Adobe Flash Media Server Management Pack Guide for Operations Manager 2007 R2

Raphael Burri
raburri@bluewin.ch
http://rburri.wordpress.com

May, 2010

Revision History

Release Date	Changes
May, 2008	Original release of this guide
November, 2008	Update to V 1.0.1.300 • FMS 3.0 compatibility
May, 2010	V 1.0.1.306 • FMS 3.5 compatibility • OpsMgr 2007 R2 requirement

Contents

1 Adobe Flash Media Server Management Pack Guide

The Adobe Flash Media Server management pack monitors the health of Adobe's FMS 2, 3 and 3.5, installed on Windows Computers.

It provides discovery, availability, performance collection rules, performance reports and FMS related tasks.

The management pack requires at least Operations Manager 2007 R2.

2 Getting Started

2.1 Before importing the Management Pack

The management pack consists of a single file. Use the **Import Management Pack** function from the Administration pane of the Operations Console to import the management pack. Make sure you have all the management pack, the FMS management pack depends on, imported as well. The import wizard will let you know if some are missing.

All dependencies are defined against management packs provided by Microsoft. If you can't find them on your Operations Manager installation media, you should be able to download them from here: http://go.microsoft.com/fwlink/?LinkId=82105

The following table lists the management pack files and the dependencies (in grey)

Management Pack File	Version	Vendor
Custom.Adobe.FlashMediaServer	1.0.1.305	Custom
System.ApplicationLog.Library.mp	6.0.6278.0	Microsoft
System.Health.Library.mp	6.0.6278.0	Microsoft
System.Library.mp	6.0.6278.0	Microsoft
System.Performance.Library.mp	6.0.6278.0	Microsoft
Microsoft.SystemCenter.DataWarehouse.Library.mp	6.0.6278.0	Microsoft
Microsoft.SystemCenter.DataWarehouse.Report.Library.mp	6.0.6278.0	Microsoft
Microsoft.SystemCenter.InstanceGroup.Library.mp	6.0.6278.0	Microsoft
Microsoft.SystemCenter.Library.mp	6.0.6278.0	Microsoft
Microsoft.Windows.Library.mp	6.0.6278.0	Microsoft
Microsoft.Windows.Server.Library.mp	6.0.6278.0	Microsoft
Microsoft.Windows.Server.2003.mp	6.0.6278.0	Microsoft

2.2 Other Requirements

2.2.1 Flash Media Administration Server

This management pack gets most performance information from the Flash Media Administration Server. It is therefore required that the service is running locally on each FMS server. The access to the Administration web interface may be restricted. See the next section for details.

2.2.2 Flash Administration API Access

The FMS management pack makes use of Flash Administration API calls to monitor the FMS' health. Accessing the following API calls through HTTP (Flash Administration), must be enabled:

- `getAdaptors`
- `getApps`
- `getAppStats`
- `getServerStats`
- `getVHosts`
- `getVHostStats`

After installing an FMS server, it is not possible to use the above calls. Additional configuration is required prior to begin using the FMS management pack. Carefully study the Flash Media Server documentation before applying the changes below. The examples included may not be appropriate for your environment.

2.2.2.1 Allow HTTP Commands

- Open the fms.ini file found in FMS' /conf directory.
- See that USERS.HTTPCOMMAND_ALLOW is set too true

2.2.2.2 Configure allowed calls

- In the same directory, open Users.xml
- Make sure the access to the Administration Server's HTTP interface is possible at least for the local host (tinted in blue in the example below)
- Enable at least the calls listed above (line colored in green below)

Example Users.xml

```
<Root>
        <UserList>
                <!-- This tag defines an administrator for the server. -->
                <User name="${SERVER.ADMIN_USERNAME}">
                        <Password encrypt="false">${SERVER.ADMIN_PASSWORD}</Password>
                        <Allow>127.0.0.1</Allow>
                        <Deny></Deny>
                        <Order>Allow,Deny</Order>
                </User>
        </UserList>

        <AdminServer>
                <HTTPCommands>
                        <Enable>true</Enable>
                        <Allow>ping,getAdaptors,getApps,getAppStats,getServerStats,getVHosts,getVHostStats</Allow>
                        <Deny></Deny>
                        <Order>Allow,Deny</Order>
                </HTTPCommands>
        </AdminServer>
</Root>
```

2.2.3 Enable FMSCheck.exe on FMS 2

Flash Media Server 3 and 3.5 ship with a diagnostic tool called FMSCheck.exe. The FMS Management Pack uses it to monitor the availability of individual FMS applications. If monitoring Flash Media Server 2, FMSCheck.exe is not available. However; if you copy the executable from an FMS 3 installation to an FMS 2, it should be working all right.

- Place FMSCheck.exe in the /tools directory of you FMS 2 installation.

2.2.4 Grant access to FMS Application folder located on a network share

This section only applies if your Flash Media Server is configured to publish Flash Applications located on a remote file share instead of on its local disks. The discovery rule will not be able to discover the Flash Applications since the OpsMgr agent on the FMS server will not normally have access to the remote file system.

To allow the discovery rule to read the remote file share, configure the Run As Account '`Adobe Flash Media Servers Privileged Discovery Account`' with a user account that has read access to the file server hosting the FMS Application files.

Additionally this user account will need the right to '`Log on locally`' on the FMS server.

2.3 Customizing the management pack

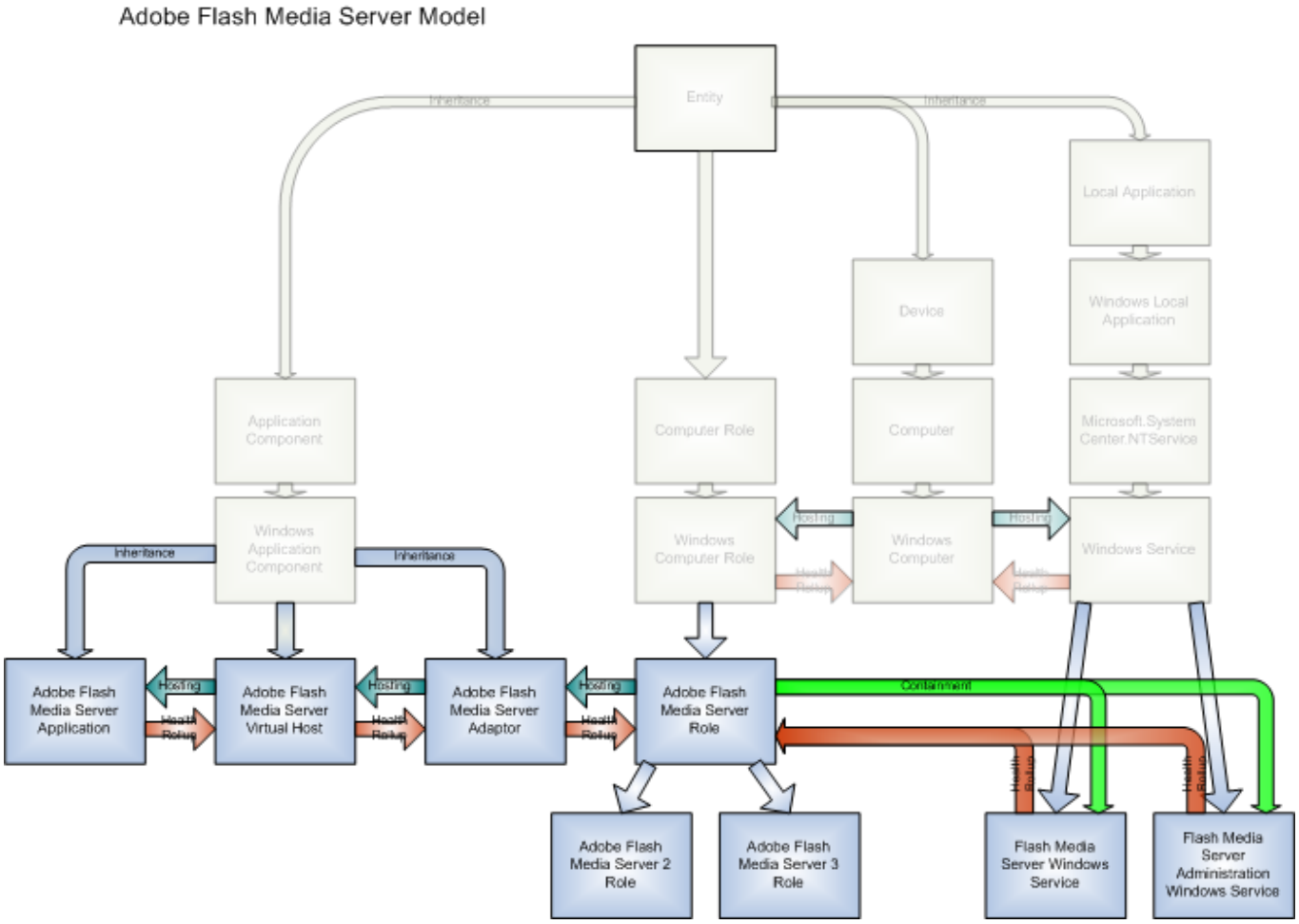
The Adobe Flash Media Services management pack is sealed. Changes to it are not possible. Using overrides almost all aspects of it can be customized. When doing so it is recommended that you store your overrides for the FMS management pack in a specifically for this purpose created one. The '`Default Management Pack`' should not be used.

Doing so simplifies exporting, reporting on or altering your changes. Furthermore the '`Default Management Pack`' will not be made dependant on the FMS management pack. Removing the FMS management pack will be possible.

3 Elements of the Adobe Flash Media Services management pack

3.1 Object Type Model

The following diagram shows the type model of the Flash Media Server management pack. Inheritance is shown vertically while Hosting and Health Roll up are drawn horizontally. Blue object types are part of the management pack, while grey ones already exist. They are defined by the management pack's dependencies.



3.2 Object Discovery

3.2.1 Objects Discovered

The Flash Media Server management pack discovers objects of the following types:

Object Type	Automatically	Discovery Rule	Attributes
Adobe Flash Media Server Role	Yes	Adobe Flash Media Server Role Discovery	• Name • Version • Installation Path • Configuration Path • Default Adaptor Address • Default Application Folder • Local Admin Address • Server Configuration File
Adobe Flash Media Server 2 Role	Yes	Adobe Flash Media Server Role Discovery	
Adobe Flash Media Server 3 Role	Yes	Adobe Flash Media Server Role Discovery	
Flash Media Server Windows Service	Yes	Adobe Flash Media Server Role Discovery	• Service Name • Service Process Name • Description
Flash Media Server Administration Windows Service	Yes	Adobe Flash Media Server Role Discovery	• Service Name • Service Process Name • Description
Adobe Flash Media Server Adaptor	Yes	Adobe Flash Media Server Adaptor Discovery	• Adaptor Name • Host Ports
Adobe Flash Media Server Virtual Host	Yes	Adobe Flash Media Server Virtual Host Discovery	• VHost Name • Alias • Application Folder
Adobe Flash Media Server Application	**No**	Adobe Flash Media Server Application Discovery	• Application Name • Application Folder

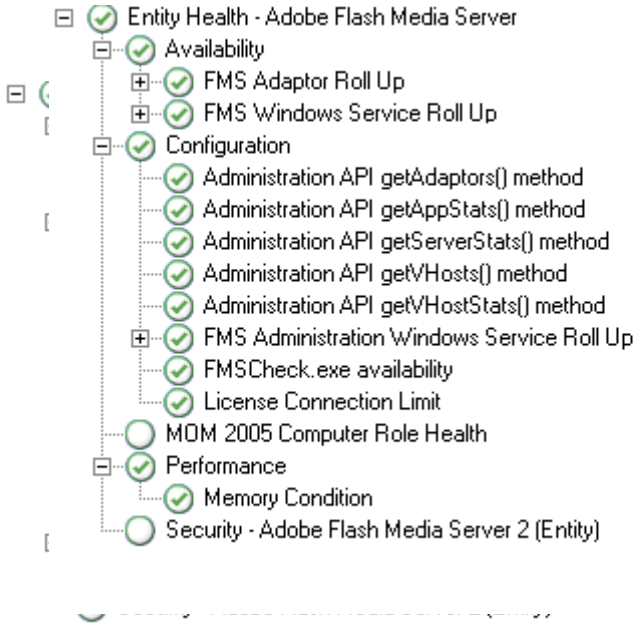
3.3 Monitors

The management pack defines a series of monitors that keep track of the health of the objects discovered and generate alerts. These are targeted against different object types.

3.3.1 Adobe Flash Media Server Role monitors

A total of seven monitors are targeted against the FMS Role.

Simplified Health Explorer screen shot:



3.3.1.1 FMS Adaptor Roll Up

This is a Dependency Rollup monitor, mapping the health of FMS Adaptors hosted by this server to the FMS server role.

Rollup Policy	Alert settings
Worst of any member	do not generate an alert

3.3.1.2 FMS Windows Service Roll Up

This is a Dependency Rollup monitor, mapping the health of the FMS Windows Service to the FMS server role.

Rollup Policy	Alert settings
Worst of any member	do not generate an alert

3.3.1.3 Administration API xxx() method

These monitors check if the OpsMgr agent can successfully execute the Flash Administration API calls. When calls fail, the context will indicate, what exactly caused the call to fail. For additional information on configuring FMS to allow these calls see 2.2.2, Adobe Flash Media Server Management Pack Guide on page 5.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Warning	Flash Server Administration API method xxx() failes	Only standard	none	checking http call to Flash API object `WMSServer.server` every 30 minutes

3.3.1.4 FMS Administration Windows Service Roll Up

This is a Dependency Rollup monitor, mapping the health of the FMS Administration Windows Service to the FMS server role.

Rollup Policy	Alert settings
Worst of any member	do not generate an alert

3.3.1.5 FMSCheck.exe Availability

This monitor checks if the agent can call the FMSCheck.exe tool. When the executable is not found or can not be called, a warning alert is being written. See 2.2.3, Adobe Flash Media Server Management Pack Guide on page 5 for more details.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Warning	Flash Server Tool FMSCheck.exe is not available	Only standard	none	`Execute FMSCheck.exe every 30 minutes`

3.3.2 License Connection Limit

Windows event driven monitor: Alerts if the FMS server is dropping connections caused by the license limit having been reached.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Warning	Flash Media Server connection license limit reached	Only standard	none	Two states, Timer reset monitor Warning Event: • Application Log • ID: 1213 • Source: FMS • Description contains: `License.Limit.Exceeded` Timer Reset: • 5 minutes

3.3.2.1 Memory Condition

Windows event driven monitor: Alerting if the FMS server reports a low memory condition.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Warning	Flash Media Server is suffering from a memory bottleneck	Only standard	none	Two states, Windows event reset monitor Warning Event: • Application Log • Event ID: 1171 • Event Source: FMS Healthy Event: • Application Log • Event ID: 1172 • Event Source: FMS

3.3.3 Flash Media Server Windows Service and Administration Windows Service monitors

The two services are derived from the Windows Service Library. Thus their monitors are defined in said management pack.

Simplified screen shot of the Health Explorer:

3.3.3.1 Service Running State

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Critical	Windows Service Stopped	Only standard	Start NT Service	`Check NTService State Monitor Type`

3.3.3.2 Handle Count, Processor Time, Thread Count and Working Set

These four monitors turn yellow if the performance counters for the windows service are found above their baseline.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Warning	None (no alert generated)	Only standard		Two State Baselining Monitor Type Sample every 10 minutes

3.3.4 Adobe Flash Media Server Adaptor monitors

Only a health roll up monitor is defined.

Simplified Health Explorer screen shot:

3.3.4.1 FMS Virtual Host Roll Up

This is a Dependency Rollup monitor, mapping the health of FMS Virtual Hosts to the FMS Adaptor.

Rollup Policy	Alert settings
Worst of any member	do not generate an alert

3.3.5 Adobe Flash Media Server Virtual Host monitors

Simplified Health Explorer screen shot:

3.3.5.1 FMS Application Roll Up

This is a Dependency Rollup monitor, mapping the health of FMS Applications hosted by this server to the FMS Virtual Server.

Rollup Policy	Alert settings
Worst of any member	do not generate an alert

3.3.5.2 VHost Status

This monitor checks if the Virtual Host instance is running. If it is not, a critical error is displayed.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Critical	Flash Server Virtual Host is not active	Only standard	none	checking http call to Flash API object `getVHostStats()` every 5 minutes

3.3.6 Adobe Flash Media Server Application monitors

Simplified Health Explorer screen shot:

3.3.6.1 Application Status

This monitor checks if the FMS application is running. If it is not, a warning is displayed.

Severity	Alert Name	Possible Overrides	Diagnostic and Recovery Tasks	Implementation Details
Warning	Flash Server Application is not accessible	Only standard	none	Running FMSCheck.exe every 15 minutes to check availability of an FMS application

Published applications may be secured with a token. A player must present a valid token or it will not be able to play the application. Since FMSCheck.exe does not know about that, it will not be able to check the availability of protected applications.

To prevent from false alerts, protected FMS applications are discovered as members of the “Adobe Flash Media Server Protected Application Group” and above monitor is disabled for their members.

3.4 Rules

The Rules defined for the management pack collect performance counters to be used by reporting.

3.4.1 Performance Data Collection Rules

Performance collection rules are targeted at FMS Role, FMS VHost and FMS Application. FMS does not make its performance metrics available through Windows' performance library. Instead they must be accessed by making use of Flash Administration API calls. The management pack makes them available in OpsMgr's GUI and the datawarehouse to allow long term performance analysis.

3.4.1.1 Flash Media Server Role Performance Rules

The following six rules are enabled by default.

Note that the last two are collected from Windows perflib.

Rule Name	Performance Counter	Implementation Details
Collect Adobe FMS Server active connections	`FMS Server\Active Connections`	• Interval: 15 min • getServerStats() API call
Collect Adobe FMS Server CPU usage	`FMS Server\CPU Usage %`	• Interval: 15 min getServerStats() API call
Collect Adobe FMS Server incoming bandwidth usage	`FMS Server\Bandwidth In MBit/sec`	• Interval: 15 min • getServerStats() API call
Collect Adobe FMS Server memory usage	`FMS Server\ Memory Usage %`	• Interval: 15 min • getServerStats() API call
Collect Adobe FMS Server outgoing bandwidth usage	`FMS Server\Bandwidth Out MBit/sec`	• Interval: 15 min • getServerStats() API call
Collect Adobe FMS Server total bandwidth usage	`FMS Server\Bandwidth Total MBit/sec`	• Interval: 15 min • getServerStats() API call
Collect Redirector Bytes read	`Redirector\Bytes Received/sec`	• Interval: 15 min
Collect Disk Bytes Read	`Logical Disk\Disk Read Bytes/sec/_Total`	• Interval: 15 min

3.4.1.2 Flash Media Server Virtual Host Performance Rules

The following four rules are enabled by default.

Rule Name	Performance Counter	Implementation Details
Collect Adobe FMS Server Virtual Host active connections	`FMS VHost\Active Connections\[InstanceName]`	• Interval: 15 min • getVHostStats() API call
Collect Adobe FMS Server Virtual Host incoming bandwidth usage	`FMS VHost\Bandwidth In MBit/sec\[InstanceName]`	• Interval: 15 min • getVHostStats() API call
Collect Adobe FMS Server Virtual Host outgoing bandwidth usage	`FMS VHost\Bandwidth Out MBit/sec\[InstanceName]`	• Interval: 15 min • getVHostStats() API call
Collect Adobe FMS Server Virtual Host total bandwidth usage	`FMS VHost\Bandwidth Total MBit/sec\[InstanceName]`	• Interval: 15 min • getVHostStats() API call

3.4.1.3 Flash Media Server Application Performance Rules

The following four rules are disabled by default. If required, enable them by using overrides. When doing so carefully observe both the Flash Media Server's performance as well as OpsMgr's. With a large number of Flash Applications published, the amount of data to be collected could be rather large. Consider enabling the rules for selected Flash Applications only.

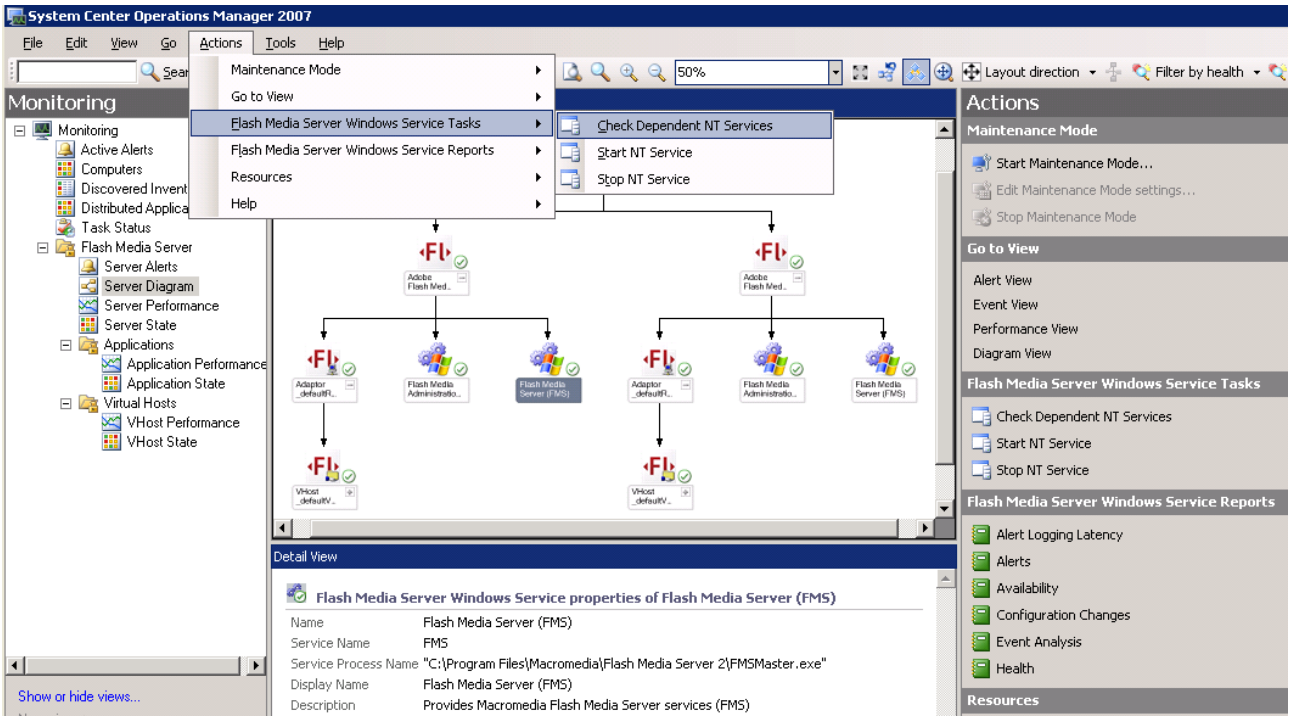
Rule Name	Performance Counter	Implementation Details
Collect Adobe FMS Server Application active connections	`FMS Application\Active Connections\[InstanceName]`	• Interval: 15 min • getAppStats() API call
Collect Adobe FMS Server Application incoming bandwidth usage	`FMS Application\Bandwidth In MBit/sec\[InstanceName]`	• Interval: 15 min • getAppStats() API call
Collect Adobe FMS Server Application outgoing bandwidth usage	`FMS Application\Bandwidth Out MBit/sec\[InstanceName]`	• Interval: 15 min • getAppStats() API call
Collect Adobe FMS Server Application total bandwidth usage	`FMS Application\Bandwidth Total MBit/sec\[InstanceName]`	• Interval: 15 min • getAppStats() API call

3.5 Tasks

The FMS management pack does not define tasks. The only ones visible are inherited from the `Microsoft System Center NTService Library` for the two Windows service objects.

3.5.1 Flash Media Server Windows Service and Administration Windows Service

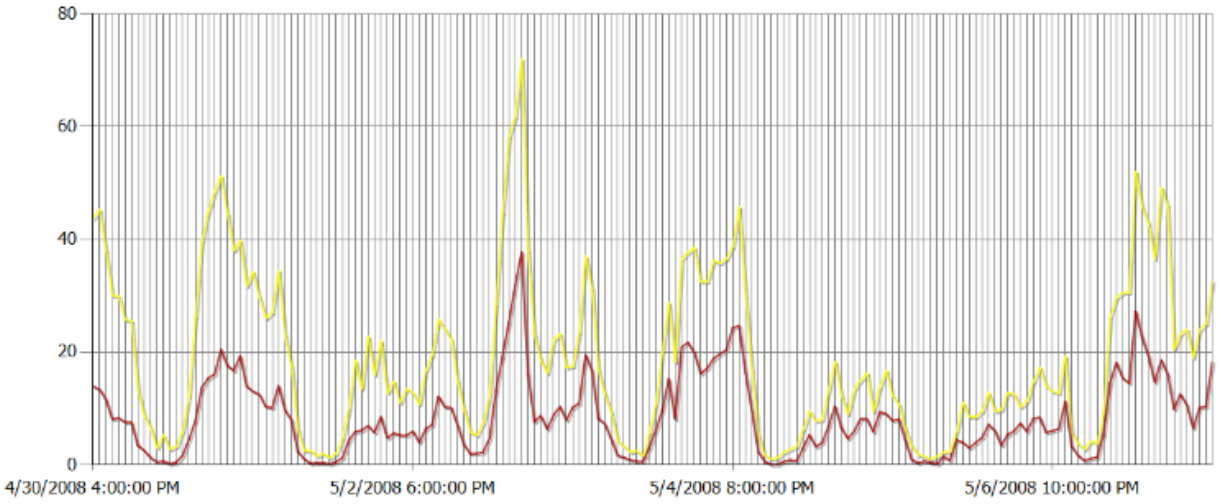
Three tasks are targeted at WMS Server roles.



Name	Parameters	Implementation Details
Check Dependent NT Services	None	`Microsoft.Windows.DependentNTServiceStateProbe`
Start NT Service	None	Net start command
Stop NT Service	None	Net stop command

3.6 Reports

The Adobe Flash Media Services management pack contains five performance reports. To successfully execute them, they must be targeted against the correct object types.



	Rule, Instance, Object	Scale	Sample Count	Min Value	Max Value	Average Value	Standard Deviation
	Collect Adobe FMS Server total bandwidth usage	1	700	0	42.69	8.453	3.085
	Adobe Flash Media Server Role: Adobe Flash Media Server 2						
	Collect Adobe FMS Server active connections	1	700	1	79	18.88	5.355
	Adobe Flash Media Server Role: Adobe Flash Media Server 2						

Report Name	Performance Counters	Valid Object Type
Flash Media Application Usage Analysis	• FMS Application\Active Connections • FMS Application\Bandwidth Total MBit/sec	Adobe Flash Media Server Application
Flash Media Server I/O Analysis	• Logical Disk\Disk Read Bytes/sec_Total • FMS Server\Bandwidth Total MBit/sec • Redirector\Bytes Received/sec	Adobe Flash Media Server Role

Report Name	Performance Counters	Valid Object Type
Flash Media Server System Resources Analysis	• FMS Server\CPU Usage % • FMS Server\Memory Usage %	Adobe Flash Media Server Role
Flash Media Server Usage Analysis	• FMS Server\Active Connections • FMS Server\Bandwidth Total MBit/sec	Adobe Flash Media Server Role
Flash Media Server VHost Usage Analysis	• FMS VHost\Active Connections • FMS VHost\Bandwidth Total MBit/sec	Adobe Flash Media Server Virtual Host

Additionally Operations Manager's standard reports can also be used. Specifically 'Alerts', 'Availability' and 'Health' will contain valuable information.

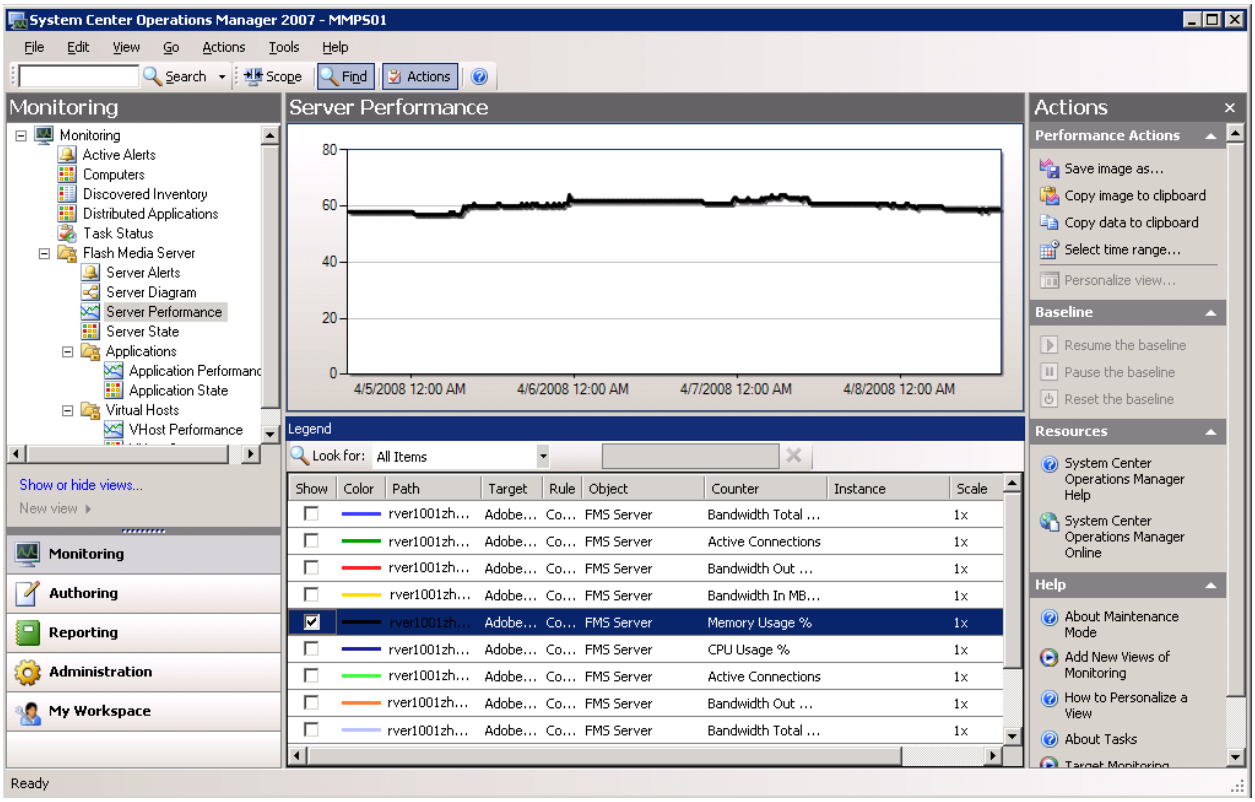
4 Using the Management Pack

After importing the management pack, Operations Manager will automatically discover any instances of Adobe Flash Media Servers installed. Most monitoring and data collection is going to work automatically.

4.1 Console Views

In Operations Manager's Console, the monitoring pane contains the following views under '`Flash Media Server`'.

- Server Alerts
- Server Diagram
- Server Performance
- Server State



As these are rather basic, consider using '`My Workspace`' or adding views to a custom management pack to get a more customized view especially if you are using a large amount of FMS servers.

Using the '`Distributed Application Designer`' you can integrate the FMS objects into your custom diagram view. When adding components to your application, refer to the diagram on page 10 to choose the correct object classes.

4.2 Configuring Overrides

Overrides are particularly useful to change the behavior of the management pack's monitors. The following table contains scenarios and lists which monitors would have to be overridden.

Overrides can be configured for individual servers, groups or all objects of a type.

Note that it is recommended to use a specifically created management pack for your overrides instead of saving them into '`Default Management Pack`'.

Scenario	Overrides to configure
Exclude FMS Applications from monitoring	Disable the following monitor: '`Application Status`' at '`Adobe Flash Media Server Application`' or disable publishing point discovery rule '`Adobe Flash Media Server Application Discovery`' at '`Adobe Flash Media Server Virtual Host`'
Enable performance collection for FMS Applications	Enable all or some of the following rules: '`Collect Adobe FMS Server Application active connections`' at '`Adobe Flash Media Server Application`' '`Collect Adobe FMS Server Application incoming bandwidth usage`' at '`Adobe Flash Media Server Application`' '`Collect Adobe FMS Server Application outgoing bandwidth usage`' at '`Adobe Flash Media Server Application`' '`Collect Adobe FMS Server Application total bandwidth usage`' at '`Adobe Flash Media Server Application`'