

# Administrator's Guide

## **MetaFrame XP™ Management Pack for Microsoft® Operations Manager 2000**

For Citrix® MetaFrame XPe with Feature Release 3

Citrix Systems, Inc.

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# Introduction



## Overview

Welcome to the MetaFrame XP Management Pack for Microsoft Operations Manager (MOM) 2000, for MetaFrame XPe with Feature Release 3. This chapter introduces you to the documentation and to the MetaFrame XP Management Pack. Topics include:

- How to use this guide
- An overview of MOM
- An introduction to the MetaFrame XP Management Pack

## How to Use this Guide

The *MetaFrame XP Management Pack Administrator's Guide* is for system administrators who want to monitor the health and availability of their Citrix MetaFrame XPe servers and server farms.

This guide introduces Microsoft Operations Manager (MOM) 2000 and the MetaFrame XP Management Pack, and explains how to install the MetaFrame XP Management Pack on MetaFrame XPe servers. This guide assumes knowledge of MetaFrame XP.

## Document Conventions

The following conventional terms, text formats, and symbols are used throughout the printed documentation:

Convention	Meaning
<b>Boldface</b>	Commands, names of interface items such as text boxes and option buttons, and user input.
<i>Italics</i>	Placeholders for information or parameters that you provide. For example, <i>filename</i> in a procedure means you type the actual name of a file. Italics also are used for new terms and the titles of books.
UPPERCASE	Keyboard keys, such as CTRL for the Control key and F2 for the function key that is labeled F2.
Monospace	Text displayed in a text file.
%SystemRoot%	The Windows system directory, which can be WTSRV, WINNT, WINDOWS, or other name specified when Windows is installed.
{ braces }	A series of items, one of which is required in command statements. For example, { <b>yes</b>   <b>no</b> } means you must type <b>yes</b> or <b>no</b> . Do not type the braces themselves.
[ brackets ]	Optional items in command statements. For example, [ <b>ping</b> ] means that you can type <b>ping</b> with the command. Do not type the brackets themselves.
(vertical bar)	A separator between items in braces or brackets in command statements. For example, { <b>/hold</b>   <b>/release</b>   <b>/delete</b> } means you type <b>/hold</b> or <b>/release</b> or <b>/delete</b> .
... (ellipsis)	You can repeat the previous item or items in command statements. For example, <b>/route:devicename[,...]</b> means you can type additional <i>devicenames</i> separated by commas.

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**Note** The MetaFrame XP Management Pack for Microsoft Operations Manager is also referred to as the *MetaFrame XP Management Pack* throughout the documentation. The MetaFrame XP Provider for Microsoft Windows Management Instrumentation is also referred to as the *MetaFrame XP Provider*.

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## Finding More Information

- The MetaFrame XP Management Pack Readme file contains last minute updates, corrections to the documentation, and a list of known problems. This file is on the Citrix Web site (<http://www.citrix.com/support/>). Select Product Documentation.
- The *MetaFrame XP Provider Administrator's Guide* introduces Microsoft Windows Management Instrumentation (WMI) and the MetaFrame XP Provider, and explains how to install the MetaFrame XP Provider on MetaFrame XP servers. This file is on the Citrix Web site (<http://www.citrix.com/support/>). Select Product Documentation.
- The *MetaFrame XP Server Administrator's Guide* explains how to install and configure MetaFrame XP on Windows servers. Included in this documentation is information about publishing applications. The *MetaFrame XP Server Administrator's Guide* is on the MetaFrame XP Server CD-ROM and on the Citrix Web site.

## Using PDF Documentation

To access the Citrix documentation that is provided in PDF files, use Adobe Acrobat Reader 4 or later. Acrobat Reader lets you view, search, and print the documentation. You can download Acrobat Reader for free from Adobe System's Web site (<http://www.adobe.com>). The self-extracting file includes installation instructions.

## Reader Comments

We strive to provide accurate, clear, complete, and usable documentation for Citrix products. If you have any comments, corrections, or suggestions for improving our documentation, we want to hear from you. You can send e-mail to the documentation authors at:

[documentation@citrix.com](mailto:documentation@citrix.com)

Please include the product name, version number, and the title of the document in your message.

## Citrix on the World Wide Web

The Citrix Web site is at <http://www.citrix.com/>. The site offers a variety of information and services for Citrix customers and users.

From the Citrix home page, you can access Citrix technical support services and other information designed to assist MetaFrame XP administrators.

The following are some of the resources available on the Citrix Web site:

**Citrix Product Documentation Library.** The library, which contains the latest documentation for all Citrix products, is at <http://www.citrix.com/support/> (select Product Documentation). You can download updated editions of the documentation that ships with Citrix products, as well as supplemental documentation that is available only on the Web site.

**Citrix ICA Clients.** Downloadable Citrix ICA Clients for all supported platforms are available from <http://www.citrix.com/download/>.

**Support options.** Program information about Citrix Preferred Support Services options is available from the Support area of the Citrix Web site at <http://www.citrix.com/support/>.

**Software downloads.** An FTP server provides access to the latest service packs, hotfixes, utilities, and product literature for download.

**Online knowledge base.** The online Solution Knowledge Base contains an extensive collection of application notes, technical articles, troubleshooting tips, and white papers.

**Discussion forums.** The interactive online Solution Forums provide outlets for discussion of technical issues with other Citrix users.

**FAQs.** Frequently Asked Questions (FAQ) pages provide answers to common technical and troubleshooting questions.

**Education.** Information about programs and courseware for Citrix training and certifications is available from <http://www.citrix.com/training/>.

**Contact information.** The Web site provides contact information for Citrix offices, including the worldwide headquarters and headquarters for European, Asia Pacific, and Japan operations.

**Developer network.** The Citrix Developer Network (CDN) is at <http://www.citrix.com/cdn/>. This open-enrollment membership program provides access to developer toolkits, technical information, and test programs for software and hardware vendors, system integrators, ICA licensees, and corporate IT developers who incorporate Citrix computing solutions into their products.

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# Introducing MOM and the MetaFrame XP Management Pack

This section provides information about Microsoft Operations Manager (MOM) 2000 and the MetaFrame XP Management Pack. Microsoft Windows Management Instrumentation (WMI) and the MetaFrame XP Provider are also discussed.

## Overview of MOM

Microsoft Operations Manager (MOM) 2000 is a management solution for Microsoft Windows 2000 server deployments. MOM collects, filters, analyzes, responds, and reports on information about computers—all from a single view on a desktop console. System administrators can use MOM for performance monitoring, event management, alerting and reporting, and trend analysis.

MOM also includes an extensive product support knowledge base, with links to Knowledge Base articles on the Microsoft Web site, that provides system administrators with centralized access to the information they require to manage a complex enterprise environment.

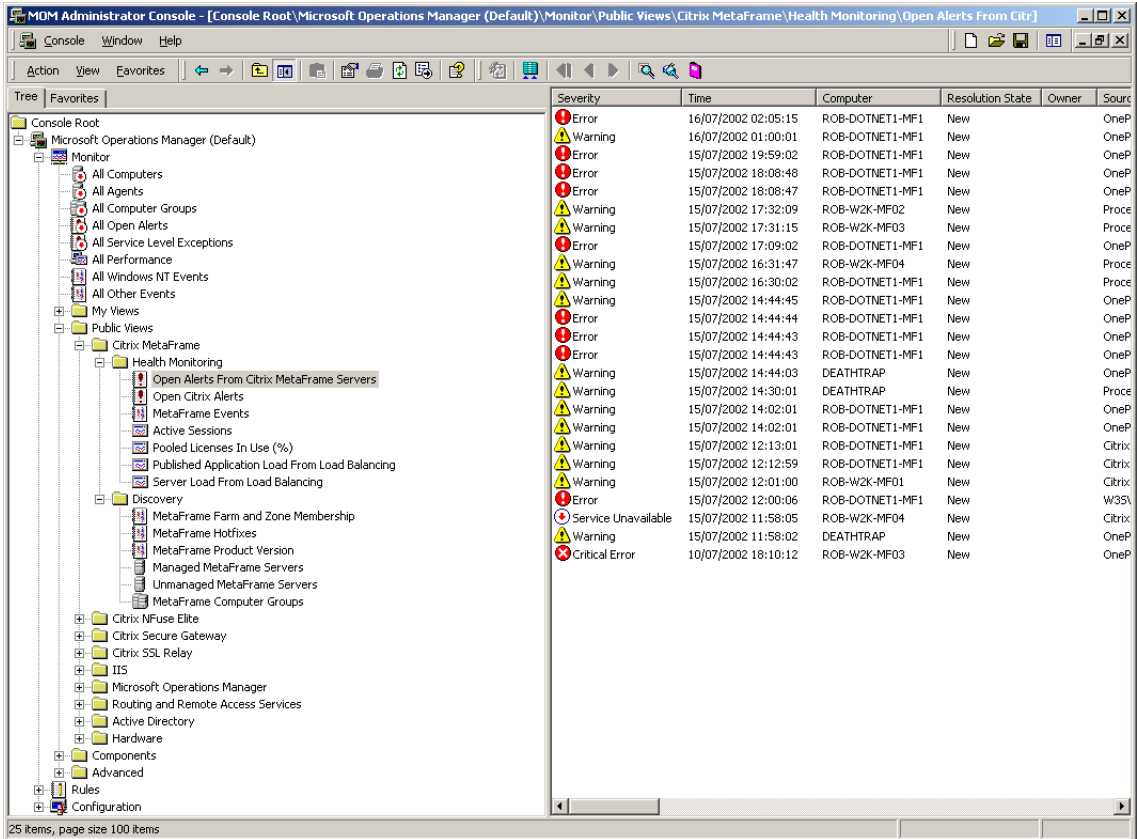
By providing administrators with a live view of critical events, together with links to Microsoft Knowledge Base articles and other related information, MOM helps administrators and network support specialists to identify trends and troubleshoot problems occurring on servers and applications across the network.

## About the MetaFrame XP Management Pack

The MetaFrame XP Management Pack is a plug-in to Microsoft Operations Manager that enables system administrators to monitor the health and availability of MetaFrame XPe servers and server farms, and anticipate and react quickly to many problems that may occur.

The MetaFrame XP Management Pack interprets and reports on information supplied by the MetaFrame XP Provider software that runs on MetaFrame XPe servers, and also on system events generated on XPe servers. The MetaFrame XP Management Pack provides system administrators with real-time event and performance monitoring of MetaFrame XPe servers and server farms, from the MOM Administrator console. The MetaFrame XP Management Pack also includes an extensive knowledge base, with links to Citrix Knowledge Base articles and other sources of information, which administrators can use to interpret events and troubleshoot problems.

The following shows a typical MOM Administrator Console display of open alerts from MetaFrame servers.



## MetaFrame XP Management Pack Features

This section describes the key features and benefits of using the MetaFrame XP Management Pack in your MetaFrame installation.

**Event management.** The MetaFrame XP Management Pack captures a variety of events from MetaFrame servers and server farms. These events are collated and then presented to the administrator through the MOM Administrator Console, allowing an overall view of MetaFrame server operation.

**Performance monitoring.** You can use the MetaFrame XP Management Pack to monitor MetaFrame server performance. Rules can be customized and new rules created to set thresholds for key performance attributes in the server farm.

**Extensive knowledge base.** The MetaFrame XP Management Pack includes an extensive product support knowledge base, including links to relevant Citrix Knowledge Base articles. Centralized access to information about managing MetaFrame servers enables administrators to quickly interpret events and troubleshoot problems.

**Customizable rules and alerts.** You can configure the MetaFrame XP Management Pack to alter how it responds to an event. You do this by modifying and extending the rules to best suit your environment. For example, you can configure the rule for the ICA session disconnection rate so that the alert that is triggered is meaningful and appropriate to your site. Citrix Knowledge Base documentation is available to help you with this customization.

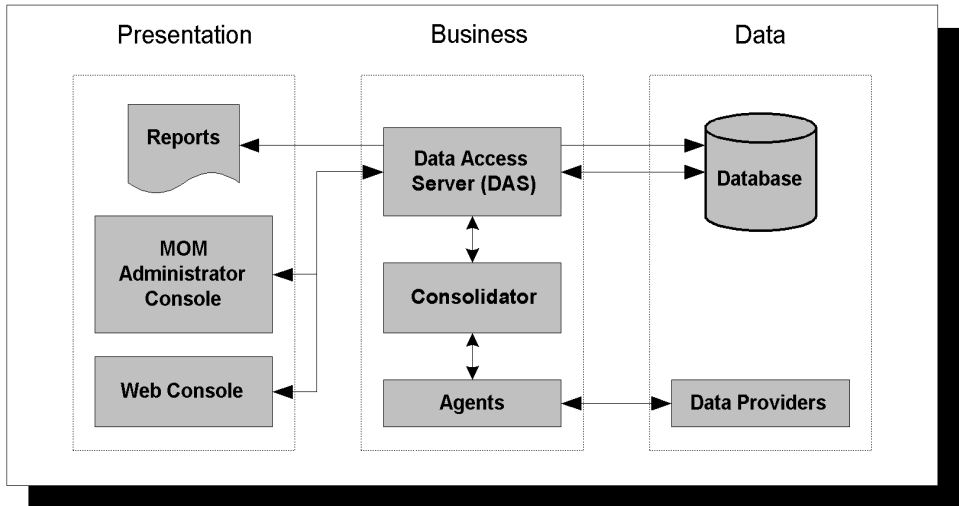
**Citrix MetaFrame views.** Citrix MetaFrame views are available in the Public Views folder. These views allow you to monitor events and alerts raised for MetaFrame XPe servers and server farms, and to identify trends and performance issues occurring on MetaFrame servers and published applications.

**Citrix notification group.** The MetaFrame XP Management Pack includes a notification group, called the Citrix MetaFrame Administrators group. You can configure this group to ensure that the appropriate people are notified about problems with MetaFrame servers and server farms.

**Easy installation.** The MetaFrame XP Management Pack consists of a single file that is available from the Citrix Web site. To install the MetaFrame XP Management Pack, you simply import this file into MOM, using the MOM Administrator Console.

## MOM Components

Microsoft Operations Manager consists of a three-tiered architecture, as shown in the following diagram:



**MOM Administrator Console.** The MOM Administrator Console is a Microsoft Management Console (MMC) snap-in designed to administer MOM. The console communicates with the Data Access Server (DAS) and has three main nodes:

- **Monitor**—provides different views of monitored computers, Agents, Agent Managers, and Consolidators in your installation.
- **Rules**—provides access to the rules used to monitor the system, such as computer groups (which are used to group similar computers together) and processing rule groups (which specify how MOM collects information and responds to it).
- **Configuration**—allows you to manage MOM components, such as Agents, Agent Managers, and Consolidators.

**Reports.** MOM provides management reports based on the data stored in the database.

**Web Console.** The Web Console can be used to display MOM remotely. Configuration is not permitted through the Web Console.

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**Data Access Server (DAS).** This service handles the flow of data to and from the database. It manages requests from the Consolidators and the MOM Administrator Console to retrieve information from, and write to, the database.

**Consolidator.** This is a service that acts as a central collection point for data supplied by agents. The Consolidator also acts as an agent on the local computer. The data collected is sent to the Data Access Server (DAS). In addition, the Consolidator acts as an *Agent Manager*, which performs computer discovery, agent deployment, and configuration functions once per day. The Consolidator service can run on one or more computers, depending on the size and complexity of your enterprise.

**Agent.** This is a service that runs on each computer you want to monitor. An agent gathers data from the data providers, applies processing rules to the data, and then passes the data to a Consolidator.

**Data Providers.** Providers extract management information about the underlying system, such as events and performance data, and pass this information to the Agent. MOM obtains information from a range of data providers, such as Microsoft Windows, Internet Information Services (IIS), and WMI (Windows Management Instrumentation).

**Database.** This stores data supplied by the Data Access Server, such as configuration information, events, and alerts. Storing data allows it to be later analyzed and reported on.

## The MetaFrame XP Management Pack and the MetaFrame XP Provider

The MetaFrame XP Management Pack requires the MetaFrame XP Provider to be installed on every MetaFrame server about which you want to gather information.

The MetaFrame XP Provider is a data provider that extracts information about the MetaFrame server on which it is installed and presents this to the MOM Agent. The MetaFrame XP Provider supplies information about the MetaFrame server and, where appropriate, about the farm in which this server operates.

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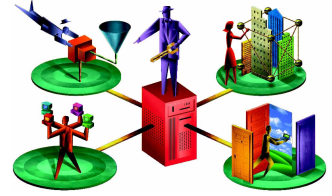
**Note** For more information about installing and using the MetaFrame XP Provider, see the *MetaFrame XP Provider Administrator's Guide*. For more information about Windows Management Instrumentation (WMI), see Microsoft's Web site: <http://msdn.microsoft.com/>.

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# Installing the MetaFrame XP Management Pack



## Overview

This chapter explains how to install the MetaFrame XP Management Pack. Topics include:

- Installation overview and system requirements
- Installing the MetaFrame XP Management Pack
- Security considerations

## Installation Overview

The MetaFrame XP Management Pack consists of a single file, called `citrixmf.akm`, that is installed with MetaFrame XP. To install the MetaFrame XP Management Pack, you import the `citrixmf.akm` file into MOM from the MOM Administrator Console.

### System Requirements

To use the MetaFrame XP Management Pack, you must be running Microsoft Operations Manager (MOM) 2000 or later. For information about MOM minimum hardware and software requirements, see your MOM documentation.

To obtain information about MetaFrame XPe servers and the server farm, the MetaFrame XP Management Pack requires the MetaFrame XP Provider to be installed on every MetaFrame XPe server that you want to monitor. A Citrix MetaFrame XPe Feature Release 2 license (or later) must also be installed and activated in each farm being monitored. For more information about the MetaFrame XP Provider and for instructions about how to install it, see the *MetaFrame XP Provider Administrator's Guide*.

Hotfix XE102W011 must be installed on every MetaFrame server that you want to monitor. This hotfix addresses a problem in which events are displayed that contain no data. This hotfix is available from the Citrix Web site: <http://www.citrix.com/>. See the hotfix readme file for more information.

## Installing the MetaFrame XP Management Pack

This section explains how to import the MetaFrame XP Management Pack using the MOM Administrator Console.

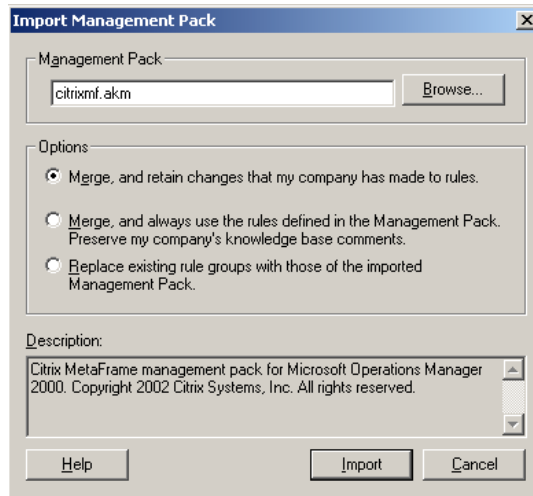
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**Important** Once installed, the MetaFrame XP Management Pack for MOM cannot be uninstalled. Therefore, Citrix recommends that you follow standard practice and back up the MOM database before installing the MetaFrame XP Management Pack.

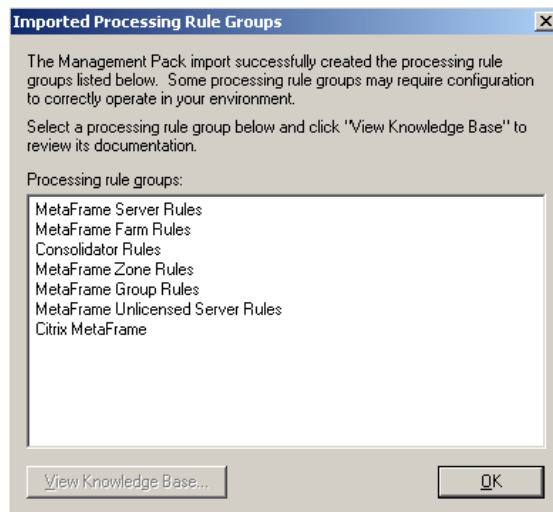
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► **To install the MetaFrame XP Management Pack**

1. Locate the file, `citrixmf.akm`. This file is in the `\MOMManagementPack` folder on the MetaFrame Components CD-ROM.
2. Log on to the MOM Administrator Console.
3. Right-click **Rules > Processing Rule Groups** and select **Import Management Pack**. The **Import Management Pack** dialog box appears.



4. Type the path to the MetaFrame XP Management Pack in the **Management Pack** field and click **Import**.
5. After the MetaFrame XP Management Pack is imported, a dialog box similar to the following appears:



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**Tip** Highlight the **Citrix MetaFrame** entry and click **View Knowledge Base** to display the top-level Citrix Knowledge Base entry.

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6. Click **OK** to complete the installation.

## What to Do Next

After you install the MetaFrame XP Management Pack, you must add the MetaFrame servers you want to monitor to the list of managed computers if you are not already monitoring these computers using MOM.

By default, the MetaFrame XP Management Pack identifies machines running MetaFrame XPe and the MetaFrame XP Provider, and MOM automatically deploys agents and rules to these machines, once a day. However, to deploy rules to machines immediately, you can use the **Scan Managed Computers Now** option. For more information about how to do this, see your MOM documentation.

If you have multiple MetaFrame farms or data collector zones in your installation, you can configure MOM to recognize these groupings so that you can display and monitor MetaFrame servers by farm or zone. For more information, see “Specifying MetaFrame Farm and Zone Computer Groups in MOM” on page 31.

By default, all managed MetaFrame servers generate farm-wide and zone-wide data. However, you can optimize the collection of this data to ensure that servers do not become overloaded by this task. For more information, see “Configuring the Collection of Farm and Zone Data” on page 26.

The MetaFrame XP Management Pack includes a notification group, called the *Citrix MetaFrame Administrators* group, that you can configure to ensure that the appropriate people are notified about problems with MetaFrame servers and server farms. For more information, see “Configuring the Notification of MetaFrame Administrators” on page 35.

Some MetaFrame rules are disabled by default because they require configuration to make them appropriate to your site. For example, you can configure the rule for the ICA session disconnection rate so that the alert that is triggered is meaningful to your site. For information about how to configure these rules, see “Configuring and Enabling Site-Specific MetaFrame Rules” on page 36.

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**Note** Ensure that the MetaFrame XP Provider is installed on every MetaFrame server that you want information on, and that a Citrix MetaFrame XPe Feature Release 2 license (or later) is installed and activated in each farm being monitored. For more information about the MetaFrame XP Provider, see the *MetaFrame XP Provider Administrator's Guide*.

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## Security Considerations

To display information about MetaFrame servers and farms using the MetaFrame XP Management Pack, you must have the appropriate administration rights in MOM.

MOM uses a component called the *OnePoint service* to retrieve data from servers, including servers running the MetaFrame XP Provider. The OnePoint service runs using a particular account. Because the MetaFrame XP Provider requires Citrix administration rights, the account that is used to run the OnePoint service must also have full Citrix administration rights. If this account does not have the appropriate rights, errors are displayed when attempting to access MetaFrame WMI data.

You must be a member of the appropriate MOM user or administrator group to be able to view alerts and information on the MOM Administrator Console. If you are not a member of the appropriate group in MOM, access to information and functions is restricted, regardless of whether you are a MetaFrame administrator or not.

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**Important** Users who have the appropriate administration rights in MOM can view MetaFrame-related information on the MOM console. However, these users may not be MetaFrame administrators. Depending upon how your accounts are set up in MOM, users may be able to view information about MetaFrame that is not normally available to them in the Management Console for MetaFrame XP. Therefore, Citrix recommends that you maintain tight control over members of your MOM user and administrator groups.

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For more information about security and setting up accounts in MOM, see your MOM documentation.

### Query errors from the MOM 2000 WMI Provider

When using the Microsoft Operations Manager (MOM) 2000 WMI Provider, you may get the following, or a similar, error message:

```
The Microsoft Operations Manager 2000 WMI provider could not register query 'select * from metaframe_server_loadlevel' Ensure that the WMI Query is valid.
```

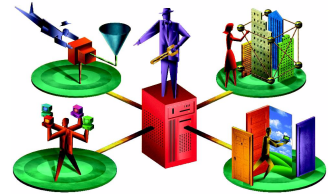
If this error occurs, add the user account that was used when installing MOM. Add the account as a MetaFrame administrator through the Management Console for MetaFrame XP.

This error occurs because the WMI Provider communicates with Citrix's Independent Management Architecture (IMA) when retrieving information, and IMA will only allow MetaFrame administrators to access this information.



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# Configuring the MetaFrame XP Management Pack



## Overview

This chapter introduces you to the Citrix MetaFrame views and groups that are included in the MetaFrame XP Management Pack. It explains how to configure the MetaFrame XP Management Pack for your site, including how to create MetaFrame farm and zone computer groups in MOM. It also tells you where you can find more information about how to configure site-specific rules for MetaFrame monitoring. Topics include:

- Introduction to the Citrix MetaFrame views and groups
- Configuring the collection of farm and zone data
- Creating MetaFrame farm and zone computer groups in MOM
- Configuring the notification of MetaFrame administrators
- Configuring and enabling site-specific rules for MetaFrame monitoring

## About Citrix MetaFrame Views

The MetaFrame XP Management Pack includes a number of Citrix MetaFrame views that are available in the **Public Views** folder on the MOM Administrator Console. These views allow you to monitor events and alerts raised for MetaFrame XPe servers and server farms, and to identify trends and performance issues occurring on MetaFrame servers and published applications.

There are two main types of Citrix MetaFrame views: *Health Monitoring* views and *Discovery* views. The following section discusses these views in more detail.

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**Note** After you install the MetaFrame XP Management Pack, some Citrix MetaFrame views may be empty until 3:55 a.m. the next day. By default, 3:55 a.m. is the time that certain data is collected by the MetaFrame XP Management Pack. This data includes farm and zone membership information, product version, and hotfix information. However, you can change when this information is gathered by modifying the appropriate rules.

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## Managed and Unmanaged MetaFrame Servers

In the MetaFrame XP Management Pack, a *managed* MetaFrame server is a MetaFrame XPe server that is running both Feature Release 2 or later, and the MetaFrame XP Provider, and that has a Feature Release 2 license installed and activated. Note that after installing and activating a Feature Release license, it may take until the next computer scan before MetaFrame servers are recognized as managed.

An *unmanaged* MetaFrame server is a server running MetaFrame 1.8, XPa, XPs, or XPe without the MetaFrame XP Provider or a feature release license.

## Health Monitoring Views

These views provide system administrators with real-time event and alert information, together with performance monitoring details about MetaFrame XPe servers and server farms.

View	Description
MetaFrame Events	Displays all the events raised by MetaFrame components on managed MetaFrame servers.
Open Alerts From Citrix MetaFrame Servers	Displays all unresolved alerts raised against managed MetaFrame servers by all management packs (not only the MetaFrame XP Management Pack).
Open Citrix Alerts	Displays all unresolved alerts raised by the MetaFrame XP Management Pack.
Active Sessions	Displays the number of active sessions on each managed MetaFrame server.
Published Application Load From Load Balancing	<p>Displays the published application load from the MetaFrame Load Manager component.</p> <p>Note that this information is available only if you are using Load Manager for MetaFrame XP in your server farm and you configured the application load level in the Management Console for MetaFrame XP. For more information about Load Manager, see the <i>Load Manager for MetaFrame XP Administrator's Guide</i> and online help.</p> <p>You must also enable the <b>Sample published application load from load balancing</b> rule; see "Sample Published Application Load" on page 39 for more information.</p>
Server Load From Load Balancing	<p>Displays the server load from the MetaFrame Load Manager component.</p> <p>Note that this information is available only if you are using Load Manager in your server farm. For more information about Load Manager, see the <i>Load Manager for MetaFrame XP Administrator's Guide</i> and online help.</p>
Pooled Licenses In Use	Displays the number of pooled licenses in use in each server farm, as a percentage of the total number of pooled licenses in the farm. After you install the MetaFrame XP Management Pack, this view is empty until 3:55 a.m. the next day.

## Discovery Views

These provide an overview of the structure of your MetaFrame installation, together with information about individual MetaFrame servers.

View	Description
Managed MetaFrame Servers	Displays all managed MetaFrame XPe servers in the Citrix MetaFrame Managed Servers computer group.
Unmanaged MetaFrame Servers	Displays all unmanaged MetaFrame servers in the Citrix MetaFrame Unmanaged Servers computer group.
MetaFrame Product Version	Displays information about the MetaFrame software versions on each managed MetaFrame server. After you install the MetaFrame XP Management Pack, this view is empty until 3:55 a.m. the next day.
MetaFrame Hotfixes	Displays information about the MetaFrame hotfixes installed on each managed MetaFrame server. After you install the MetaFrame XP Management Pack, this view is empty until 3:55 a.m. the next day.
MetaFrame Computer Groups	Displays all MetaFrame server farm and zone computer groups configured by the administrator.
MetaFrame Farm and Zone Membership	Displays farm and zone information for each managed MetaFrame server. After you install the MetaFrame XP Management Pack, this view is empty until 3:55 a.m. the next day.

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**Note** The processing rules that define how MOM collects, processes, and responds to Citrix MetaFrame information, and which generate the Citrix MetaFrame views, are in the Rules\Processing Rule Groups\Citrix MetaFrame folder in the MOM Administrator Console. You can configure these rules and create new ones; see your MOM documentation for more information.

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## About Citrix MetaFrame Groups

The MetaFrame XP Management Pack includes a number of Citrix MetaFrame groups that are available in the Rules\Computer Groups folder in the MOM Administrator Console. These groups are described in the following table.

Group	Description
Citrix MetaFrame All Managed Servers in All Farms in All Zones	Allows you to configure MOM to recognize the farms and zones in your MetaFrame installation. This means you can display and monitor MetaFrame servers by farm or zone.
Citrix MetaFrame Farm Data Collectors	Specifies the MetaFrame servers that generate farm-wide data, such as pooled license information.
Citrix MetaFrame Zone Data Collectors	Specifies the MetaFrame servers that generate zone-wide data, such as the number of MetaFrame servers in each zone.
Citrix MetaFrame Managed Servers	Allows you to specify which MetaFrame servers you want to monitor using MOM. A <i>managed</i> MetaFrame server must be a MetaFrame XPe server that is running both Feature Release 2 or later, and the MetaFrame XP Provider, and that has a Feature Release 2 license installed and activated.
Citrix MetaFrame Unmanaged Servers	Specifies MetaFrame servers not monitored by MOM. An <i>unmanaged</i> MetaFrame server is a server running MetaFrame 1.8, XPa, XPs, or XPe without the MetaFrame XP Provider or a Feature Release 2 license.
Citrix MetaFrame Unlicensed Servers	Specifies MetaFrame servers running the MetaFrame XP Provider, but which are unlicensed or missing a valid Feature Release 2 license.  MOM checks the licenses on these servers every hour. After a server in this group is properly licensed, the MetaFrame XP Management Pack regards it as a managed server, after the next computer scan.

## Configuring the Collection of Farm and Zone Data

This section explains how to optimize the collection of farm and zone data for your particular MetaFrame installation.

### Configuring Farm-Wide Data Collection

The MetaFrame XP Management Pack monitors farm-wide data, such as the pooled licenses available in the farm. By default, all managed MetaFrame servers generate this information, which is then collated into a single performance measurement for the farm. However, you can configure the MetaFrame XP Management Pack so that only specific MetaFrame servers generate this information. This ensures that servers do not become overloaded with the collection of farm-wide data.

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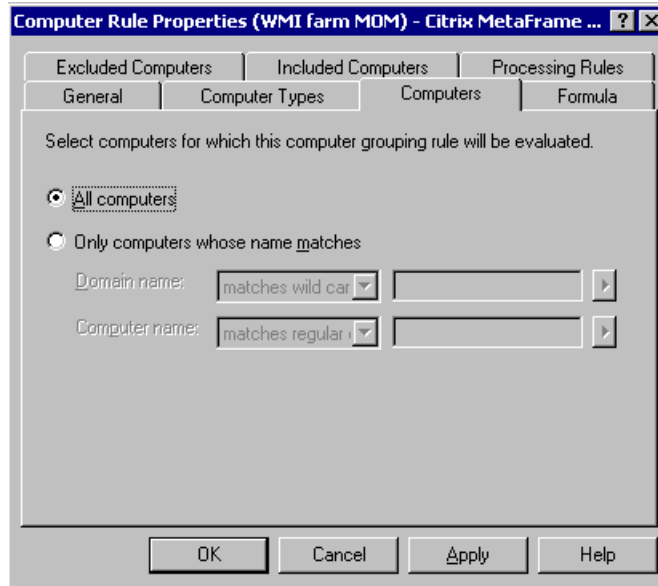
**Tip** Citrix recommends that you configure the MetaFrame XP Management Pack so that two MetaFrame servers generate farm-wide data. Two servers collecting data ensures that if one server fails, data is still available for the farm from the other server.

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To configure the collection of farm-wide data, you edit the **Citrix MetaFrame Farm Data Collectors** computer group.

► **To configure the collection of farm-wide data**

1. Log on to the MOM Administrator Console.
2. In **Rules > Computer Groups**, double-click the **Citrix MetaFrame Farm Data Collectors** group to display the **Computer Rule Properties** dialog box.
3. Click the **Computers** tab to display the following dialog box:



4. Select **Only computers whose name matches**.
5. In **Domain name**, type the domain name.
6. In **Computer name**, type the names of the MetaFrame servers that will generate farm-wide information. To specify more than one server, select **Matches regular expression** from the drop-down list, and then type the names of the computers; for example:  
(computer1 | computer2 | computer3)
7. Click **OK**.
8. To apply your changes, right-click **Rules** and select **Commit Configuration Change**.
9. Right-click **Configuration > Agent Managers** and select **Scan All Managed Computers**. MOM updates the servers with the new computer groups. Note that this can take several minutes.

---

**Tip** To monitor the progress of the **Scan All Managed Computers** procedure, refresh the display and check the progress in the **Status** field.

---

## About Farm-Wide Performance Data

After you install the MetaFrame XP Management Pack, farm-wide data, such as pooled license information, may not be available until 3:55 a.m. the next day, when farm and zone membership information is collected by the MetaFrame XP Management Pack. However, you can change when this information is gathered by modifying the appropriate rules.

Farm-wide performance data is collected and collated by the MOM Consolidator into a single performance measurement for the farm. Therefore, farm-wide data, such as pooled license information, appears to come from the MOM Consolidator, rather than from a MetaFrame server. Similarly, the MOM Consolidator, and not a MetaFrame server, raises the “low on/out of pooled licenses” alert. However, the name of the farm to which the information refers is clearly displayed.

In large installations, there may be multiple MOM Consolidators each generating farm-wide data. Therefore, you may see multiple instances of pooled license information, for example, from each Consolidator. Each instance, however, contains the same information.

## Configuring Zone-Wide Data Collection

The MetaFrame XP Management Pack monitors zone-wide data, such as the number of MetaFrame servers per zone. By default, all managed MetaFrame servers in a zone generate this information, which is then collated into a single performance measurement for the zone. However, you can configure the MetaFrame XP Management Pack so that only specific MetaFrame servers in the zone generate this information. This ensures that servers do not become overloaded with the collection of zone-wide data.

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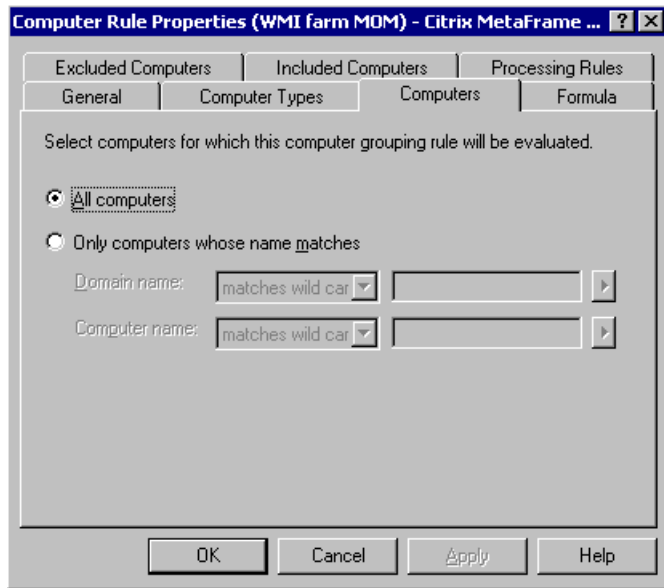
**Tip** Citrix recommends that you configure the MetaFrame XP Management Pack so that two MetaFrame servers in each zone generate the zone-wide data. Two servers collecting data ensures that if one server fails, data is still available for the zone from the other server.

---

To configure the collection of zone-wide data, you edit the **Citrix MetaFrame Zone Data Collectors** computer group.

► **To configure the collection of zone-wide data**

1. Log on to the MOM Administrator Console.
2. In **Rules > Computer Groups**, double-click the **Citrix MetaFrame Zone Data Collectors** group to display the **Computer Rule Properties** dialog box.
3. Click the **Computers** tab to display the following dialog box:



4. Select **Only computers whose name matches**.
5. In **Domain name**, type the domain name.
6. In **Computer name**, type the names of the MetaFrame servers that will generate zone-wide information. To specify more than one server, select **Matches regular expression** from the drop-down list, and then type the names of the computers; for example:  
(computer1 | computer2 | computer3)
7. Click **OK**.
8. To apply your changes, right-click **Rules** and select **Commit Configuration Change**.
9. Right-click **Configuration > Agent Managers** and select **Scan All Managed Computers**. MOM updates the servers with the new computer groups. Note that this can take several minutes.

---

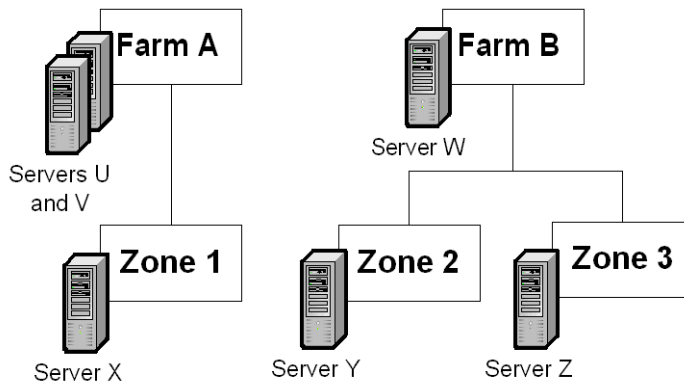
**Tip** To monitor the progress of the **Scan All Managed Computers** procedure, refresh the display and check the progress in the **Status** field.

---

## Example

In this example, there are two MetaFrame farms: Farm A and Farm B, each containing 20 managed MetaFrame servers. Farm A has one zone: Zone1, containing 20 servers. Farm B has two zones: Zone2 and Zone3, each with 10 MetaFrame servers.

You decide to have two MetaFrame servers in Farm A generating farm-wide data, and one MetaFrame server in Farm B. You also decide to have one server generating zone-wide data in each of the zones.



### ► To configure the collection of farm-wide data

1. Log on to the MOM Administrator Console.
2. In **Rules > Computer Groups**, double-click the **Citrix MetaFrame Farm Data Collectors** group to display the **Computer Rule Properties** dialog box.
3. Click the **Computers** tab.
4. Select **Only computers whose name matches**.
5. In **Domain name**, type the domain name.
6. In **Computer name**, select **Matches regular expression** from the drop-down list, and then type the names of the computers that will generate farm-wide data:  
(serverU|serverV|serverW)
7. Click **OK**.

### ► To configure the collection of zone-wide data

1. In **Rules > Computer Groups**, double-click the **Citrix MetaFrame Zone Data Collectors** group to display the **Computer Rule Properties** dialog box.
2. Click the **Computers** tab.

3. Select **Only computers whose name matches**.
4. In **Domain name**, type the domain name.
5. In **Computer name**, select **Matches regular expression** from the drop-down list, and then type the names of the computers that will generate zone-wide information:  
(serverX|serverY|serverZ)
6. Click **OK**.

► **To apply your changes**

1. To apply your changes, right-click on **Rules** and select **Commit Configuration Change**.
2. Right-click **Configuration > Agent Managers** and select **Scan All Managed Computers**. MOM updates the servers with the new computer groups. Note that this can take several minutes.

## Specifying MetaFrame Farm and Zone Computer Groups in MOM

After you install the MetaFrame XP Management Pack, MOM displays all MetaFrame servers in the network in the **Monitor > Public Views > Citrix MetaFrame** area of the MOM Administrator Console. However, if you have multiple MetaFrame farms or data collector zones in your installation, you may want to configure MOM to recognize these groupings so that you can display and monitor MetaFrame servers by farm or zone.

To enable MOM to recognize MetaFrame farms and zones, you must specify farm and zone computer groups in MOM. This section explains how to specify MetaFrame farm and zone computer groups and provides a typical example to illustrate this.

► **To specify MetaFrame farm and zone computer groups**

1. Log on to the MOM Administrator Console.
2. In **Rules > Computer Groups**, right-click the **Citrix MetaFrame All Managed Servers in All Farms in All Zones** group. Select **Copy**.
3. Right-click **Rules > Computer Groups** and select **Paste**. A new group is displayed called **Copy of Citrix MetaFrame All Managed Servers in All Farms in All Zones**.
4. Double-click this new group to display the **Computer Rule Properties** dialog box.
5. Edit the **Name** field with the name of the new group.

**Important** Ensure your computer group name begins with “**Citrix MetaFrame All Managed Servers**.” If the computer group name does not begin with this, you cannot monitor MetaFrame servers using this group. Do not include any quotation marks (“double” or ‘single’) in the computer group name because this may result in errors.

---

6. Select the **Formula** tab. The following text is displayed:

```
MemberOf(Citrix MetaFrame Managed Servers) AND  
MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "*")  
AND MatchWildcard(AttributeValue(Citrix MetaFrame Zone Name),  
"*)
```
7. Edit the "\*" argument to the **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name))** field with the name of your MetaFrame farm. The farm name must be identical to the farm name you assigned during MetaFrame installation. Note that server farm names are case-sensitive. Alternatively, use a single \* (asterisk) to denote “any farm.”
8. For zones, edit the **MatchWildcard(AttributeValue(Citrix MetaFrame Zone Name))** field with the name of the zone. Alternatively, use a single \* (asterisk) to denote “any zone.”
9. Click **OK**.
10. To apply your changes, right-click **Rules** and select **Commit Configuration Change**.
11. Right-click **Configuration > Agent Managers** and select **Scan All Managed Computers**. MOM updates the servers with the new computer groups. Note that this can take several minutes.

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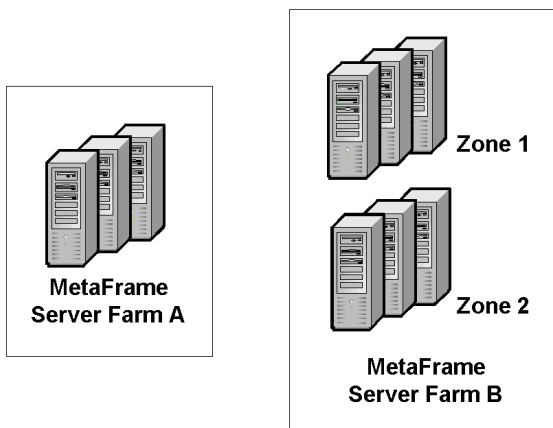
**Tip** To monitor the progress of the **Scan All Managed Computers** procedure, refresh the display and check the progress in the **Status** field.

---

12. To display the MetaFrame servers in the newly created computer group, click **Monitor > Public Views > Citrix MetaFrame > Discovery > MetaFrame Computer Groups** and select the computer group.

## Example

In this example, you want to specify computer groups for two MetaFrame farms in MOM: Farm A and Farm B. You also want to specify that Farm B has two zones: Zone1 and Zone2.



► **To specify the MetaFrame farm and zone computer groups in MOM**

1. Log on to the MOM Administrator Console.  
*To specify the FarmA computer group:*
2. In **Rules > Computer Groups**, right-click the **Citrix MetaFrame Servers in All Farms in All Zones** group. Select **Copy**.
3. Right-click **Rules > Computer Groups** and select **Paste**. A new group is displayed called **Copy of Citrix MetaFrame All Managed Servers in All Farms in All Zones**.
4. Double-click this new group to display the **Computer Rule Properties** dialog box.
5. Change the **Name** field to **Citrix MetaFrame All Managed Servers in FarmA**.
6. Select the **Formula** tab.
7. Change **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "\*\*")** to **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "FarmA")**.
8. Click **OK**.

*To specify the FarmB, Zone1 computer group:*

9. Repeat Steps 2 to 4 to copy and paste the group and display its properties.

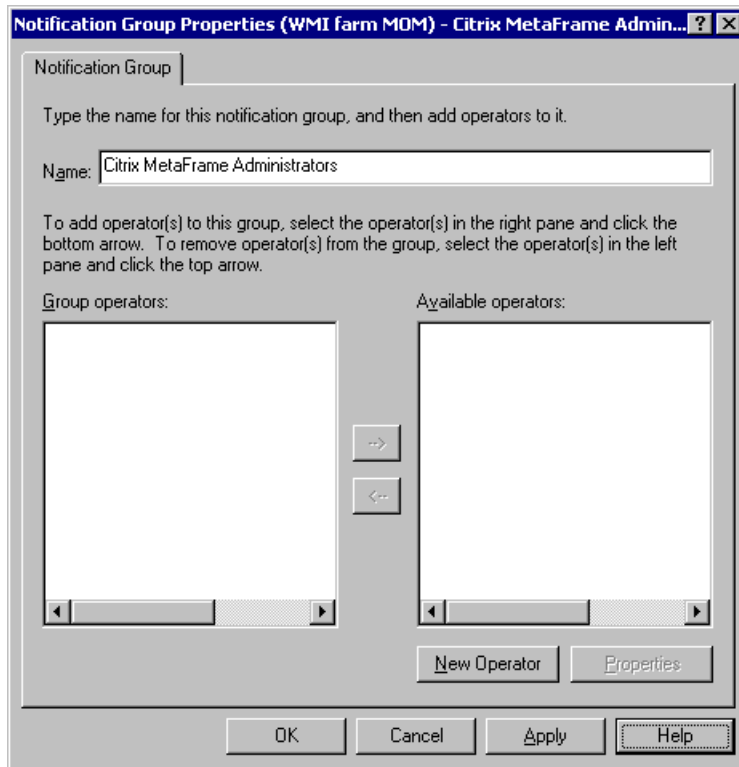
10. Change the **Name** field to **Citrix MetaFrame All Managed Servers in FarmB in Zone1**.
11. Select the **Formula** tab.
12. Change **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "\*\*")** to **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "FarmB")**.
13. Change **MatchWildcard(AttributeValue(Citrix MetaFrame Zone Name), "\*\*")** to **MatchWildcard(AttributeValue(Citrix MetaFrame Zone Name), "Zone1")**.
14. Click **OK**.  
*To specify the FarmB, Zone2 computer group:*
15. Repeat Steps 2 to 4 to copy and paste the group and display its properties.
16. Change the **Name** field to **Citrix MetaFrame All Managed Servers in FarmB Zone2**.
17. Select the **Formula** tab.
18. Change **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "\*\*")** to **MatchWildcard(AttributeValue(Citrix MetaFrame Farm Name), "FarmB")**.
19. Change **MatchWildcard(AttributeValue(Citrix MetaFrame Zone Name), "\*\*")** to **MatchWildcard(AttributeValue(Citrix MetaFrame Zone Name), "Zone2")**.
20. Click **OK**.
21. To apply your changes, right-click **Rules** and select **Commit Configuration Change**.
22. Right-click **Configuration > Agent Managers** and select **Scan All Managed Computers**.
23. To display MetaFrame servers in the newly created computer groups, click **Monitor > Public Views > Citrix MetaFrame > Discovery > MetaFrame Computer Groups**.

## Configuring the Notification of MetaFrame Administrators

The MetaFrame XP Management Pack includes a notification group, called the *Citrix MetaFrame Administrators* group. By default, this group is empty, so you must configure the group to ensure that the appropriate people are notified about problems with MetaFrame servers and server farms.

Before you configure this notification group, you must define the appropriate MetaFrame administrators as operators within MOM; for information, see your MOM documentation.

- ▶ **To configure the MetaFrame Administrators notification group**
  1. Log on to the MOM Administrator Console.
  2. In **Rules > Notification Groups**, right-click **Citrix MetaFrame Administrators** and choose **Properties**. The **Notification Group Properties** dialog box appears.



3. Select the appropriate MetaFrame administrators from the list of **Available operators** and, using the arrow keys on-screen, move these into the **Group operators** list.
4. Click **OK**.
5. To apply your changes, right-click **Rules** and select **Commit Configuration Change**.

## Configuring and Enabling Site-Specific MetaFrame Rules

Most Citrix MetaFrame rules are enabled by default and begin functioning after you install the MetaFrame XP Management Pack. However, some Citrix MetaFrame rules are disabled by default because they require configuration to make them appropriate and meaningful to your site. This section explains which site-specific rules can be configured and enabled, and where to find further information about how to do this.

### Disabled by Default Rules

The rules that define how MOM collects, processes, and responds to Citrix MetaFrame information, and that generate the Citrix MetaFrame views, are in subfolders of the Rules\Processing Rule Groups\Citrix MetaFrame folder in the MOM Administrator Console. Disabled rules are identified by a red cross through the rule icon; for example:

 Disconnections: check rate of disconnections

### Too Many Disconnected Sessions

The following rule controls how MOM processes and responds to information about the number of disconnected ICA sessions.

This rule is in the Rules\Processing Rule Groups\Citrix MetaFrame\MetaFrame Server Rules\Performance Processing Rules folder.

Disabled Rule	Associated Alert	Description of Rule
Too many disconnected sessions	The number of disconnected sessions on this server is high	Defines an upper limit of disconnected ICA sessions. The global default is 100 sessions but you can change this depending on your hardware. If this limit is exceeded, the alert warns you about possible performance problems. Note that this limit is used for all managed servers.

For more information about how to configure and enable this rule, see the rule's Knowledge Base entry in the MOM Administrator Console.

## Rate of Disconnections

The following rules control how MOM collects, processes, and responds to information about the rate of ICA session disconnections.

These rules are in the Rules\Processing Rule Groups\Citrix MetaFrame\MetaFrame Server Rules\Event Processing Rules folder.

Disabled Rule	Associated Alert	Description of Rule
Disconnections: subscribe to session disconnection events	Rate of session disconnects is high	Subscribes to session disconnection WMI events so that this data is captured. This data is then checked by a script (see below).
Disconnections: check rate of disconnections	Rate of session disconnects is high	Runs a script that examines the captured WMI events to determine if the number of disconnections in a specific period is too high. If the rate is too high, the script generates a MOM event.  Note that this script also clears the WMI database of unwanted session disconnection data.
Disconnections: rate of session disconnects is high	Rate of session disconnects is high	Triggers an alert in response to the MOM event. The alert signals a possible fault.

These rules are disabled by default to avoid raising false alerts. For example, if your users normally disconnect their sessions at the end of the working day, rather than logging off, a false alert may be raised each evening. To avoid false alerts, you need to configure the rules for your specific site and then enable all three rules. For example, you may want to configure the rules to function only during normal working hours.

For more information about how to configure and enable these rules, see the rules' Knowledge Base entries in the MOM Administrator Console.

## Idle Sessions

The following rules control how MOM processes and responds to information about idle ICA sessions.

These rules are in the Rules\Processing Rule Groups\Citrix MetaFrame\MetaFrame Server Rules\Event Processing Rules folder.

Disabled Rule	Associated Alert	Description of Rule
Check for MetaFrame session idle too long	A MetaFrame session has been idle too long	Runs a script that retrieves information from the MetaFrame XP Provider, to determine if an ICA session has been idle too long. If a session has been idle too long, the script generates a MOM event.
MetaFrame session idle too long	A MetaFrame session has been idle too long	Triggers an alert in response to the MOM event. The alert signals problems with the session. Note that all sessions, including idle sessions, consume resources; therefore idle sessions may cause problems where server resource is limited.

These rules are disabled by default because the acceptable length of time for which a session should be idle varies between sites.

For more information about how to configure and enable these rules, see the rules' Knowledge Base entries in the MOM Administrator Console.

## Too Many Active Sessions

The following rule controls how MOM processes and responds to information about the number of active ICA sessions.

This rule is in the Rules\Processing Rule Groups\Citrix MetaFrame\MetaFrame Server Rules\Performance Processing Rules folder.

Disabled Rule	Associated Alert	Description of Rule
Too many active sessions	The number of active sessions on this server is high	Triggers an alert to signal that there are too many active sessions running on a server.

This rule is disabled by default because the number of active sessions is dependent upon the hardware and software in your installation. Therefore, you need to configure this rule for your environment.

For more information about how to configure and enable this rule, see the rule's Knowledge Base entry in the MOM Administrator Console.

## Sample Published Application Load

The following rule controls how MOM collects information about published application load.

This rule is in the Rules\Processing Rule Groups\Citrix MetaFrame\MetaFrame Server Rules\Performance Processing Rules folder.

Disabled Rule	View	Description of Rule
Sample published application load from load balancing	Enabling this rule displays information in the "Published Application Load From Load Balancing" health monitoring view.	Retrieves WMI information about the published application load from the MetaFrame Load Manager component.

This rule is disabled by default because this information is available only if you are using Load Manager in your server farm and if you configured the application load level in the Management Console for MetaFrame XP. For more information about Load Manager, see the *Load Manager for MetaFrame XP Administrator's Guide* and online help.

For more information about how to configure and enable this rule, see the rule's Knowledge Base entry in the MOM Administrator Console.



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