitors the total number of version buckets allocated. The returned values should be less than 12,000 at all times.

- **Database: I/O Log Reads Average Latency.** Monitors the average time, in milliseconds, to read data from a log file. This is specific to log replay and database recovery operations. The average returned value should be below 200 milliseconds.
- **Database: I/O Database Writes (Recovery) Average Latency.** Monitors the average time, in milliseconds, to write to the database file. In general, this latency should be less than the MExchange Database\I/O Database Reads (Recovery) Average Latency when battery-backed write caching is utilized.
- **Database: I/O Database Reads (Recovery) Average Latency.** Monitors the average time, in milliseconds, to read from the database file. The average returned values should be below 200 milliseconds.
- **Database: I/O Log Writes Average Latency.** Monitors the average time, in milliseconds, to write a log buffer to the active log file. The returned values should be 10 on production servers.
- **Database: I/O Database Writes (Attached) Average Latency.** Monitors the average time, in milliseconds, to write to the database file. This counter is not a good indicator for client latency because database writes are asynchronous.
- **Database: I/O Database Reads (Attached) Average Latency.** Monitors the average length of time, in milliseconds, per database read operation. It indicates the average time, in milliseconds (ms), to read from the database file. The average returned value should be below 20ms.

Exchange 2013 - POP3

This application profile monitors the health of Microsoft Exchange Server 2013 POP3 protocol.

Prerequisites

WMI access to the Windows Server system hosting the Exchange 2013 server.

Credentials

Windows credentials with administrative privileges on the system hosting the Exchange 2013 server.

Components

- **Service: Microsoft Exchange POP3.** Monitors the service that provides Post Office Protocol version 3 service to clients. If this service is stopped, clients cannot connect to this computer using the POP3 protocol.
- **POP3: Active SSL Connections.** Monitors the number of SSL or TLS connections that are currently open on the POP3 service.
- **POP3: Average LDAP Latency.** Monitors the average time, in milliseconds, that it takes for an LDAP call to return results from a domain controller, averaged over LDAP calls in the last minute.

- **POP3: Average RPC Latency.** Monitors the average time, in milliseconds, that it takes for a remote procedure call to return results from a Mailbox server, averaged over RPC calls in the last minute.
- **POP3: Connections Current.** Monitors the number of connections that are currently open on the POP3 service.
- **POP3: Current Unauthenticated Connections.** Monitors the number of current connections that aren't authenticated.
- **POP3: Proxy Current Connections.** Monitors the number of proxy connections that are currently open on the POP service.
- **POP3: Request Rate.** Monitors the number of requests per second.

Microsoft Dynamics SL 2011

This application profile monitors the health of Microsoft Dynamics SL 2011.

Prerequisites

WMI access to the Windows system hosting Microsoft Dynamics SL 2011

Credentials

Windows credentials with administrative privileges on the Windows system hosting Microsoft Dynamics SL 2011

Components

- **Application Server: Virtual Memory Utilization.** Monitors the virtual memory utilization of the Microsoft Dynamics SL application server.
- **Application Server: Physical Memory Utilization.** Monitors the physical memory utilization of the Microsoft Dynamics SL application server.
- **Application Server: Disk Utilization.** Monitors the disk utilization of the Microsoft Dynamics SL application server.
- **Application Server: CPU Utilization.** Monitors the CPU utilization of the Microsoft Dynamics SL application server.
- **Thick Client: Parent Process.** Monitors the main process started by the Microsoft Dynamics SL thick client.
- **Thick Client: Worker Process.** Monitors the worker process started by the Microsoft Dynamics SL thick client.
- **Database Server.** Monitors the SQL server that hosts the database used by Microsoft Dynamics SL.
- **Thick Client: Worker Process Count.** Monitors the number of worker processes created by the Microsoft Dynamics SL thick client.

Microsoft Hyper-V Server 2008 – 2012

This application profile monitors the health of Microsoft Hyper-V Server 2008

Prerequisites

WMI access to the Windows system hosting Microsoft Hyper-V Server 2008

Credentials

Windows credentials with administrative privileges on the Windows system hosting Microsoft Hyper-V Server 2008

Components

- **Service: Hyper-V Image Management.** Monitors the Hyper-V Image Management service which provides Image Management servicing for Hyper-V.
- **Service: Hyper-V Networking Management.** Monitors the Hyper-V Networking Management service which provides Hyper-V Networking WMI management
- **Service: Hyper-V Virtual Machine Management.** Monitors the management service for Hyper-V responsible for providing service to run multiple virtual machines.
- **Hypervisor: Monitored Notifications.** Monitors the number of monitored notifications registered with the hypervisor. Monitored notifications are part of an interrupt coalescing technique Hyper-V uses to reduce virtualization overhead.
- **Hypervisor: Partitions.** Monitors the number of virtual machines, or partitions, present in the system. Each virtual machine on the system is run in a container called a partition. If you have no VMs running, this value will be set to 1.
- **Hypervisor: Total Pages.** Monitors the number of bootstrap and deposited pages in the hypervisor.
- **Logical Processor: % Guest Run Time.** Monitors the percentage of time spent by the processor in guest code. This is the percentage of time guest code is running on an LP or for the `_Total` the average percentage across all LPs.
- **Logical Processor: % Hypervisor Run Time.** Monitors the percentage of time spent by the processor in hypervisor code. This is the percentage of time the Hypervisor is running on an LP or for `_Total` the average percentage across all LP.
- **Logical Processor: % Idle Time.** Monitors the percentage of time spent by the processor in an idle state. This is the percentage of time the LP is waiting for work for `_Total` the average percentage across all LP.
- **Logical Processor: % Total Run Time.** Monitors the percentage of time spent by the processor in guest and hypervisor code. This is just a sum of `%Guest Run Time` + `%Hypervisor Runtime`. This counter can go over 100% just slightly (<0.5%).
- **Root Partition: 1G GPA pages.** Monitors the number of 1G pages present in the GPA space of the partition.
- **Root Partition: 2M GPA pages.** Monitors the number of 2M pages present in the GPA space of the partition.
- **Root Partition: Deposited Pages.** Monitors the number of pages deposited into the partition. It shows how much memory the hypervisor is using for managing the system.

- **Health Critical.** Monitors the number of virtual machines that have critical health. If anything is critical it means some resource, (most likely a disk), has been exhausted or some other unrecoverable error has occurred.
- **Health Ok.** Monitors the number of virtual machines with health that is OK.
- **Paused virtual machines.** Monitors the number of virtual machines that are paused.
- **Running virtual machines.** Monitors the number of virtual machines that are running.
- **Turned off virtual machines.** Monitors the number of virtual machines that are turned off.
- **Virtual Network: Bytes/sec.** This counter represents the total number of bytes per second traversing the virtual switch.



Note: You should set the correct name of instance to match the name of the virtual network adapter in your Hyper-V server.

- **Virtual Network: Packets/sec.** This counter represents the total number of packets per second traversing the virtual switch.



Note: You should set the correct name of instance to match the name of the virtual network adapter in your Hyper-V server.

Microsoft Hyper-V Server 2012

This application profile monitors the health of Microsoft Hyper-V Server 2012

Prerequisites

WMI access to the Windows system hosting Microsoft Hyper-V Server 2012

Credentials

Windows credentials with administrative privileges on the Windows system hosting Microsoft Hyper-V Server 2012

Components

- **Virtual Network: Packets/sec.** This counter represents the total number of packets per second traversing the virtual switch.



Note: You should set the correct name of instance to match the name of the virtual network adapter in your Hyper-V server.

- **Virtual Network: Bytes/sec.** This counter represents the total number of bytes per second traversing the virtual switch.



Note: You should set the correct name of instance to match the name of the virtual network adapter in your Hyper-V server.

- **Health Ok.** Monitors the number of virtual machines with health that is OK.
- **Health Critical.** Monitors the number of virtual machines that have critical health. If anything is critical it means some resource, (most likely a disk), has been exhausted or some other unrecoverable error has occurred.
- **Root Partition: Deposited Pages.** Monitors the number of pages deposited into the partition. It shows how much memory the hypervisor is using for managing the system.
- **Root Partition: 2M GPA pages.** Monitors the number of 2M pages present in the GPA space of the partition.
- **Root Partition: 1G GPA pages.** Monitors the number of 1G pages present in the GPA space of the partition.
- **Logical Processor: % Total Run Time.** Monitors the percentage of time spent by the processor in guest and hypervisor code. This is just a sum of %Guest Run Time + % Hypervisor Runtime. This counter can go over 100% just slightly (<0.5%).
- **Logical Processor: % Idle Time.** Monitors the percentage of time spent by the processor in an idle state. This is the percentage of time the LP is waiting for work for `_Total` the average percentage across all LP.
- **Logical Processor: % Hypervisor Run Time.** Monitors the percentage of time spent by the processor in hypervisor code. This is the percentage of time the Hypervisor is running on an LP or for `_Total` the average percentage across all LP.
- **Logical Processor: % Guest Run Time.** Monitors the percentage of time spent by the processor in guest code. This is the percentage of time guest code is running on an LP or for the `_Total` the average percentage across all LPs.
- **Hypervisor: Total Pages.** Monitors the number of bootstrap and deposited pages in the hypervisor.
- **Hypervisor: Partitions.** Monitors the number of virtual machines, or partitions, present in the system. Each virtual machine on the system is run in a container called a partition. If you have no VMs running, this value will be set to 1.
- **Hypervisor: Monitored Notifications.** Monitors the number of monitored notifications registered with the hypervisor. Monitored notifications are part of an interrupt coalescing technique Hyper-V uses to reduce virtualization overhead.
- **Service: Hyper-V Virtual Machine Management.** Monitors the management service for Hyper-V responsible for providing service to run multiple virtual machines.
- **Monitor Transition Cost (Total).** Monitors the hardware cost of transitions into the hypervisor.
- **Dynamic Memory Balancer: Available Memory.** The Memory Balancer is the process that handles allocation of memory to the guest VMs. This component monitors the amount of memory left on the node.
- **Dynamic Memory Balancer: Average Pressure.** Monitors the average pressure on the balancer node. It is a calculation of how much memory the VM wants divided by the amount of memory the VM currently has multiplied by 100.

Windows System Statistics

This application profile monitors the health of a Microsoft Windows system.

Prerequisites

WMI access to the Windows system

Credentials

Windows credentials with administrative privileges on the Windows system

Components

- **Context Switch Rate.** Monitors the number of context switches per second. A high context-switch rate often indicates that there are too many threads competing for the processors on the system.
- **Interrupt Rate.** Monitors the number of hardware interrupts per second.
- **Processor – Processor Time (Total).** Monitors the percentage of time the processor is busy. This measurement is the amount of processor utilization.
- **System Call Rate.** Monitors the number of system calls per second.
- **Free Memory (MB).** Monitors the amount of physical memory in megabytes (MB) immediately available for allocation to a process or for system use. The amount of memory available is equal to the sum of memory assigned to the standby (cached), free, and zero page lists.
- **Memory Page Fault Rate.** Monitors the number of memory page faults per second.
- **Memory Page Rate.** Monitors the memory page operations per second.
- **Process Count.** Monitors the number of processes.
- **Processor Queue Length.** Monitors the number of threads that are in the processor queue. Values greater than 2 indicate insufficient processor cores.
- **Thread Count.** Monitors the number of system threads.

CHAPTER 8

Microsoft Server

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Windows DNS Server

This application profile monitors the performance of a Windows DNS Server.

Prerequisites

Remote Registry, WMI and RPC enabled on the Windows system hosting the DNS Server.

Credentials

Windows credentials with administrative privileges on the Windows system hosting the DNS Server.

Components

- **Service: DNS Server.** Monitors the DNS Server Service. If this service is stopped or disabled, DNS updates will not occur and any services that explicitly depend on it will fail to start.
- **Memory: Caching Memory.** Monitors the total amount of System memory in use by the DNS Server Service for caching
- **Memory: Database Node Memory.** Monitors the total amount of System memory in use by the DNS Server Service for Database nodes.
- **Memory: Ntstat Memory.** Monitors the total amount of System memory in use by the DNS Server Service for Ntstat.
- **Memory: Record Flow Memory.** Monitors the total amount of System memory in use by the DNS Server Service for record flow.
- **Dynamic Update NoOperation/sec.** Monitors the average number of No-operation/Empty dynamic updates received by the DNS Server in each second.
- **Dynamic Update Rejected.** Monitors the total number of dynamic updates rejected by the DNS Server.
- **Dynamic Update TimeOuts.** Monitors the total number of dynamic updates timeouts by the DNS Server.
- **Dynamic Update Queued.** Monitors the total amount of Dynamic updates queued by the DNS Server.

- **Dynamic Update Received/sec.** Monitors the average number of dynamic update requests received by the DNS Server each second.
- **Dynamic Update Written to Database/sec.** Monitors the average number of dynamic updates written to the database by the DNS Server each second.
- **Dynamic Update: Received.** Monitors the total number of dynamic update requests received by the DNS Server.
- **Recursive Queries/sec.** Monitors the average number of recursive queries by the DNS Server in each second.
- **Recursive Query Failure/sec.** Monitors the average number of recursive query failures by the DNS Server in each second.
- **Recursive TimeOut/sec.** Monitors the average number of recursive queries sending timeouts in each second by the DNS Server.
- **Secure Update Failure.** Monitors the total number of secure updates failed on the DNS Server.
- **Secure Update Received/sec.** Monitors the average number of secure update requests received by the DNS Server in each second.
- **Secure Update: Received.** Monitors the total number of secure update requests received by the DNS Server.
- **TCP: Message Memory.** Monitors the total TCP message memory used by the DNS Server.
- **TCP: Query Received/sec.** Monitors the average number of TCP queries received by the DNS Server in each second.
- **TCP: Response Sent/sec.** Monitors the average number of TCP responses sent by the DNS Server in each second.
- **Total Query Received/sec.** Monitors the average number of queries received by the DNS Server in each second.
- **Total Response Sent/sec.** Monitors the total number of response sent by the DNS Server in each second.
- **UDP: Message Memory.** Monitors the total UDP message memory used by the DNS Server.
- **UDP: Query Received/sec.** Monitors the average number of UDP queries received by the DNS Server in each second.
- **UDP: Response Sent/sec.** Monitors the average number of UDP responses sent by the DNS Server.
- **Notify Sent.** Monitors the total number of notifies sent by the master DNS server.
- **WINS: Lookup Received/sec.** Monitors the average number of WINS lookup requests received by the DNS Server in each second.
- **WINS: Response Sent/sec.** Monitors the average number of WINS lookup responses sent by the DNS Server in each second.
- **WINS: Reverse Lookup Received/sec.** Monitors the average number of WINS reverse lookup requests received by the DNS Server in each second.
- **WINS: Reverse Response Sent/sec.** Monitors the average number of WINS reverse lookup responses sent by the DNS Server in each second.

- **Zone Transfer: Failure.** Monitors the total number of failed zone transfers of the master DNS Server.
- **Zone Transfer: Success.** Monitors the total number of successful zone transfers of the master DNS Server.
- **AXFR: Request Received.** Monitors the total number of full zone transfer requests received by the DNS Server service when operating as a master server for a zone.
- **AXFR: Success Sent.** Monitors the total number of full zone transfers successfully sent by the DNS Server service when operating as a master server for a zone.
- **IXFR: Request Received.** Monitors the total number of incremental zone transfer requests received by the master DNS server.

Windows Print Server

This application profile monitors the health of Microsoft Windows print server.

Prerequisites

WMI access to the Windows Print Server

Credentials

Windows credentials with administrative privileges on the Windows system hosting the print server

Components

- **Print Spooler Service.** Monitors the Print Spooler service that loads files to memory for later printing.
- **Errors: Job Errors.** Monitors the total number of job errors in a print queue since last restart.
- **Errors: Not Ready.** Monitors the total number of printer not ready errors in a print queue since the last restart.
- **Errors: Out of Paper.** Monitors the total number of out of paper errors in a print queue since the last restart.
- **Jobs Spooling.** Monitors the current number of spooling jobs in a print queue.
- **Print Spool Bandwidth.** Monitors the number of bytes per second printed on a print queue.
- **Spool Queue Size.** Monitors the current number of jobs in a print queue.
- **Total Jobs.** Monitors the total number of jobs printed on a print queue since the last restart.
- **Total Pages.** Monitors the total number of pages printed through GDI on a print queue since the last restart.

CHAPTER 9

Microsoft SharePoint

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Microsoft Office SharePoint Server (MOSS) 2007

This application profile monitors the health of Microsoft Office SharePoint Server (MOSS) 2007.

Prerequisites

WMI access to the Windows system hosting Microsoft Office SharePoint Server (MOSS) 2007

Credentials

Windows credentials with administrative privileges on the Windows system hosting Microsoft Office SharePoint Server (MOSS) 2007

Components

- **Timer.** Monitors the service that sends notifications and performs scheduled tasks for MOSS.
- **Administration.** Monitors the service that performs administrative tasks for MOSS.
- **Search.** Monitors the service that provides full-text indexing and search to SharePoint user and help content.
- **Tracing.** Monitors the service that manages trace output.
- **VSS Writer.** Monitors the Windows SharePoint Services VSS Writer service.
- **Microsoft IIS.** Monitors the Microsoft IIS server hosting the Web interface for MOSS.
- **Microsoft SQL Server.** Monitors the Microsoft SQL Server hosting the database used by MOSS.
- **Search Indexer : Number of failed queries.** Monitors the number of queries that failed. Should be as low as possible.
- **Search Indexer : Number of successful queries.** Monitors the number of successful queries.
- **Search Indexer : Number of queries.** Monitors the number of queries.
- **Search Indexer: Index Size (MB).** Monitors the size of the index data.

- **Search Indexer: Number of Documents Filtered.** Monitors the number of documents filtered. Microsoft has tested up to 5,000,000 documents.
- **Document Conversion Launcher.** Monitors the service that schedules and initiates document conversions. When SharePoint Foundation passes a document conversion request to the document conversion launcher service, the service must call the appropriate document converter.
- **Document Conversion Load Balancer.** Monitors the service that balances the document conversion requests from across the server farm.
- **Search Gatherer Projects: Delayed Documents.** Monitors the number of documents delayed due to site hit frequency rules.
- **Search Gatherer Projects: Waiting Documents.** Monitors the number of documents waiting to be processed. When this number goes to zero the catalog is idle. This number indicates the total queue size of unprocessed documents in the gatherer.
- **Search Gatherer Projects: Error Rate.** Monitors the number of filtered documents which returned an error per second.
- **Search Gatherer: Reason to back off.** Monitors why the Gatherer service went into back off state.
Possible values
0 - up and running
1 - high system IO traffic
2 - high notifications rate
3 - delayed recovery in progress
4 - user activity
5 - battery Low
6 - memory Low
99 - internal reason
- **Search Gatherer: Active Queue Length.** Monitors the number of documents waiting for robot threads. If this number is not 0, all threads should be filtering.
- **Search Gatherer: Documents Delayed Retry.** Monitors the number of documents that will be retried after time-out. When this is non-zero, it means that the local server it is crawling is shut down.

Microsoft SharePoint Server 2010

This application profile monitors overall health and performance of Microsoft SharePoint 2010.

Prerequisites

Requires WMI access to the system hosting SharePoint.

Credentials

Windows credentials with administrative privileges on the Windows system hosting SharePoint 2010.

Components

- **SharePoint Foundation \ Throttled Page Requests.**
- **SharePoint Foundation \ Reject Page Requests Rate.**
- **SharePoint Foundation \ Sql Query Executing time.**
- **SharePoint Foundation \ Executing Time/Page Request.**
- **SharePoint Foundation \ Current Page Requests.**
- **Server Search.** Monitors the service that provides full-text indexing and search to SharePoint user and help content.
- **User Code Host.** Monitors the service that executes the user code in a sandbox.
- **Timer.** Monitors the service that sends notifications and performs scheduled tasks for SharePoint.
- **Administration.** Monitors the service that performs administrative tasks for SharePoint.
- **Foundation Search.** Monitors the service that provides full-text indexing and search to SharePoint user and help content.
- **Tracing.** Monitors the service that manages trace output.
- **VSS Writer.** Monitors the Windows SharePoint Services VSS Writer service.
- **Microsoft IIS.** Monitors the Microsoft IIS server hosting the Web interface for SharePoint.
- **Microsoft SQL Server.** Monitors the Microsoft SQL Server hosting the database used by SharePoint.
- **Document Conversion Launcher.** Monitors the service that schedules and initiates document conversions. When SharePoint Foundation passes a document conversion request to the document conversion launcher service, the service must call the appropriate document converter.
- **Document Conversion Load Balancer.** Monitors the service that balances the document conversion requests from across the server farm.

Microsoft SharePoint Server 2013

This application profile monitors the overall health and performance of Microsoft SharePoint Server 2013.

Prerequisites

WMI access to the system hosting SharePoint server.

Credentials

Windows credentials with administrative privileges on the Windows system hosting SharePoint server.

Components

- **Service: SharePoint Search Host Controller.** Monitors the service responsible for performing host deployment and management for SharePoint search components.
- **Service: SharePoint Server Search 15.** Monitors the SharePoint Server Search 15 service that administers and crawls content from repositories.
- **Service: SharePoint Timer Service.** Monitors the service responsible for notifications and performing scheduled tasks for SharePoint.
- **Service: SharePoint Tracing Service.** Monitors the service responsible for managing the trace output.
- **Service: SharePoint User Code Host.** Monitors the service responsible for executing the user code in a sandbox.
- **Current Requests.** Monitors the current number of requests, including those that are queued, currently executing or waiting to be written to the client.
- **Request Wait Time.** Monitors the time, in milliseconds, that the most recent request waited for processing. As the number of wait events increases, you may experience degraded page-rendering performance. This number should be as low as possible.
- **Requests Queued.** Monitors the number of requests waiting to be processed. If this counter shows hundreds or thousands of requests queued, you should implement additional web servers. This number should be as low as possible.
- **Requests Rejected.** Monitors the total number of requests not executed because of insufficient server resources indicating that the server is too busy. This value should be as low as possible.
- **Worker Process Restarts.** Monitors the number of times a worker process has restarted. Restarts use a great deal of resources and therefore should be monitored closely. Restarts can be caused by various process settings, memory leaks, and access violations.
- **Requests/Sec.** Monitors the number of requests executed per second. This represents the current throughput of the application. Under constant load, this number should remain within a certain range.
- **Cache API Trims.** Monitors the number of cache items that have been removed due to a memory limit being hit (i.e. they were trimmed). Ideally, this number should be very low or zero.
- **Cache API Hit Ratio.** Monitors the cache hit-to-miss ratio when accessed through the external cache APIs.
- **SQL Query Executing time.** Monitors the average executing time of SQL queries. This value should be as low as possible.
- **Executing SQL Queries.** Monitors the number of current executing SQL queries.
- **Responded Page Requests Rate.** Monitors the number of requests responded in last second.
- **Executing Time/Page Request.** Monitors the average executing time (in milliseconds) for responded requests in last seconds.
- **Current Page Requests.** Monitors the number of current requests in processing.
- **Rejected Page Requests Rate.** Monitors the number of rejected requests in last second. Returning value should be as low as possible.

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- **Incoming Page Requests Rate.** Monitors the number of incoming requests in last second.
- **Active Threads.** Monitors the number of threads currently executing in SharePoint code.
- **Microsoft IIS.** Monitors the IIS application instance hosting SharePoint's web interface.
- **Microsoft SQL Server.** Monitors the SQL Server application instance hosting SharePoint data.

CHAPTER 10

Microsoft SQL Server

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SQL Server 2005

This application profile monitors the health of Microsoft SQL Server 2005 (Default Instance MSSQLSERVER).

Prerequisites

WMI access to the Windows system hosting the SQL Server.

Credentials

Windows credentials with administrative privileges on the Windows system hosting SQL Server.

Components

- **Access Methods: Full scans\sec.** Monitors the number of unrestricted full scans per second. These can be either base-table or full-index scans.
- **Buffer Manager: Lazy writes/sec.** Monitors the number of buffers written per second by the buffer manager's lazy writer.
- **Buffer Manager: Page life expectancy.** Monitors the number of seconds a page will stay in the buffer pool without references.
- **Buffer Manager: Page reads/sec.** Monitors the number of physical database page reads that are issued per second. This statistic displays the total number of physical page reads across all databases.
- **Buffer Manager: Page writes/sec.** Monitors the number of physical database page writes that are issued per second.
- **Databases: Data File(s) Size (KB).** Monitors the cumulative size (in kilobytes) of all the data files in the database including any automatic growth. Monitoring this counter is useful, for example, for determining the correct size of tempdb.

- **Databases: Transactions/sec.** Monitors the number of transactions started for the database per second.
- **Databases: Log Flushes/sec.** Monitors the number of log flushes per second.
- **Buffer Manager: Buffer cache hit ratio.** Monitors the percentage of pages found in the buffer cache without having to read from disk. Because reading from the cache is much less expensive than reading from disk, you want this ratio to be high.
- **General Statistics: User Connections.** Monitors the number of users currently connected to SQL Server.
- **Latches: Average Latch Wait Time (ms).** Monitors the average latch wait time (in milliseconds) for latch requests that had to wait.
- **Locks: Average Wait Time (ms).** Monitors the average amount of wait time (in milliseconds) for each lock request that resulted in a wait.
- **Locks: Lock Timeouts/sec.** Monitors the number of lock requests per second that timed out, including requests for NOWAIT locks.
- **Locks: Lock Waits/sec.** Monitors the number of lock requests per second that required the caller to wait.
- **Locks: Number of Deadlocks/sec.** Monitors the number of lock requests per second that resulted in a deadlock.
- **Memory Manager: Memory Grants Pending.** Monitors the total number of processes waiting for a workspace memory grant.
- **Memory Manager: Target Server Memory (KB).** Monitors the ideal amount of memory the server can consume.
- **Memory Manager: Total Server Memory (KB).** Monitors the amount of memory the server has committed using the memory manager.
- **General Statistics: Logins/sec.** Monitors the total number of logins started per second. This does not include pooled connections.
- **SQL Statistics: SQL Compilations/sec.** Monitors the number of SQL compilations per second. Indicates the number of times the compile code path is entered. Includes compiles caused by statement-level recompilations in SQL Server.
- **Transactions: Longest Transaction Running Time.** Monitors the length of time (in seconds) since the start of the transaction that has been active longer than any other current transaction.
- **Disk: Average Disk Read Queue Length.** Monitors the average number of read requests that were queued for all disks.
- **Disk: Average Disk Write Queue Length.** Monitors the average number of write requests that were queued for all disks.
- **Memory: Pages/sec.** Monitors the rate at which pages are read from or written to disk to resolve hard page faults. This counter is a primary indicator of the kinds of faults that cause system-wide delays.
- **Server work queues: Blocking Queue Length.** Monitors the current length of the blocking queue for this CPU. A sustained queue length greater than four might indicate processor congestion.

- **SQL Statistics: Batch Requests/sec.** Monitors the number of Transact-SQL command batches received per second. This statistic is affected by all constraints (such as I/O, number of users, cache size, complexity of requests, and so on). High batch requests mean good throughput.
- **Distributed Transaction Coordinator.** Monitors the service that coordinates transactions that span multiple resource managers, such as databases, message queues, and file systems. If this service is stopped, these transactions will fail.
- **SQL Active Directory Helper Service.** Monitors the service that enables integration with Active Directories.
- **SQL Server Agent (MSSQLSERVER).** Monitors the service that executes jobs, monitors SQL Server, fires alerts, and allows automation of some administrative tasks.
- **SQL Server Analysis Services (MSSQLSERVER).** Monitors the service that supplies online analytical processing (OLAP) and data mining functionality for business intelligence applications.
- **SQL Server Browser.** Monitors the service that provides SQL Server connection information to client computers.
- **SQL Full-text Filter Daemon Launcher (MSSQLSERVER).** Monitors the service that launches full-text filter daemon process responsible for performing document filtering and word breaking for SQL Server full-text search. Disabling this service will make full-text search features of SQL Server unavailable.
- **SQL Server Integration Services.** Monitors the service that provides management support for SSIS package storage and execution.
- **SQL Server Reporting Services (MSSQLSERVER).** Monitors the service that manages, executes, renders, schedules and delivers reports.
- **SQL Server (MSSQLSERVER).** Monitors the service that provides storage, processing and controlled access of data, and rapid transaction processing.
- **SQL Server VSS Writer.** Monitors the service that provides the interface to backup/restore Microsoft SQL server through the Windows VSS infrastructure.
- **SQL Server Port.** Monitors the port SQL Server listens on.

SQL Server 2008

This application profile monitors the health of Microsoft SQL Server 2008 (Default Instance MSSQLSERVER).

Prerequisites

WMI access to the Windows system hosting the SQL Server002E

Credentials

Windows credentials with administrative privileges on the Windows system hosting SQL Server.

Components

- **Access Methods: Full scans/sec.** Monitors the number of unrestricted full scans per second. These can be either base-table or full-index scans.
- **Buffer Manager: Lazy writes/sec.** Monitors the number of buffers written per second by the buffer manager's lazy writer.
- **Buffer Manager: Page life expectancy.** Monitors the number of seconds a page will stay in the buffer pool without references.
- **Buffer Manager: Page reads/sec.** Monitors the number of physical database page reads that are issued per second. This statistic displays the total number of physical page reads across all databases.
- **Buffer Manager: Page writes/sec.** Monitors the number of physical database page writes that are issued per second.
- **Databases: Data File(s) Size (KB).** Monitors the cumulative size (in kilobytes) of all the data files in the database including any automatic growth. Monitoring this counter is useful, for example, for determining the correct size of tempdb.
- **Databases: Transactions/sec.** Monitors the number of transactions started for the database per second.
- **Databases: Log Flushes/sec.** Monitors the number of log flushes per second.
- **Buffer Manager: Buffer cache hit ratio.** Monitors the percentage of pages found in the buffer cache without having to read from disk. Because reading from the cache is much less expensive than reading from disk, you want this ratio to be high.
- **General Statistics: User Connections.** Monitors the number of users currently connected to SQL Server.
- **Latches: Average Latch Wait Time (ms).** Monitors the average latch wait time (in milliseconds) for latch requests that had to wait.
- **Locks: Average Wait Time (ms).** Monitors the average amount of wait time (in milliseconds) for each lock request that resulted in a wait.
- **Locks: Lock Timeouts/sec.** Monitors the number of lock requests per second that timed out, including requests for NOWAIT locks.
- **Locks: Lock Waits/sec.** Monitors the number of lock requests per second that required the caller to wait.
- **Locks: Number of Deadlocks/sec.** Monitors the number of lock requests per second that resulted in a deadlock.
- **Memory Manager: Memory Grants Pending.** Monitors the total number of processes waiting for a workspace memory grant.
- **Memory Manager: Target Server Memory (KB).** Monitors the ideal amount of memory the server can consume.
- **Memory Manager: Total Server Memory (KB).** Monitors the amount of memory the server has committed using the memory manager.
- **General Statistics: Logins/sec.** Monitors the total number of logins started per second. This does not include pooled connections.
- **SQL Statistics: SQL Compilations/sec.** Monitors the number of SQL compilations per second. Indicates the number of times the compile code path is entered. Includes compiles caused by statement-level recompilations in SQL Server.

- **Transactions: Longest Transaction Running Time.** Monitors the length of time (in seconds) since the start of the transaction that has been active longer than any other current transaction.
- **Disk: Average Disk Read Queue Length.** Monitors the average number of read requests that were queued for all disks.
- **Disk: Average Disk Write Queue Length.** Monitors the average number of write requests that were queued for all disks.
- **Memory: Pages/sec.** Monitors the rate at which pages are read from or written to disk to resolve hard page faults. This counter is a primary indicator of the kinds of faults that cause system-wide delays.
- **Server work queues: Blocking Queue Length.** Monitors the current length of the blocking queue for this CPU. A sustained queue length greater than four might indicate processor congestion.
- **SQL Statistics: Batch Requests/sec.** Monitors the number of Transact-SQL command batches received per second. This statistic is affected by all constraints (such as I/O, number of users, cache size, complexity of requests, and so on). High batch requests mean good throughput.
- **Distributed Transaction Coordinator.** Monitors the service that coordinates transactions that span multiple resource managers, such as databases, message queues, and file systems. If this service is stopped, these transactions will fail.
- **SQL Active Directory Helper Service.** Monitors the service that enables integration with Active Directories.
- **SQL Server Agent (MSSQLSERVER).** Monitors the service that executes jobs, monitors SQL Server, fires alerts, and allows automation of some administrative tasks.
- **SQL Server Analysis Services (MSSQLSERVER).** Monitors the service that supplies online analytical processing (OLAP) and data mining functionality for business intelligence applications.
- **SQL Server Browser.** Monitors the service that provides SQL Server connection information to client computers.
- **SQL Server Integration Services.** Monitors the service that provides management support for SSIS package storage and execution.
- **SQL Server Reporting Services (MSSQLSERVER).** Monitors the service that manages, executes, renders, schedules and delivers reports.
- **SQL Server (MSSQLSERVER).** Monitors the service that provides storage, processing and controlled access of data, and rapid transaction processing.
- **SQL Server VSS Writer.** Monitors the service that provides the interface to backup/restore Microsoft SQL server through the Windows VSS infrastructure.
- **SQL Server Port.** Monitors the port SQL Server listens on.

SQL Server 2012

This application profile monitors the health of Microsoft SQL Server 2012 (Default Instance MSSQLSERVER).

Prerequisites

WMI access to the Windows system hosting the SQL Server.

Credentials

Windows credentials with administrative privileges on the Windows system hosting SQL Server.

Components

SQL Server Port. Monitors the port SQL Server listens on.

SQL Server VSS Writer. Monitors the service that provides the interface to backup/restore Microsoft SQL server through the Windows VSS infrastructure.

SQL Server (MSSQLSERVER). Monitors the service that provides storage, processing and controlled access of data, and rapid transaction processing.

SQL Server Reporting Services (MSSQLSERVER). Monitors the service that manages, executes, renders, schedules and delivers reports.

SQL Server Integration Services. Monitors the service that provides management support for SSIS package storage and execution.

SQL Server Browser. Monitors the service that provides SQL Server connection information to client computers.

SQL Server Analysis Services (MSSQLSERVER). Monitors the service that supplies online analytical processing (OLAP) and data mining functionality for business intelligence applications.

SQL Server Agent (MSSQLSERVER). Monitors the service that executes jobs, monitors SQL Server, fires alerts, and allows automation of some administrative tasks.

SQL Active Directory Helper Service. Monitors the service that enables integration with Active Directories.

Distributed Transaction Coordinator. Monitors the service that coordinates transactions that span multiple resource managers, such as databases, message queues, and file systems. If this service is stopped, these transactions will fail.

SQL Statistics: Batch Requests/sec. Monitors the number of Transact-SQL command batches received per second. This statistic is affected by all constraints (such as I/O, number of users, cache size, complexity of requests, and so on). High batch requests mean good throughput.

Server work queues: Blocking Queue Length. Monitors the current length of the blocking queue for this CPU. A sustained queue length greater than four might indicate processor congestion.

Memory: Pages/sec. Monitors the rate at which pages are read from or written to disk to resolve hard page faults. This counter is a primary indicator of the kinds of faults that cause system-wide delays.

Disk: Average Disk Write Queue Length. Monitors the average number of write requests that were queued for all disks.

Disk: Average Disk Read Queue Length. Monitors the average number of read requests that were queued for all disks.

Transactions: Longest Transaction Running Time. Monitors the length of time (in seconds) since the start of the transaction that has been active longer than any other current transaction.

SQL Statistics: SQL Compilations/sec. Monitors the number of SQL compilations per second. Indicates the number of times the compile code path is entered. Includes compiles caused by statement-level recompilations in SQL Server.

General Statistics: Logins/sec. Monitors the total number of logins started per second. This does not include pooled connections.

Memory Manager: Total Server Memory (KB). Monitors the amount of memory the server has committed using the memory manager.

Memory Manager: Target Server Memory (KB). Monitors the ideal amount of memory the server can consume.

Memory Manager: Memory Grants Pending. Monitors the total number of processes waiting for a workspace memory grant.

Locks: Number of Deadlocks/sec. Monitors the number of lock requests per second that resulted in a deadlock.

Locks: Lock Waits/sec. Monitors the number of lock requests per second that required the caller to wait.

Locks: Lock Timeouts/sec. Monitors the number of lock requests per second that timed out, including requests for NOWAIT locks.

Locks: Average Wait Time (ms). Monitors the average amount of wait time (in milliseconds) for each lock request that resulted in a wait.

Latches: Average Latch Wait Time (ms). Monitors the average latch wait time (in milliseconds) for latch requests that had to wait.

General Statistics: User Connections. Monitors the number of users currently connected to SQL Server.

Buffer Manager: Buffer cache hit ratio. Monitors the percentage of pages found in the buffer cache without having to read from disk. Because reading from the cache is much less expensive than reading from disk, you want this ratio to be high.

Databases: Log Flushes/sec. Monitors the number of log flushes per second.

Databases: Transactions/sec. Monitors the number of transactions started for the database per second.

Databases: Data File(s) Size (KB). Monitors the cumulative size (in kilobytes) of all the data files in the database including any automatic growth. Monitoring this counter is useful, for example, for determining the correct size of tempdb.

Buffer Manager: Page writes/sec. Monitors the number of physical database page writes that are issued per second.

Buffer Manager: Page reads/sec. Monitors the number of physical database page reads that are issued per second. This statistic displays the total number of physical page reads across all databases.

Buffer Manager: Page life expectancy. Monitors the number of seconds a page will stay in the buffer pool without references.

Buffer Manager: Lazy writes/sec. Monitors the number of buffers written per second by the buffer manager's lazy writer.

Access Methods: Full scans/sec. Monitors the number of unrestricted full scans per second. These can be either base-table or full-index scans.

SQL Server 2014

This application profile monitors the health of Microsoft SQL Server 2014 (Default Instance MSSQLSERVER).

Prerequisites

WMI access to the Windows system hosting the SQL Server.

Credentials

Windows credentials with administrative privileges on the Windows system hosting SQL Server.

Components

SQL Server Port. Monitors the port SQL Server listens on.

SQL Server VSS Writer. Monitors the service that provides the interface to backup/restore Microsoft SQL server through the Windows VSS infrastructure.

SQL Server (MSSQLSERVER). Monitors the service that provides storage, processing and controlled access of data, and rapid transaction processing.

SQL Server Reporting Services (MSSQLSERVER). Monitors the service that manages, executes, renders, schedules and delivers reports.

SQL Server Integration Services. Monitors the service that provides management support for SSIS package storage and execution.

SQL Server Browser. Monitors the service that provides SQL Server connection information to client computers.

SQL Server Analysis Services (MSSQLSERVER). Monitors the service that supplies online analytical processing (OLAP) and data mining functionality for business intelligence applications.

SQL Server Agent (MSSQLSERVER). Monitors the service that executes jobs, monitors SQL Server, fires alerts, and allows automation of some administrative tasks.

SQL Active Directory Helper Service. Monitors the service that enables integration with Active Directories.

Distributed Transaction Coordinator. Monitors the service that coordinates transactions that span multiple resource managers, such as databases, message queues, and file systems. If this service is stopped, these transactions will fail.

SQL Statistics: Batch Requests/sec. Monitors the number of Transact-SQL command batches received per second. This statistic is affected by all constraints (such as I/O, number of users, cache size, complexity of requests, and so on). High batch requests mean good throughput.

Server work queues: Blocking Queue Length. Monitors the current length of the blocking queue for this CPU. A sustained queue length greater than four might indicate processor congestion.

Memory: Pages/sec. Monitors the rate at which pages are read from or written to disk to resolve hard page faults. This counter is a primary indicator of the kinds of faults that cause system-wide delays.

Disk: Average Disk Write Queue Length. Monitors the average number of write requests that were queued for all disks.

Disk: Average Disk Read Queue Length. Monitors the average number of read requests that were queued for all disks.

Transactions: Longest Transaction Running Time. Monitors the length of time (in seconds) since the start of the transaction that has been active longer than any other current transaction.

SQL Statistics: SQL Compilations/sec. Monitors the number of SQL compilations per second. Indicates the number of times the compile code path is entered. Includes compiles caused by statement-level recompilations in SQL Server.

General Statistics: Logins/sec. Monitors the total number of logins started per second. This does not include pooled connections.

Memory Manager: Total Server Memory (KB). Monitors the amount of memory the server has committed using the memory manager.

Memory Manager: Target Server Memory (KB). Monitors the ideal amount of memory the server can consume.

Memory Manager: Memory Grants Pending. Monitors the total number of processes waiting for a workspace memory grant.

Locks: Number of Deadlocks/sec. Monitors the number of lock requests per second that resulted in a deadlock.

Locks: Lock Waits/sec. Monitors the number of lock requests per second that required the caller to wait.

Locks: Lock Timeouts/sec. Monitors the number of lock requests per second that timed out, including requests for NOWAIT locks.

Locks: Average Wait Time (ms). Monitors the average amount of wait time (in milliseconds) for each lock request that resulted in a wait.

Latches: Average Latch Wait Time (ms). Monitors the average latch wait time (in milliseconds) for latch requests that had to wait.

General Statistics: User Connections. Monitors the number of users currently connected to SQL Server.

Buffer Manager: Buffer cache hit ratio. Monitors the percentage of pages found in the buffer cache without having to read from disk. Because reading from the cache is much less expensive than reading from disk, you want this ratio to be high.

Databases: Log Flushes/sec. Monitors the number of log flushes per second.

Databases: Transactions/sec. Monitors the number of transactions started for the database per second.

Databases: Data File(s) Size (KB). Monitors the cumulative size (in kilobytes) of all the data files in the database including any automatic growth. Monitoring this counter is useful, for example, for determining the correct size of tempdb.

Buffer Manager: Page writes/sec. Monitors the number of physical database page writes that are issued per second.

Buffer Manager: Page reads/sec. Monitors the number of physical database page reads that are issued per second. This statistic displays the total number of physical page reads across all databases.

Buffer Manager: Page life expectancy. Monitors the number of seconds a page will stay in the buffer pool without references.

Buffer Manager: Lazy writes/sec. Monitors the number of buffers written per second by the buffer manager's lazy writer.

Access Methods: Full scans\sec. Monitors the number of unrestricted full scans per second. These can be either base-table or full-index scans.

SQL Server 2008, 2012, 2014 (Named Instance)

These application profiles are identical to the SQL Server 2008, 2012 and 2014 profiles for monitoring the respective SQL Server versions, except they support named instances.

Application Attributes

SQL_Server_Instance_Name. Name of the SQL Server instance to be monitored. Must be changed prior to being used for monitoring. Default is CHANGE ME.

WhatsUp Gold Embedded SQL

This application profile monitors the health of WhatsUp instance of the Microsoft SQL Server (Express Edition) installed by Ipswitch WhatsUp Gold.

Prerequisites

WMI access to the Windows system hosting the WhatsUp instance of the Microsoft SQL Server (Express Edition) installed by Ipswitch WhatsUp Gold

Credentials

Requires that the device hosting WhatsUp instance of the Microsoft SQL Server (Express Edition) installed by Ipswitch WhatsUp Gold has Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting the WhatsUp instance of the Microsoft SQL Server (Express Edition) installed by Ipswitch WhatsUp Gold.

Components

Access Methods: Full scans/sec. Monitors the number of unrestricted full scans per second. These can be either base-table or full-index scans.

Buffer Manager: Lazy writes/sec. Monitors the number of buffers written per second by the buffer manager's lazy writer.

Buffer Manager: Page life expectancy. Monitors the number of seconds a page will stay in the buffer pool without references.

Buffer Manager: Page reads/sec. Monitors the number of physical database page reads that are issued per second. This statistic displays the total number of physical page reads across all databases.

Buffer Manager: Page writes/sec. Monitors the number of physical database page writes that are issued per second.

WhatsUp Database Size (KB). Monitors the cumulative size (in kilobytes) of all the data files in the database including any automatic growth. Monitoring this counter is useful, for example, for determining the correct size of tempdb.

Databases: Transactions/sec. Monitors the number of transactions started for the database per second.

Databases: Log Flushes/sec. Monitors the number of log flushes per second.

Buffer Manager: Buffer cache hit ratio. Monitors the percentage of pages found in the buffer cache without having to read from disk. Because reading from the cache is much less expensive than reading from disk, you want this ratio to be high.

General Statistics: User Connections. Monitors the number of users currently connected to SQL Server.

Latches: Latch waits/sec. Monitors the number of latch requests that could not be granted immediately.

Locks: Lock Timeouts/sec. Monitors the number of lock requests per second that timed out, including requests for NOWAIT locks.

Locks: Lock Waits/sec. Monitors the number of lock requests per second that required the caller to wait.

Locks: Number of Deadlocks/sec. Monitors the number of lock requests per second that resulted in a deadlock.

Memory Manager: Memory Grants Pending. Monitors the total number of processes waiting for a workspace memory grant.

Memory Manager: Target Server Memory (KB). Monitors the ideal amount of memory the server can consume. WhatsUp SQL Server should have 1GB of memory allocated to SQL Express

SQL Statistics: SQL Compilations/sec. Monitors the number of SQL compilations per second. Indicates the number of times the compile code path is entered. Includes compiles caused by statement-level recompilations in SQL Server.

Transactions: Longest Transaction Running Time. Monitors the length of time (in seconds) since the start of the transaction that has been active longer than any other current transaction.

Disk: Average Disk Read Queue Length. Monitors the average number of read requests that were queued for all disks.

Disk: Average Disk Write Queue Length. Monitors the average number of write requests that were queued for all disks.

Server work queues: Blocking Queue Length. Monitors the current length of the blocking queue for this CPU. A sustained queue length greater than four might indicate processor congestion.

SQL Statistics: Batch Requests/sec. Monitors the number of Transact-SQL command batches received per second. This statistic is affected by all constraints (such as I/O, number of users, cache size, complexity of requests, and so on). High batch requests mean good throughput.

Distributed Transaction Coordinator. Monitors the service that coordinates transactions that span multiple resource managers, such as databases, message queues, and file systems. If this service is stopped, these transactions will fail.

SQL Server VSS Writer. Monitors the service that provides the interface to backup/restore Microsoft SQL server through the Windows VSS infrastructure.

SQL Server (WHATSUP). Monitors the service that provides storage, processing and controlled access of data, and rapid transaction processing.

CHAPTER 11

Oracle

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Oracle

This application profile monitors the health of Oracle database server version 10g or later.

Prerequisites

Requires that the device hosting Oracle database server has ADO credentials assigned to it

Credentials

Requires that the device hosting Oracle database server has ADO credentials assigned to it

Components

- **Port Check.** Checks to make sure that the port is open for connections.
- **Total disk free space (MB).** Monitors the total amount of free disk space across all databases hosted on the server.
- **Free memory (MB).** Monitors the amount of free memory available
- **Buffer cache hit ratio.** Monitors the buffer cache hit ration. The buffer hit ratio indicates the probability that a data block will be in-memory on a subsequent block re-read. A correctly tuned buffer cache can significantly improve overall database performance.
- **Dictionary cache hit ratio.** Monitors the dictionary cache hit ratio. The dictionary cache hit ratio is a measure of the proportion of requests for information from the data dictionary, the collection of database tables and views containing reference information about the database, its structures, and its users.
- **Library cache hit ratio.** Monitors the library cache hit ration. The proportion of requests for a lock on an object which were satisfied by finding that object's handle already in memory.
- **Number of connected users.** Monitors the number of users currently connected.
- **Size of temp files (MB).** Monitors the size of the temporary files.
- **Size of data files (MB).** Monitors the size of data files.

- **Total short table scans.** Monitors the amount of full table scans which are occurring on short tables. Short tables may be scanned by Oracle when this is quicker than using an index.
- **Total long table scans.** Monitors the amount of full table scans which are occurring on long tables. Full table scans of long tables is generally bad for overall performance.
- **Number of user commits.** Monitors the number of user commits. A user commit occurs when a user commits a transaction. Commits often represent the closest thing to a user transaction rate.
- **Disk sort operations.** Monitors the number of sort operation performed in disk as opposed to in memory. Disk sort operations are expensive. Oracle always tries to sort in memory and only goes to a disk sort when memory is exhausted.
- **Memory sort operations.** Monitors the number of sort operation performed in memory as opposed to disk. Memory sort operations are much faster than disk. Oracle always tries to sort in memory and only goes to a disk sort when memory is exhausted.
- **Free list contentions.** Monitors the number of free list contentions. Free list contention occurs when more than one process is attempting to insert data into a given table. If more processes are attempting to insert than there are free lists some will have to wait for access to a free list.
- **Large pool % free memory.** Monitors the % free memory in the large pool. If low, consider enlarging the large pool or utilizing it more sparingly. This reduces the possibility of large memory areas competing with the library cache and dictionary cache for available memory in the shared pool.
- **Shared pool % free memory.** Monitors the % free memory in the shared pool. If above 50%, too much memory has been allocated to the shared pool. This extra memory could be better utilized by other applications on the machine. In this case the size of the Shared Pool should be decreased.
- **Redo log space request ratio.** Monitors the number of redo log space requests per minute that have been made since the server was started.
- **Disk sort rate.** Monitors the rate of sort operations performed in disk as opposed to in memory. Disk sort operations are expensive. Oracle always tries to sort in memory and only goes to a disk sort when memory is exhausted.
- **Number of active sessions.** Monitors the number of currently active sessions.
- **Number of inactive sessions.** Monitors the number of sessions that are currently inactive.
- **Number of blocking sessions.** Monitors the number of sessions that are preventing other sessions from committing changes to the Oracle database.

Oracle E-Business Suite R12

This application profile monitors the health of Oracle E-Business Suite R12.

Prerequisites

Requires that the device hosting E-Business Suite has ADO and SSH credentials assigned to it

Credentials

Requires that the device hosting E-Business Suite has ADO and SSH credentials assigned to it

Components

- **Oracle PMON Check.** Monitors the PMON process to make sure it is running. Oracle database cannot run without PMON.
- **Concurrent Manager Check.** Monitors the Concurrent Manager (FNDLIBR) processes to make sure they are running.
- **Apache Check.** Monitors the Apache process to make sure that Apache is running.
- **Count of running Concurrent Processes.** Monitors the number of running Concurrent Manager processes. Threshold number is user defined.
- **Oracle Listener Port Check - 1521.** Monitors the port Oracle listens on to make sure it is open for connections.
- **Non End-Dated User Account Count.** Monitors the number of user accounts that do not have end dates.
- **Number of Concurrent Requests Running for over 2 hours.** Monitors the number of Concurrent Requests Running for over 2 hours.
- **Workflow Mailer Check.** Monitors the Workflow Mailer to make sure it is running via a database query. Status of 1 denotes WF Mailer running. Status of 0 denotes WF mailer is down.
- **JMS Agent Listener Check.** Monitors the JMS Agent Listener to make sure it is running via a database query. Status of 1 denotes agent is running. Status of 0 denotes agent is down.
- **Oracle Invalid Objects Check.** Monitors the number of invalid database objects. This is critical to check pre and post EBS patching. Threshold number is user defined.
- **Inbound Notification Agent Check.** Monitors the Workflow Inbound Notifications Agent Listener to make sure it is running. Status of 1 denotes agent is running. Status of 0 denotes agent is down.
- **Internal Concurrent Manager Check.** Monitors the Internal Concurrent Manager to make sure that it is running and alert if it is down for 2 minutes.
- **Conflict Resolution Manager Check.** Monitors the conflict resolution manager to make sure it is running and alert if it is down for 2 minutes.
- **Standard Manager Check.** Monitors the Standard Manager to make sure that it is running and alert if it is down for 2 minutes. Result number needs to be defined.

Oracle for Windows

This application profile monitors the health of Oracle database server version 10g or later hosted on a Windows system.

Prerequisites

Requires that the device hosting Oracle database server has ADO credentials assigned to it and that the Windows system hosting the Oracle database server be accessible using WMI

Credentials

Requires that the device hosting Oracle database server has ADO and Windows credentials assigned to it. The Windows credentials assigned must have administrative privileges on the Windows system hosting the Oracle database server.

Components

- **Port Check.** Checks to make sure that the port is open for connections.
- **Total disk free space (MB).** Monitors the total amount of free disk space across all databases hosted on the server.
- **Free memory (MB).** Monitors the amount of free memory available
- **Buffer cache hit ratio.** Monitors the buffer cache hit ration. The buffer hit ratio indicates the probability that a data block will be in-memory on a subsequent block re-read. A correctly tuned buffer cache can significantly improve overall database performance.
- **Dictionary cache hit ratio.** Monitors the dictionary cache hit ratio. The dictionary cache hit ratio is a measure of the proportion of requests for information from the data dictionary, the collection of database tables and views containing reference information about the database, its structures, and its users.
- **Library cache hit ratio.** Monitors the library cache hit ration. The proportion of requests for a lock on an object which were satisfied by finding that object's handle already in memory.
- **Number of connected users.** Monitors the number of users currently connected.
- **Size of temp files (MB).** Monitors the size of the temporary files.
- **Size of data files (MB).** Monitors the size of data files.
- **Total short table scans.** Monitors the amount of full table scans which are occurring on short tables. Short tables may be scanned by Oracle when this is quicker than using an index.
- **Total long table scans.** Monitors the amount of full table scans which are occurring on long tables. Full table scans of long tables is generally bad for overall performance.
- **Number of user commits.** Monitors the number of user commits. A user commit occurs when a user commits a transaction. Commits often represent the closest thing to a user transaction rate.
- **Disk sort operations.** Monitors the number of sort operation performed in disk as opposed to in memory. Disk sort operations are expensive. Oracle always tries to sort in memory and only goes to a disk sort when memory is exhausted.
- **Memory sort operations.** Monitors the number of sort operation performed in memory as opposed to disk. Memory sort operations are much faster than disk. Oracle always tries to sort in memory and only goes to a disk sort when memory is exhausted.

- **Free list contentions.** Monitors the number of free list contentions. Free list contention occurs when more than one process is attempting to insert data into a given table. If more processes are attempting to insert than there are free lists some will have to wait for access to a free list.
- **Large pool % free memory.** Monitors the % free memory in the large pool. If low, consider enlarging the large pool or utilizing it more sparingly. This reduces the possibility of large memory areas competing with the library cache and dictionary cache for available memory in the shared pool.
- **Shared pool % free memory.** Monitors the % free memory in the shared pool. If above 50%, too much memory has been allocated to the shared pool. This extra memory could be better utilized by other applications on the machine. In this case the size of the Shared Pool should be decreased.
- **Redo log space request ratio.** Monitors the number of redo log space requests per minute that have been made since the server was started.
- **Disk sort rate.** Monitors the rate of sort operations performed in disk as opposed to in memory. Disk sort operations are expensive. Oracle always tries to sort in memory and only goes to a disk sort when memory is exhausted.
- **Number of active sessions.** Monitors the number of currently active sessions.
- **Number of inactive sessions.** Monitors the number of sessions that are currently inactive.
- **Number of blocking sessions.** Monitors the number of sessions that are preventing other sessions from committing changes to the Oracle database.
- **Oracle Process.** Checks to make sure that the Oracle server process (Oracle.exe) is running.

Unix

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Linux Server

This application profile monitors common Linux performance statistics.

Prerequisites

SNMP enabled, SSH access and hdparm installed and configured on the Linux system.

Installing and configuring hdparm on the Linux server

- 1 Log into the Linux server, grant yourself root permission (su root) and install hdparm using one of the following options:
 - a) To install hdparm using yum install:

```
# yum install hdparm -y
```
 - b) To install hdparm using rpm packages as per OS version:

```
# rpm -Uvh <<rpm package name>>
```
- 2 Test if hdparm is installed using the below command:

```
# rpm -qa | grep hdparm
```
- 3 Verify result is similar to the following per your rpm package.

```
hdparm-9.16-3.4.e16.i686
```

After installing the hdparm package, make the following edits to the "/etc/sudoers" file where <<username>> is the username of the account used for SSH access by APM.

- 1 Give required privileges to account used by APM for SSH access by adding:

```
<<username>> ALL=NOPASSWD: /sbin/hdparm
```
- 2 Disable requiretty for the account used by APM for SSH access by adding:

```
Defaults:<<username>> !requiretty
```

Credentials

Requires Linux system has SNMP and SSH credentials assigned to it.

Operating Systems

The Linux server application profile has been tested using the following operating system versions:

- CentOS 7

- CentOS 6.6

Components

- **Linux Process.** Monitors the crond process which is one of the starting processes for Linux.
- **CPU: Load Average(1 Min).** Monitors the amount of load to the CPU over the last minute.
- **CPU: User Time (%).** Monitors the percentage of CPU time spent processing user-level code, calculated over the last minute.
- **CPU: Idle Time (%).** Monitors the percentage of processor time spent idle, calculated over the last minute.
- **CPU: System Time (%).** Monitors the percentage of CPU time spent processing system-level code, calculated over the last minute.
- **CPU: Wait IO (%).** Monitors the percentage of time processors are waiting on the disk.
- **CPU: Run Queue.** Monitors the length of the run queue giving the number of processes waiting for run time.
- **CPU: Interrupts/second.** Monitors the number of interrupts per second, including the clock.
- **CPU: Context switches/second.** Monitors the number of context switches per second.
- **CPU: Total amount of CPU context switches after boot.** Monitors the Context Switched activity to determine when the system has a lot of tasks actively consuming resources.
- **Total amount of interrupts after boot.** Monitors the total Interrupts, the signal that is sent across IRQ (Interrupt Request Line) by a hardware or software after system boot.
- **Disk: Blocks received from a block device.** Monitors the number of blocks read from the disk.
- **Disk: Blocks sent to a block device.** Monitors the total number of blocks written to disk.
- **Dirty Pages (KB).** Monitors the total amount of memory waiting to be written to a disk.
- **Disk: Available space on root partition (MB).** Monitors the amount of memory available under the root partition.
- **Disk: Timing buffered disk reads (MB/second).** Monitors the performance timing of disk reads. This displays the speed of reading through the buffer cache to the disk without any prior caching of data.
- **Disk: Timing cached reads(MB/second).** Monitors the performance timings of cache reads. This displays the speed of reading directly from the Linux buffer cache without disk access.
- **Memory: Total Memory(KB).** Monitors the amount of physical read-write main memory, typically RAM, contained by the host.
- **Memory: Total Swap Memory(KB).** Monitors the total amount of swap memory in kB.

- **Memory: Cached memory.** Monitors the total amount of RAM that is dedicated for the disk read operations.
- **Memory: Free Swap Memory (%).** Monitors the percentage amount of free swap memory in the system.
- **Memory: Used Memory (%).** Monitors the percentage of the total amount of memory utilized.
- **Memory: Free Memory (%).** Monitors the percentage of free memory in the system.
- **Memory: Used Swap Memory(%).** Monitors the percentage of the total amount of swap memory utilized.
- **Memory: Anonymous Pages (KB).** Monitors the anonymous memory. Anonymous memory is the memory that is managed by segvn but is not directly associated with a file. For example, it is used for process stacks, heap, or copy on write pages.
- **Memory: Inactive Memory.** Monitors the amount of memory that was allocated to a process and that is no longer running.
- **Blocked Processes.** Monitors the number of processes that cannot execute while they are waiting for an I/O operation to finish.
- **Amount of zombie processes.** Monitors the number of zombie processes.



Note: A zombie process or defunct process is a process that has completed execution via the exit system call but still has an entry in the process table. It is a process in the "Terminated state".
