# NetIQ<sup>®</sup> AppManager<sup>®</sup> for Citrix MetaFrame

# **Management Guide**

March 2014



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# About this Book and the Library

The NetIQ AppManager product (AppManager) is a comprehensive solution for managing, diagnosing, and analyzing performance, availability, and health for a broad spectrum of operating environments, applications, services, and server hardware.

AppManager provides system administrators with a central, easy-to-use console to view critical server and application resources across the enterprise. With AppManager, administrative staff can monitor computer and application resources, check for potential problems, initiate responsive actions, automate routine tasks, and gather performance data for real-time and historical reporting and analysis.

## **Intended Audience**

This guide provides information for individuals responsible for installing an AppManager module and monitoring specific applications with AppManager.

## Other Information in the Library

The library provides the following information resources:

#### Installation Guide for AppManager

Provides complete information about AppManager pre-installation requirements and step-bystep installation procedures for all AppManager components.

#### User Guide for AppManager Control Center

Provides complete information about managing groups of computers, including running jobs, responding to events, creating reports, and working with Control Center. A separate guide is available for the AppManager Operator Console.

#### Administrator Guide for AppManager

Provides information about maintaining an AppManager management site, managing security, using scripts to handle AppManager tasks, and leveraging advanced configuration options.

#### Upgrade and Migration Guide for AppManager

Provides complete information about how to upgrade from a previous version of AppManager.

#### **Management** guides

Provide information about installing and monitoring specific applications with AppManager.

Help

Provides context-sensitive information and step-by-step guidance for common tasks, as well as definitions for each field on each window.

The AppManager library is available in Adobe Acrobat (PDF) format from the AppManager Documentation page of the NetIQ Web site.

# **About NetIQ Corporation**

We are a global, enterprise software company, with a focus on the three persistent challenges in your environment: Change, complexity and risk—and how we can help you control them.

## **Our Viewpoint**

#### Adapting to change and managing complexity and risk are nothing new

In fact, of all the challenges you face, these are perhaps the most prominent variables that deny you the control you need to securely measure, monitor, and manage your physical, virtual, and cloud computing environments.

#### Enabling critical business services, better and faster

We believe that providing as much control as possible to IT organizations is the only way to enable timelier and cost effective delivery of services. Persistent pressures like change and complexity will only continue to increase as organizations continue to change and the technologies needed to manage them become inherently more complex.

## **Our Philosophy**

#### Selling intelligent solutions, not just software

In order to provide reliable control, we first make sure we understand the real-world scenarios in which IT organizations like yours operate — day in and day out. That's the only way we can develop practical, intelligent IT solutions that successfully yield proven, measurable results. And that's so much more rewarding than simply selling software.

#### Driving your success is our passion

We place your success at the heart of how we do business. From product inception to deployment, we understand that you need IT solutions that work well and integrate seamlessly with your existing investments; you need ongoing support and training post-deployment; and you need someone that is truly easy to work with — for a change. Ultimately, when you succeed, we all succeed.

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# 1 Introducing AppManager for Citrix MetaFrame

AppManager for Citrix MetaFrame (MFXP) lets you manage the performance and availability of servers running Citrix XenApp or Citrix Presentation Server.

The Citrix MetaFrame category of Knowledge Scripts tracks vital aspects of system performance, including:

- The number of sessions on a server
- The number of sessions opened by each user
- The average and high latency of server sessions
- Session states
- The number of processes on a server across all sessions
- The memory and CPU resources used by server processes
- The number of users running an application across all sessions
- The percentage of all licenses that are in use on the License Server, on clustered and nonclustered environments
- Whether a specific application is on the list of published applications, and which servers are assigned to that published application
- Whether a server is the default data collector, also called the master browser in previous versions of the Citrix Server, along with zone information, for a specific Citrix Server

By monitoring your Citrix XenApp or Presentation Server implementation at the component level, you can quickly identify areas that are or will have a negative impact on overall performance. Then you can modify how you have configured the system.

For example, if you notice an excessive or steadily increasing number of server sessions, you can add additional processors and RAM to accommodate the load. Additionally, if you are maintaining a load-balanced environment, you can investigate whether another server is suffering problems.

After you have the system tuned to your satisfaction, you can collect new data to use as a benchmark for setting performance thresholds. When you establish these thresholds in the Knowledge Scripts that monitor your system, you are setting the boundaries for optimum performance. Any time the system begins operating outside those boundaries, you can be alerted immediately, and take steps to correct or prevent problems.

In addition to providing an ongoing evaluation of system performance, the Knowledge Scripts in the Citrix MetaFrame category collect data you can use for reporting. Reports can be configured for any time frame during which you have collected data, and allow you to study data in increments from one minute to one month. For example, you can study the minute-by-minute use of CPU time by Citrix XenApp or Citrix Presentation Server server processes for the last hour, or the average number of sessions per user per month over the past year. The flexibility of the AppManager reporting architecture lets you perform close scrutiny of your system, as well as illustrate historical trends.

# 2 Installing AppManager for Citrix MetaFrame

This chapter provides installation instructions and describes system requirements for AppManager for Citrix MetaFrame (MFXP).

This chapter assumes you have AppManager installed. For more information about installing AppManager or about AppManager system requirements, see the *Installation Guide for AppManager*, which is available on the AppManager Documentation page.

## 2.1 System Requirements

For the latest information about supported software versions and the availability of module updates, visit the AppManager Supported Products page. Unless noted otherwise, this module supports all updates, hotfixes, and service packs for the releases listed below.

Software/Hardware	Version
NetIQ AppManager installed on the	7.0 or later
AppManager repository (QDB) computers, on the Citrix MetaFrame computers you want to monitor (agents), and on all console computers	Support for Windows Server 2008 on AppManager 7.x requires AppManager Windows Agent hotfix 71704 or later. For more information, see the AppManager Suite Hotfixes page.
crosoft Windows operating system on the	One of the following:
agent computers	<ul> <li>Windows Server 2008 (32-bit and 64-bit)</li> </ul>
	<ul> <li>Windows Server 2003 R2 (32-bit and 64-bit)</li> </ul>
AppManager for Microsoft Windows module	Version 7.6.170.0 or later. For more information, see the
installed on repository, agent, and console computers	AppManager Module Upgrades & Trials Web page.
Citrix applications installed on the agent	One of the following:
computers:	Citrix Presentation Server or License Server 4.5
	Citrix XenApp or License Server 5.0

AppManager for Citrix MetaFrame has the following system requirements:

# 2.2 Installing the Module

Run the module installer on the Citrix MetaFrame computers you want to monitor (agents) to install the agent components, and run the module installer on all console computers to install the Help and console extensions.

Access the AM70-MFXP-7.x.x.0.msi module installer from the AM70-MFXP\_7.x.x.0 self-extracting installation package on the AppManager Module Upgrades & Trials page.

For Windows environments where User Account Control (UAC) is enabled, install the module using an account with administrative privileges. Use one of the following methods:

- Log in to the server using the account named Administrator. Then, run the module installer .msi file from a command prompt or by double-clicking it.
- Log in to the server as a user with administrative privileges and run the module installer .msi file as an administrator from a command prompt. To open a command-prompt window at the administrative level, right-click a command-prompt icon or a Windows menu item and select **Run as administrator**.

You can install the Knowledge Scripts into local or remote AppManager repositories (QDBs). The module installer installs Knowledge Scripts for each module directly into the QDB instead of installing the scripts in the \AppManager\qdb\kp folder as in previous releases of AppManager.

You can install the module manually, or you can use Control Center to deploy the module on a remote computer where an agent is installed. For more information, see Section 2.3, "Deploying the Module with Control Center," on page 13. However, if you do use Control Center to deploy the module, Control Center only installs the *agent* components of the module. The module installer installs the QDB and console components as well as the agent components on the agent computer.

#### To install the module manually:

- 1 Double-click the module installer .msi file.
- **2** Accept the license agreement.
- **3** Review the results of the pre-installation check. You can expect one of the following three scenarios:
  - No AppManager agent is present: In this scenario, the pre-installation check fails, and the installer does not install agent components.
  - An AppManager agent is present, but some other prerequisite fails: In this scenario, the default is to not install agent components because of one or more missing prerequisites. However, you can override the default by selecting Install agent component locally. A missing application server for this particular module often causes this scenario. For example, installing the AppManager for Microsoft SharePoint module requires the presence of a Microsoft SharePoint server on the selected computer.
  - All prerequisites are met: In this scenario, the installer installs the agent components.
- **4** To install the Knowledge Scripts into the QDB:
  - **4a** Select **Install Knowledge Scripts** to install the repository components, including the Knowledge Scripts, object types, and SQL stored procedures.
  - **4b** Specify the SQL Server name of the server hosting the QDB, as well as the case-sensitive QDB name.
- **5** (Conditional) If you use Control Center 7.*x*, run the module installer for each QDB attached to Control Center.
- **6** (Conditional) If you use Control Center 8.*x*, run the module installer only for the primary QDB. Control Center automatically replicates this module to secondary QDBs.

- 7 Run the module installer on all console computers to install the Help and console extensions.
- **8** Run the module installer on the Citrix MetaFrame computers you want to monitor (agents) to install the agent components.
- **9** (Conditional) If you have not discovered XenApp resources, run the Discovery\_MFXP Knowledge Script on all agent computers where you installed the module. For more information, see Section 2.5, "Discovering Citrix MetaFrame Resources," on page 14.
- **10** To get the updates provided in this release, upgrade any running Knowledge Script jobs. For more information, see Section 2.7, "Upgrading Knowledge Script Jobs," on page 15.

After the installation has completed, the MFXP\_Install.log file, located in the \NetIQ\Temp\NetIQ\_Debug\<*ServerName*> folder, lists any problems that occurred.

## 2.3 Deploying the Module with Control Center

You can use Control Center to deploy the module on a remote computer where an agent is installed. This topic briefly describes the steps involved in deploying a module and provides instructions for checking in the module installation package. For more information, see the *Control Center User Guide for AppManager*, which is available on the AppManager Documentation page.

## 2.3.1 Deployment Overview

This section describes the tasks required to deploy the module on an agent computer.

#### To deploy the module on an agent computer:

- **1** Verify the default deployment credentials.
- **2** Check in an installation package. For more information, see Section 2.3.2, "Checking In the Installation Package," on page 13.
- **3** Configure an email address to receive notification of a deployment.
- 4 Create a deployment rule or modify an out-of-the-box deployment rule.
- **5** Approve the deployment task.
- **6** View the results.

#### 2.3.2 Checking In the Installation Package

You must check in the installation package, AM70-MFXP-7.x.x.0.xml, before you can deploy the module on an agent computer.

#### To check in a module installation package:

- **1** Log in to Control Center using an account that is a member of a user group with deployment permissions.
- **2** Navigate to the **Deployment** tab (for AppManager 8.x) or **Administration** tab (for AppManager 7.x).
- **3** In the Deployment folder, select **Packages**.
- **4** On the Tasks pane, click **Check in Deployment Packages** (for AppManager 8.x) or **Check in Packages** (for AppManager 7.x).

- **5** Navigate to the folder where you saved AM70-MFXP-7.x.x.0.xml and select the file.
- 6 Click **Open**. The Deployment Package Check in Status dialog box displays the status of the package check in.

## 2.4 Silently Installing the Module

To silently (without user intervention) install a module using the default settings, run the following command from the folder in which you saved the module installer:

msiexec.exe /i "AM70-MFXP-7.x.x.0.msi" /qn

where *x*.*x* is the actual version number of the module setup program.

To create a log file that describes the operations of the module setup program, add the following flag to the command noted above:

/L\* "AM70-MFXP-7.x.x.0.msi.log"

The log file is created in the directory in which you saved the module setup program.

**NOTE:** To perform a silent install on an AppManager agent running Windows Server 2008 R2 or Windows Server 2012, open a command prompt at the administrative level and select **Run as administrator** before you run the silent install command listed above.

To silently install the module to a remote AppManager repository, you can use Windows authentication or SQL authentication.

#### Windows authentication:

AM70-XYZ-7.x.x.0.msi /qn MO\_B\_QDBINSTALL=1 MO\_B\_MOINSTALL=0 MO\_B\_SQLSVR\_WINAUTH=1 MO\_SQLSVR\_NAME=*SQLServerName* MO\_QDBNAME=*AM-RepositoryName* 

#### SQL authentication:

AM70-XYZ-7.x.x.0.msi /qn MO\_B\_QDBINSTALL=1 MO\_B\_MOINSTALL=0 MO\_B\_SQLSVR\_WINAUTH=0 MO\_SQLSVR\_USER=SQLLogin MO\_SQLSVR\_PWD=SQLLoginPassword MO SQLSVR NAME=SQLServerName MO QDBNAME=AM-RepositoryName

## 2.5 Discovering Citrix MetaFrame Resources

Use the Discovery\_MFXP Knowledge Script to discover Citrix XenApp or Presentation Server resources and configuration information. The TreeView for this module uses a reorganized set of objects that include Citrix XenApp or Presentation Server, License Servers, Licenses, Farms, and Servers, along with two additional Services: MFCom and CitrixLicensing.

AppManager for Citrix MetaFrame supports cluster discovery on all cluster nodes for the Citrix License Server component. If you run the Discovery Knowledge Script on both nodes of a cluster added to the Operator Console, the Discovery script only discovers the license server on the active node. The TreeView for cluster discovery displays the license types available on the License Server object for all active cluster nodes only. Set the parameters on the **Values** tab as needed:

Description	How to Set It
Discovery Details	
Discover applications (yes, no)?	Select <b>Yes</b> to discover applications on Citrix XenApp servers in addition to servers. If you select No, the job discovers the Applications folder, but it does not discover applications within the folder. The default is Yes.
Event Notification	
Raise event when discovery succeeds?	Select <b>Yes</b> to raise an event if the discovery process is successful. The default is unselected.
Event severity when discovery succeeds	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the discovery process is successful. The default is 21.
Event severity level when discovery partially succeeds	Set the event severity level, from 1 to 40, to indicate the importance of an event in which a discovery returns some data but also generates warning messages. The default is 11.

## 2.6 Permissions for Running MFXP Knowledge Scripts

To run the Knowledge Scripts in the MFXP category, the AppManager agent needs certain secure permissions. The account under which the agent services, NetIQmc and NetIQccm, run must be able to log in as a service on each monitored Citrix XenApp or Citrix Presentation Server computer.

Although AppManager for Citrix MetaFrame requires the NetIQmc agent service to run as a Windows user that is configured as a XenApp administrator, users with *Full Administration* or *View Only* privileges are supported, while users with *Custom* privileges are not.

## 2.7 Upgrading Knowledge Script Jobs

This release might contain updated Knowledge Scripts. You can push the changes for updated scripts to running Knowledge Script jobs in one of the following ways:

- Use the AMAdmin\_UpgradeJobs Knowledge Script.
- Use the Properties Propagation feature.

#### 2.7.1 Running AMAdmin\_UpgradeJobs

The AMAdmin\_UpgradeJobs Knowledge Script can push changes to running Knowledge Script jobs. Your AppManager repository (QDB) must be at version 7.0 or later. In addition, the repository computer must have hotfix 72040 installed, or the most recent AppManager Repository hotfix. To download the hotfix, see the AppManager Suite Hotfixes Web page.

Upgrading jobs to use the most recent script version allows the jobs to take advantage of the latest script logic while maintaining existing parameter values for the job.

For more information, see the Help for the AMAdmin\_UpgradeJobs Knowledge Script.

## 2.7.2 Propagating Knowledge Script Changes

You can propagate script changes to jobs that are running and to Knowledge Script Groups, including recommended Knowledge Script Groups and renamed Knowledge Scripts.

Before propagating script changes, verify that the script parameters are set to your specifications. Customized script parameters may have reverted to default parameters during the installation of the module. New parameters may need to be set appropriately for your environment or application.

You can choose to propagate only properties (specified in the Schedule and Values tabs), only the script (which is the logic of the Knowledge Script), or both. Unless you know specifically that changes affect only the script logic, you should propagate both properties and the script.

For more information about propagating Knowledge Script changes, see the "Running Monitoring Jobs" chapter of the *Operator Console User Guide for AppManager*.

#### **Propagating Changes to Ad Hoc Jobs**

You can propagate the properties and the logic (script) of a Knowledge Script to ad hoc jobs started by that Knowledge Script. Corresponding jobs are stopped and restarted with the Knowledge Script changes.

#### To propagate changes to ad hoc Knowledge Script jobs:

- **1** In the Knowledge Script view, select the Knowledge Script for which you want to propagate changes.
- 2 Click Properties propagation > Ad Hoc Jobs.
- **3** Select the components of the Knowledge Script that you want to propagate to associated ad hoc jobs:

Select	To propagate
Script	The logic of the Knowledge Script.
Properties	Values from the Knowledge Script Schedule and Values tabs, such as schedule, monitoring values, actions, and advanced options.

#### **Propagating Changes to Knowledge Script Groups**

You can propagate the properties and logic (script) of a Knowledge Script to corresponding Knowledge Script Group members.

After you propagate script changes to Knowledge Script Group members, you can propagate the updated Knowledge Script Group members to associated running jobs. For more information, see "Propagating Changes to Ad Hoc Jobs" on page 16.

#### To propagate Knowledge Script changes to Knowledge Script Groups:

- **1** In the Knowledge Script view, select the Knowledge Script Group for which you want to propagate changes.
- **2** On the KS menu, select **Properties propagation** > **Ad Hoc Jobs**.
- **3** *If you want to exclude a Knowledge Script member from properties propagation,* deselect that member from the list in the Properties Propagation dialog box.

**4** Select the components of the Knowledge Script that you want to propagate to associated Knowledge Script Groups:

Select	To propagate
Script	The logic of the Knowledge Script.
Properties	Values from the Knowledge Script Schedule and Values tabs, including the schedule, actions, and Advanced properties.

**5** Click **OK**. Any monitoring jobs started by a Knowledge Script Group member are restarted with the job properties of the Knowledge Script Group member.

# **3** Citrix MetaFrame Knowledge Scripts

AppManager for Citrix MetaFrame (MFXP) provides the following Knowledge Scripts for monitoring servers that are running Citrix MetaFrame or Presentation Server.

From the Knowledge Script view of Control Center, you can access more information about any NetIQ-supported Knowledge Script by selecting it and clicking **Help**. In the Operator Console, click any Knowledge Script in the Knowledge Script pane and press **F1**.

Knowledge Script	What It Does	
ApplicationUsersHigh	Monitors the number of users running an application across all sessions.	
BytesTransferredPerUser	Monitors the number of bytes per user transferred between client computers and XenApp or Presentation Server.	
DataCollectorChanged	Monitors whether a zone's data collector has changed since the last monitoring interval.	
DefaultDataCollector	Identifies the default data collector for a XenApp or Presentation Server.	
FarmUserLoad	Monitors the number of users connected to each XenApp or Presentation Server in a server farm.	
ICAAvgLatencyHigh	Monitors the average latency of ICA sessions on XenApp or Presentation Server.	
ICALatencyHigh	Monitors the most-recent measure of latency for ICA sessions on XenApp or Presentation Server.	
LicenseInUseHigh	Monitors the percentage of licenses in use for Presentation Server 4.0 and later.	
PublishedApplicationDetails	Searches for specified applications that are on the list of published applications for Citrix Server farms.	
ServerFarmHealth	Monitors the health and availability of Citrix Server services in a designated server farm and monitors the farm for servers that are not responding.	
ServerProcessesHigh	Monitors the number of processes on XenApp or Presentation Server across all sessions.	
ServerProcessesResourceHigh	Monitors the use of CPU and memory resources by processes on XenApp or Presentation Server.	
ServerSessionsHigh	Monitors the number of sessions on XenApp or Presentation Server.	
SessionPerUser	Monitors the number of sessions on XenApp or Presentation Server that are open for each user.	

Knowledge Script	What It Does	
SessionState	Monitors the number of sessions matching specified states.	
UserResourcesHigh	Monitors the use of CPU and memory resources by users connected to Citrix Presentation Server or XenApp server.	

## 3.1 ApplicationUsersHigh

Use this Knowledge Script to monitor the number of users across all sessions running applications published on Citrix Presentation Server or XenApp server. If the number of users falls below the minimum threshold or exceeds the maximum threshold, an event is raised.

**NOTE:** To gather data about all sessions on a specific Citrix server in a Citrix farm, run this Knowledge Script on that individual server in the farm.

If you are monitoring multiple applications, separate events are raised for each application. The same thresholds apply to all applications.

#### 3.1.1 Resource Objects

Citrix Presentation Server Applications object or individual applications

Citrix XenApp Applications object or individual applications

## 3.1.2 Default Schedule

The default schedule is **Every 30 minutes**.

## 3.1.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event if number of users exceeds or falls below threshold?	Select <b>Yes</b> to raise an event when the number of users running an application falls below the minimum threshold or exceeds the maximum threshold you set. The default is Yes.
Event severity when number of users exceeds or falls below threshold	Set the event severity level, from 1 to 40, to indicate the importance of the event. The default is 5 (red event indicator).
Data Collection	
Collect data for number of users?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns information about the number of users running an application. The default is Yes.
Monitoring	
Threshold Minimum number of users	Specify the minimum number of users across all sessions that can be running a published application before an event is raised. The value can range from 0 to 99999 users. The default is 5.

Description
-------------

How to Set It

Threshold -- Maximum number of users

Specify the maximum number of users across all sessions that can be running a published application before an event is raised. The default is 50.

# 3.2 BytesTransferredPerUser

Use this Knowledge Script to monitor the number of bytes per user transferred between client computers and the Citrix MetaFrame server or Citrix Presentation Server.

The number of bytes is calculated by taking the total of all bytes for all Independent Computing Architecture (ICA) sessions currently active for a user. For each user with one or more ICA protocol sessions on XenApp or Presentation Server, the sum of bytes transferred by all sessions associated with that user is compared to the threshold you set. If the number of bytes exceeds the threshold, an event is raised.

#### 3.2.1 Resource Objects

Citrix Presentation Server object

Citrix XenApp object

#### 3.2.2 Default Schedule

The default schedule is **Every 5 minutes**.

#### 3.2.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event if the total number of bytes transferred for a user exceeds threshold?	Select <b>Yes</b> to raise an event if the total bytes per user exceeds the threshold. The default is Yes.
Event severity when the total number of bytes transferred for a user exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the total bytes per user exceeds the threshold you set. The default is 5.
Data Collection	
Collect data for bytes transferred per user?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns information about the number of bytes per user transferred between ICA clients and XenApp or Presentation Server. The default is unselected.
Monitoring	
Threshold Maximum bytes transferred per user	Specify the maximum number of bytes that can be transferred per user before an event is raised. The default is 10485760 bytes.

## 3.3 DataCollectorChanged

Use this Knowledge Script to determine whether the data collector for a Citrix XenApp server or Presentation Server zone has changed since the last time the script was run. If a change to the data collector for the selected zone is detected, an event is raised.

#### 3.3.1 Resource Objects

Citrix Presentation Server Zones object or individual zones

Citrix XenApp Zones object or individual zones

#### 3.3.2 Default Schedule

The default schedule is **Every 30 minutes**.

#### 3.3.3 Setting Parameter Values

Set the following parameters as needed:

Description	How to Set It
Event Notification	
Raise event if a change to the data collector is detected?	Select <b>Yes</b> to raise an event if a change to the data collector for this server zone has occurred since the last monitoring interval. The default is Yes.
Event severity when a change is detected	Set the event severity level, from 1 to 40, to indicate the importance of an event in which a change to the data collector occurs. The default is 5.
Data Collection	
Collect data for data collector changes?	Select Yes to collect data for charts and reports.
	If enabled, data collection returns one of the following values:
	100 if the data collector has changed
	• 0 if the data collector has not changed
	The default is unselected.

## 3.4 DefaultDataCollector

Use this Knowledge Script to identify the default data collector for a specific Citrix XenApp server or Presentation Server under a Citrix farm, or to identify *all* available XenApp servers or Presentation Servers under a Citrix farm. The default data collector was called the *master browser* in versions prior to Citrix Presentation Server 4.0.

This script raises an event if the default data collector information is found, and the event message includes default data collector and zone information for the selected XenApp server or Presentation Server.

If you run this script on the Server Object, the event returns the zone name and the default data collector for all the servers that are discovered under Server Object. If you run this script on a particular server or set of servers, the event returns the zone name and default data collector for those servers only.

#### 3.4.1 Resource Object

Citrix Presentation Server Servers object or individual servers

Citrix XenApp Servers object or individual servers

## 3.4.2 Default Schedule

By default, this script is only run once for each server.

## 3.4.3 Setting Parameter Values

Set the following parameters as needed:

Description	How to Set It
Event Notification	
Event severity when default data collector information is found	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the default data collector information is found. The default is 15.
Event severity when user is not a Citrix farm administrator	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the user is not a Citrix farm administrator. The default is 11.
Event severity when the job fails unexpectedly	Set the event severity level, from 1 to 40, to indicate the importance of an event if the job fails unexpectedly. The default is 5.

# 3.5 FarmUserLoad

Use this Knowledge Script to monitor the number of users connected to each Citrix XenApp or Presentation Server in a server farm. You can set thresholds for the minimum and maximum number of users. An event is raised if the maximum threshold is exceeded or the minimum threshold is not met.

In addition, you can set thresholds based on a standard deviation, calculated from the number of users connected to each server in the farm since the first job iteration. The maximum and minimum thresholds for individual servers are defined by the number of standard deviations above or below the average number of users connected to all servers since the first iteration of the job.

If you use the standard deviation thresholds, the thresholds for the minimum and maximum numbers of users are ignored.

You can also specify servers in a farm that are to be excluded from monitoring by this Knowledge Script.

## 3.5.1 Resource Object

Citrix Presentation Server Farm object

Citrix XenApp Farm object

## 3.5.2 Default Schedule

The default schedule is **Every 30 minutes**.

## 3.5.3 Setting Parameter Values

How to Set It
Select <b>Yes</b> to raise an event if the number of standard deviations or the number of users exceeds or falls below one of the thresholds you set. The default is Yes.
Set the event severity level, from 1 to 40, to indicate the importance of an event in which the number of standard deviations or the number of users exceeds or falls below a threshold. The default is 5.
Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the numbers of users connected to XenApp or Presentation Servers. The default is unselected.
Select the type of threshold to use:
Standard Deviation
Minimum/Maximum
The default is Minimum/Maximum.
Specify the number of standard deviations below the average number of users connected to all servers in the farm. If the number of users of a particular server falls below this threshold, an event is raised. The default is 1.
Specify the number of standard deviations above the average number of users connected to all servers in the farm. If the number of users of a particular server exceeds this threshold, an event is raised. The default is 1.
Specify the minimum number of users who must be connected to a server before an event is raised. The default is 10 users.
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Description	How to Set It
Threshold Maximum number of users	Specify the maximum number of users who can be connected to a server before an event is raised. The default is 50 users.
Servers to exclude (comma-separated, no spaces)	Provide a list of server names, separated by commas and no spaces (for example, MFServer1, MFServer2, MFServer3). Servers specified in this parameter are not monitored by this Knowledge Script.

# 3.6 ICAAvgLatencyHigh

Use this Knowledge Script to monitor the average latency, in milliseconds, for Independent Computing Architecture (ICA) sessions on a Citrix Presentation Server or XenApp server. Latency refers to the delay between user input such as, mouse movement or keyboard strokes, and screen refresh.

Each time this Knowledge Script runs, it checks the average latency of each ICA session for the length of time the session has been open. If the average latency of any session exceeds the threshold you set, an event is raised.

Use the ICALatencyHigh Knowledge Script to monitor the most recently measured latency for each ICA session. If latency consistently exceeds the threshold you set, you can use the Citrix SpeedScreen Latency Reduction Manager to adjust your SpeedScreen settings.

#### 3.6.1 Resource Objects

Citrix Presentation Server object

Citrix XenApp object

## 3.6.2 Default Schedule

The default schedule is **Every 30 minutes**.

## 3.6.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event if average latency exceeds threshold?	Select <b>Yes</b> to raise an event if the average latency for ICA sessions exceeds the threshold. The default is Yes.
Event severity when average latency exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which average latency exceeds the threshold you set. The default is 5.
Data Collection	
Collect data for average latency?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the average latency of each ICA session for the length of time the session has been open. The default is unselected.

Description	How to Set It
Monitoring	
Threshold Maximum average latency of ICA sessions	Specify a maximum threshold, in milliseconds, for the average latency for any ICA session. The default is 30 milliseconds.

# 3.7 ICALatencyHigh

Use this Knowledge Script to monitor the most recent or current measure of latency for each Independent Computing Architecture (ICA) session on a Citrix MetaFrame server or Presentation Server. Latency refers to the delay between user input, such as mouse movement or keyboard strokes, and screen refresh.

If the most recent measure of latency for any ICA session exceeds the threshold you set, an event is raised.

Use the ICAAvgLatencyHigh Knowledge Script to monitor the average latency of all ICA sessions over time. If latency consistently exceeds the threshold you set, you can use the SpeedScreen Latency Reduction Manager to adjust your SpeedScreen settings.

#### 3.7.1 Resource Objects

Citrix Presentation Server object

Citrix XenApp object

#### 3.7.2 Default Schedule

The default schedule is **Every 30 minutes**.

#### 3.7.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event if current latency exceeds threshold?	Select <b>Yes</b> to raise an event if the current latency for any ICA session exceeds the threshold. The default is Yes.
Event severity when current latency exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which latency exceeds the threshold you set. The default is 5.
Data Collection	
Collect data for current latency of ICA sessions?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the most recent measure of latency for each ICA session. The default is unselected.
Monitoring	

Desc	rip	tior	ì
			•

How to Set It

Threshold -- Maximum current latency of an ICA session

Specify the maximum latency amount (in milliseconds) any ICA session can have before an event is raised. The default is 30.

## 3.8 LicenselnUseHigh

Use this Knowledge Script to monitor the percentage of licenses in use for Citrix XenApp and Presentation Server. If the percentage of licenses in use exceeds the threshold you set, an event is raised.

Citrix XenApp and Presentation Server use a license server with license files that grant connection rights to a client. When a client connects to the server, one license is allocated. License servers can be shared by multiple server farms, and in such a case, a client can connect to either farm and consume only one license.

LicenseInUseHigh is cluster-aware. It monitors and collects data for active nodes, for all the available license types on the server. Even if you have two child jobs for LicenseInUseHigh, the script monitors and collects data for active nodes only. The LicenseInUseHigh job does not stop if the state of the cluster node changes, such as when the passive node of the cluster becomes active, or the active node becomes passive. In the event of a failover, LicenseInUseHigh monitors all the license types available on the server.

If data collection is enabled, this Knowledge Script returns the percentage of licenses in use compared to the total number of licenses available on the license server.

This Knowledge Script only monitors Citrix XenApp 5.0 and Citrix Presentation Server 4.5.

#### 3.8.1 Resource Object

For clustered environments:

- Citrix Presentation server License object
- Citrix XenApp License object

For non-clustered environments:

- Citrix Presentation Server License object or individual license files
- Citrix XenApp License object or individual license files

#### 3.8.2 Default Schedule

The default schedule is **Every 30 minutes**.

#### 3.8.3 Setting Parameter Values

Set the following parameters as needed:

Description

How to Set It

Event Notification

Description	How to Set It
Raise event if percentage of licenses in use exceeds threshold?	Select <b>Yes</b> to raise an event if the percentage of licenses in use exceeds the threshold. The default is Yes.
Event severity when percentage of licenses in use exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the percentage of licenses in use exceeds the threshold. The default is 5.
Data Collection	
Collect data for percentage of licenses in use?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the percentage of licenses in use. The default is unselected.
Monitoring	
Threshold Maximum percentage of licenses in use	Specify the maximum percentage of licenses that can be in use before an event is raised. The default is 80%.

## 3.9 PublishedApplicationDetails

This Knowledge Script searches for specified applications that are on the list of published applications for Citrix Server farms. This script raises an event that lists details about the published application or the list of applications, including the name of the farms and servers on which the application has been published.

### 3.9.1 Resource Objects

Citrix Presentation Server Farm object

Citrix XenApp Farm object

#### 3.9.2 Default Schedule

By default, this script is only run once for each server.

#### 3.9.3 Setting Parameter Values

Description	How to Set It
Applications to be verified in the published application list (comma-separated)	Type the name of the application or applications for which you want to determine is in the published application list.
	For more than one application, separate the application names with a comma, no space. This parameter supports the wild card characters "*" and "?" for published applications.
Event Notification	
Event severity when specified application details are found	Set the event severity level, from 1 to 40, to indicate the importance of the event raised when specific application details are found. The default is 15.

Description	How to Set It
Event severity when user is not a Citrix farm administrator	Set the event severity level, from 1 to 40, to indicate the importance of the event raised when the user is not a Citrix Farm Administrator. The default is 11.
Event severity when the job fails unexpectedly	Set the event severity level, from 1 to 40, to indicate the importance of the event in which this job fails unexpectedly. The default is 5.

## 3.10 ServerFarmHealth

Use this Knowledge Script to monitor a Citrix Presentation Server or XenApp server farm for unresponsive servers. You can set two thresholds for non-responding servers:

- The maximum number of servers that are unresponsive before a warning event is raised
- The maximum number of servers that are unresponsive before an error event is raised

This script raises an event if either threshold is exceeded. You can set severity levels for each event type.

You can also use this script to monitor the health and availability of the following services in a designated farm. The services in a designated farm must be running before you can collect data.

- Client Network
- Encryption
- Independent Management Architecture
- MFCOM (XenApp Management SDK )
- Licensing

Each service can display one of the following statuses:

- **Running** The service is running.
- Not running The service is not running.
- **SCM\_Fail** The service cannot establish a connection to the Service Control Manager (SCM), which monitors all Citrix Server services.
- **SRV\_Fail** The service establishes a connection to the Service Control Manager (SCM), but fails to establish a connection to the service.

#### 3.10.1 Resource Objects

Citrix Presentation Server Farm object

Citrix XenApp Farm object

#### 3.10.2 Default Schedule

The default schedule is Every 10 minutes.

# 3.10.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event if number of servers not responding exceeds threshold?	Select <b>Yes</b> to raise an event if the number of unresponsive servers exceeds the thresholds you set. The default is Yes.
Raise event to display the status of Citrix Server services in a farm?	Select <b>Yes</b> to raise an event to display the status of Citrix Server services in a designated farm. The default is Yes.
Warning event severity when the threshold is exceeded	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the warning threshold is exceeded. The default is 11.
Error event severity when the threshold is exceeded	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the error threshold is exceeded. The default is 5.
Event severity when the service is down	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the Citrix Server service is down. The default is 5.
Data Collection	
Collect data for servers not responding?	Select <b>Yes</b> to collect data for charts and reports. If enabled, data collection returns the percentage of servers in the server farm that are down. If any servers are down, the data details include the names and IP addresses of servers that are unresponsive. The default is unselected.
Collect data for Citrix Server services in a farm?	Select <b>Yes</b> to collect data for charts and reports. If enabled, data collection returns the percentage of Citrix Server services in the farm that are down. The default is unselected.
Monitoring	
Servers to ignore	Provide a list of servers you do not want to monitor. Use commas with no spaces to separate server names in a list. For example, MFServer1, MFServer2, MFServer3.
	You can also click <b>Browse</b> [] to use a network browser to select computer names.
Services to Ignore	
Ignore Client Network Service?	Select <b>Yes</b> to allow the script to ignore the Client Network Service during monitoring of the selected Citrix Server. The default is unselected.
	This option is useful when the Client Network Service is on a different server than the one you are monitoring. When this option is enabled, the ServerFarmHealth job does not raise an event if it cannot locate the Client Network Service.

Description	How to Set It
Ignore Encryption Service?	Select <b>Yes</b> to allow the script to ignore the Encryption Service during monitoring of the selected Citrix Server. The default is unselected.
	This option is useful when the Encryption Service is on a different server than the one you are monitoring. When this option is enabled, the ServerFarmHealth job does not raise an event if it cannot locate the Encryption Service.
Ignore Independent Management Architecture Service?	Select <b>Yes</b> to allow the script to ignore the Independent Management Architecture Service during monitoring of the selected Citrix Server. The default is unselected.
	This option is useful when the Independent Management Architecture Service is on a different server than the one you are monitoring. When this option is enabled, the ServerFarmHealth job does not raise an event if it cannot locate the Independent Management Architecture Service.
Ignore MFCom Service?	Select <b>Yes</b> to allow the script to ignore the MFCom Service during monitoring of the selected Citrix Server. The default is unselected.
	This option is useful when the MFCom Service is on a different server than the one you are monitoring. When this option is enabled, the ServerFarmHealth job does not raise an event if it cannot locate the MFCom Service.
Ignore Citrix Licensing Service?	Select <b>Yes</b> to allow the script to ignore the Citrix Licensing Service during monitoring of the selected Citrix Server. The default is unselected.
	This option is useful when the Citrix Licensing Service is on a different server than the one you are monitoring. When this option is enabled, the ServerFarmHealth job does not raise an event if it cannot locate the Citrix Licensing Service.
Warning event threshold Maximum number of servers not responding	Specify the maximum number of servers that can be detected down before a warning event is raised. The default is 3 servers.
Error event threshold Maximum number of servers not responding	Specify the maximum number of servers that can be detected down before an error event is raised. The default is 10 servers.

## 3.11 ServerProcessesHigh

Use this Knowledge Script to monitor the number of Citrix Presentation Server or XenApp processes across all sessions. If the number of server processes exceeds the specified threshold, an event is raised.

**NOTE:** To gather data about all sessions on a specific Citrix server in a Citrix farm, run this Knowledge Script on that individual server in the farm.

This script returns the number of processes generated by all sessions on XenApp or Presentation Server. The event detail message includes information about each process, such as process name, process state, process ID, and username.

Processes not generated by Independent Computing Architecture (ICA) sessions are not considered.

## 3.11.1 Resource Object

Citrix Presentation Server object

Citrix XenApp object

## 3.11.2 Default Schedule

The default schedule is **Every 30 minutes**.

## 3.11.3 Setting Parameter Values

Set the following parameters as needed:

Description	How to Set It
Event Notification	
Raise event if number of processes exceeds the threshold?	Select <b>Yes</b> to raise an event if the number of XenApp or Presentation Server processes across all sessions exceeds the specified threshold. The default is Yes.
Event severity when number of processes exceeds the threshold	Set the event severity level, from 1 to 40, to indicate the importance of the event. The default is 5.
Data Collection	
Collect data for number of processes?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the number of XenApp or Presentation Server processes across all sessions. The default is unselected.
Monitoring	
Threshold Maximum processes on a server	Specify the maximum number of processes allowed on a server across all sessions before an event is raised. The default is 50 processes.

# 3.12 ServerProcessesResourceHigh

Use this Knowledge Script to monitor the use of CPU and memory resources by processes on Citrix Presentation Server or XenApp.

You can set thresholds for physical and virtual memory utilization and CPU utilization. If the use of resources by a process exceeds a threshold you set, an event is raised.

You can also set a script parameter to automatically terminate processes that exceed usage thresholds.

## 3.12.1 Resource Object

Citrix Presentation Server object

Citrix XenApp object

## 3.12.2 Default Schedule

The default schedule is **Every 30 minutes**.

## 3.12.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event if memory or CPU utilization exceeds threshold?	Select <b>Yes</b> to raise an event when the use of physical or virtual memory or CPU time exceeds the threshold you set. By default, events are enabled.
Event severity when memory or CPU utilization exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which memory or CPU utilization exceeds the threshold you set. The default is 5.
Data Collection	
Collect data for memory and CPU utilization?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns information about the use of physical and virtual memory (in KB) and CPU time (as a percentage). The default is unselected.
Monitoring	
Threshold Maximum physical memory utilization	Specify the maximum amount of physical memory that can be used by any single XenApp or Presentation Server process before an event is raised. The default is 30720 KB.
Threshold Maximum virtual memory utilization	Specify the maximum amount of virtual memory that can be used by any single XenApp or Presentation Server process before an event is raised. The default is 61440 KB.
Threshold Maximum CPU utilization	Specify the maximum percentage of CPU time that can be used by any single XenApp or Presentation Server process before an event is raised. The default is 90%.
Processes to monitor (comma-separated, no spaces)	Provide the names of the XenApp or Presentation Server processes you want to monitor. Separate multiple process names with commas and no spaces. For example, Process1, Process2, Process3.
	If no process names are entered, all processes are monitored. By default, all processes are monitored.
Terminate processes that exceed a threshold?	Select <b>Yes</b> to terminate any listed processes whose use of memory or CPU time exceeds the thresholds you set. The default is unselected.

## 3.13 ServerSessionsHigh

Use this Knowledge Script to monitor the number of sessions on Citrix XenApp or Presentation Server. If the number of sessions exceeds the threshold you set, an event is raised.

If data collection is enabled, this script returns the number of server sessions. The event detail message includes information about each session, such as session name, session ID, and username.

#### 3.13.1 Resource Object

Citrix Presentation Server object

Citrix XenApp object

#### 3.13.2 Default Schedule

The default schedule is Every 30 minutes.

## 3.13.3 Setting Parameter Values

Set the following parameters as needed:

Description	How to Set It
Event Notification	
Raise event if number of sessions exceeds threshold?	Select <b>Yes</b> to raise an event if the number of server sessions exceeds the threshold. The default is Yes.
Event severity when number of sessions exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the number of sessions exceeds threshold. The default is 5.
Data Collection	
Collect data for number of sessions?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the number of sessions, and information about each session. The default is unselected.
Monitoring	
Threshold Maximum number of sessions on a server	Specify the maximum number of sessions allowed on a server before an event is raised. The default is 20 sessions.

## 3.14 SessionPerUser

Use this Knowledge Script to monitor the number of sessions on Citrix XenApp or Presentation Server open for each user. You can monitor individual servers or entire server farms. If the number of sessions per user exceeds the threshold you specify, an event is raised.

#### 3.14.1 Resource Object

Citrix Presentation Server object

Citrix XenApp object

#### 3.14.2 Default Schedule

The default schedule is **Every 30 minutes**.

## 3.14.3 Setting Parameter Values

Set the following parameters as needed:

Description	How to Set It
Event Notification	
Raise event if number of sessions exceeds threshold?	Select <b>Yes</b> to raise an event if the number of user sessions exceeds the threshold you set. The default is Yes.
Event severity when number of sessions exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the number of sessions exceeds the threshold you set. The default is 5.
Data Collection	
Collect data?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the number of sessions on XenApp or Presentation Server open for each user. The default is unselected.
Monitoring	
Threshold Maximum number of sessions	Specify the maximum number of sessions on XenApp or Presentation Server that can be open for each user before an event is raised. The default is 5 sessions.
Monitor all servers in the farm?	Select <b>Yes</b> to monitor the number of sessions for all servers in a farm. The default is unselected.

## 3.15 SessionState

Use this Knowledge Script to monitor for Independent Computing Architecture (ICA) sessions that are in certain states. SessionState Knowledge Script can now monitor Citrix sessions per farm, generating event messages by farm name instead of server name.

If the number of sessions matching the states you select for monitoring falls below the minimum threshold or exceeds the maximum threshold you set, an event is raised.

SessionState obtains a list of all sessions from the Citrix XenApp API and loops through that list, looking at the state of each session. As an example, set the **Minimum threshold** to 2 and the **Maximum threshold** to 4. If this Knowledge Script finds two sessions in LISTENING state, and one in ACTIVE state, the number of sessions in LISTENING state is between the minimum and maximum thresholds, so the Knowledge Script will not raise an event for that state. The number of ACTIVE state.

In a case like the one cited above, the Knowledge Script would not raise an event for any other session state, even if other states had fallen below the minimum threshold. It only raises events for a state if at least one session is in that particular state.

One use for this script is to track the number of active or idle XenApp or Presentation Server sessions.

### 3.15.1 Resource Object

Citrix Presentation Server object

Citrix XenApp object

#### 3.15.2 Default Schedule

The default schedule is **Every 30 minutes**.

#### 3.15.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event when threshold exceeded or not met?	Select <b>Yes</b> to raise an event if the number of sessions matching a specified state exceeds or falls below the maximum or minimum threshold. The default is Yes.
Event severity when threshold exceeded or not met	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the number of sessions exceeds or falls below the threshold you set. The default is 5.
Data Collection	
Collect data for number of sessions in specified states?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns the number of sessions matching specified states. The default is unselected.
Monitoring	
Threshold Minimum number of sessions matching specified states	Specify the minimum number of sessions whose states must match the states you selected for monitoring before an event is raised. The default is 0 sessions (disabled).
Threshold Maximum number of sessions matching specified states	Specify the maximum number of sessions whose states can match the states you selected for monitoring before an event is raised. The default is 5 sessions.
Session States to Monitor	

Description	How to Set It
Session states that are monitored are as follows:	Select <b>Yes</b> for each type of session state you want to monitor. By default, only <b>All session states</b> is set to Yes.
All session states	
Active	
Connected	
Connecting	
Disconnected	
◆ Down	
◆ Idle	
<ul> <li>Initializing</li> </ul>	
Listening	
Resetting	
<ul> <li>Shadowing</li> </ul>	
Stale	

# 3.16 UserResourcesHigh

Use this Knowledge Script to monitor the utilization of CPU time and memory resources by users connected to XenApp or Presentation Server. You can select which users to monitor and set thresholds for physical or virtual memory utilization or CPU utilization.

Monitoring a user's processes occurs on a per-process basis. Resource utilization is only measured for the processes being used by the user selected for monitoring. However, the utilization metrics of different processes are not aggregated per user. All users on the server where you dropped the Knowledge Script are monitored by default.

If the percentage of CPU time or the amount of physical or virtual memory used by a process exceeds a threshold you set, an event is raised.

#### 3.16.1 Resource Object

Citrix Presentation Server object

Citrix XenApp object

#### 3.16.2 Default Schedule

The default schedule is Every 30 minutes.

# 3.16.3 Setting Parameter Values

Description	How to Set It
Event Notification	
Raise event when CPU or memory utilization exceeds threshold?	Select <b>Yes</b> to raise an event when the use of CPU or memory resources by users connected to XenApp or Presentation Server exceeds any threshold you set. The default is Yes.
Event severity when CPU or memory utilization exceeds threshold	Set the event severity level, from 1 to 40, to indicate the importance of an event in which the CPU or memory utilization exceeds the threshold you set. The default is 5.
Data Collection	
Collect data for CPU and memory utilization?	Select <b>Yes</b> to collect data for charts and reports. If enabled, returns information about the use of CPU and memory resources by users connected to XenApp or Presentation Servers. The default is unselected.
Monitoring	
Threshold Maximum physical memory utilization	Specify the maximum amount of physical memory that can be consumed by users connected to XenApp or Presentation Server before an event is raised. The default is 30720 KB.
Threshold Maximum virtual memory utilization	Specify the maximum amount of virtual memory that can be consumed by users connected to XenApp or Presentation Server before an event is raised. The default is 61440 KB.
Threshold Maximum CPU utilization	Specify the maximum percentage of CPU time that can be consumed by users connected to XenApp or Presentation Server before an event is raised. The default is 90%.
Users to monitor (comma-separated, no spaces)	Provide the names of the users you want to monitor. Separate names in a list with commas and no spaces (for example, User1,User2,User3). If no names are entered, all users are monitored. By default, all users are monitored.