



# FUJITSU Software ServerView

Out-of-Band Server Integration Pack V8.5 for Microsoft SCOM

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# 1 Introduction

The PRIMERGY ServerView Suite from Fujitsu offers numerous ServerView integration modules which enable PRIMERGY servers to be integrated easily into other enterprise management systems.

This manual describes the ServerView Out-Of-Band Server Integration Pack, which enables Fujitsu PRIMERGY Out-Of-Band Servers to be integrated into System Center Operations Manager (SCOM).

Out-Of-Band within the context of this Management Pack and document means that no installed SCOM agent is required on the monitored PRIMERGY server and all communication for discovery and monitoring is done Out-Of-Band with the integrated Remote Management Controller (iRMC) of the PRIMERGY server. This allows integration and monitoring of servers running Operating System versions which are typically unsupported by SCOM. No additional software is needed on the monitored Out-Of-Band Server.

Component Discovery and Monitoring of a Fujitsu PRIMERGY Out-Of-Band Server is implemented using the DMTF Redfish protocol. If Redfish is not supported by the iRMC firmware version the Fujitsu System Report interface is used instead as in earlier versions of the Integration Pack.

Monitored components are displayed within SCOM by means of icons.

If errors are detected by the iRMC the associated component status within the iRMC will indicate the severity of the problem as warning (pre-fail) or error (failed) condition. This information is periodically evaluated by the monitors running on the SCOM server for the Out-Of-Band Server instance and the health state of the component is set accordingly. Furthermore, rules can be applied which trigger an appropriate action when a fault is detected, e.g. a mail describing the fault might be sent to hardware support.

For detailed analysis the iRMC Web Interface can be started directly.

The current ServerView Out-Of-Band Server Integration Pack for SCOM is provided on the latest PRIMERGY ServerView Suite DVD2 from Fujitsu or under:

[http://download.ts.fujitsu.com/prim\\_supportcd/SVSSoftware/](http://download.ts.fujitsu.com/prim_supportcd/SVSSoftware/)

## 1.1 Purpose and target groups

This manual is intended for system administrators, network administrators and service technicians who have a thorough knowledge of hardware and software. Likewise, a sound basic knowledge of the Microsoft System Center Operations Manager is required.

## 1.2 Changes since the last edition

### 1.2.1 Changes since version 8.4

The ServerView Out-Of-Band Server Integration Pack V8.5 contains the following changes compared to the V8.4 version

- Add support for the DMTF Redfish protocol for out-of-band monitoring. If Redfish is not supported by the iRMC firmware version the Fujitsu System Report interface is used as in earlier versions of the Integration Pack.
- Change default 'Alert On State' setting for all health related monitors to generate alerts on Warning and Error state. Previously the default was to alert only on Error/Critical state.
- Disable by default the "Fujitsu Out-Of-Band Server 'Memory Not Initialized' Event Rule". This rule can be re-enabled with an override as needed.
- Integrate the '*Fujitsu ServerView Server - Collect Health State to OMS*' and the '*Fujitsu PRIMERGY Out-of-Band Server - Collect Performance Data to OMS*' Management Packs together with the '*Whitepaper SCOM OMS integration-en.pdf*' and sample OMS Views into the Integration Pack. These were previously available as a separate download. For details on how to use the optional Management Packs together with a Microsoft Operations Management Suite workspace see the installed white paper.

### 1.2.2 Changes since version 8.3

The ServerView Out-Of-Band Server Integration Pack V8.4 contains the following changes compared to the V8.3 version

- Add Out-of-Band RAID Management Pack



## 1.2.3 Changes since version 8.2

The ServerView Out-Of-Band Server Integration Pack V8.3 contains the following changes compared to the V8.2 version

- Add iRMC S5 as supported platform
- Remove dependency to 'Microsoft System Center Out-of-Band SMASH Library' Management Pack by providing 'Fujitsu PRIMERGY iRMC - Base Management Pack' which provides additional features compared to the Microsoft Management Pack, such as better identification of Fujitsu PRIMERGY Servers during discovery and IPv6 support.
  - Change references to used Credentials and network configuration for all Out-Of-Band Management Packs to use the Fujitsu iRMC device instead of the Microsoft WS-Management device.
  - Support IPv6 addresses for the iRMC / Out-Of-Band Server
  - Move common rules regarding https communication problems with the iRMC of the Fujitsu Out-Of-Band Server to the iRMC Base Management Pack since these are iRMC related anyways.
  - Move Monitor type for Repeated Communication Problems to iRMC Base Management Pack
  - Administrator privilege no longer required for the iRMC user account (for known restrictions and limitations see section [6.4](#))
- Additional console tasks to ping and pathping the Fujitsu iRMC to perform basic network connectivity tests with an iRMC / Out-Of-Band Server
- Updated Knowledge Base articles with direct links to the console tasks where appropriate

## 1.2.4 Changes since version 8.1

The ServerView Out-Of-Band Server Integration Pack V8.2 contains the following changes compared to the V8.1 version:

- Tested with SCOM 2016
- Add 'Server Name' to Rule and Monitor Alert Descriptions
- Add 'Physical memory' property to Out-Of-Band Server Object
- Add 'Server Name' property to all logical hardware elements
- Add BIOS Version property to BIOS Component Status

- Add iRMC Firmware Version to iRMC Management Controller Component Status
- Replace 'Management URL' with 'Server Name' in all views to better identify the containment of the displayed entity.
- For existing customers updating from earlier versions a 'Reset to Defaults' in all Out-Of-Band Server related views is recommended. Also see section 3.5 for additional information.
- Add Reference Relation from Voltages Group to Mainboard Object

The ServerView Out-Of-Band Server Integration Pack V8.1 contains the following changes compared to the initial V8.0 version:

- Move the Power Management Tasks into a separate Management Pack in order to make this an installation option.
- Add 'DNS Name' property to Out-Of-Band Server Object
- Add Discovery Override to specify that the DNS Name (if available) should be used as Display Name of the Out-Of-Band Server instance instead of the IP address.
- Add Discovery Overrides to skip the discovery of not present components
- Additional 'Health State Valid' monitors
- Rename 'Subsystem Health Monitoring' view folder into 'Health Monitoring'
- Add Maintenance Mode Indication to all State views
- Additional functionality is provided in Add-On Management Packs (such as Performance Monitoring or RAID Monitoring)

### 1.3 ServerView Suite link collection

Via the link collection, Fujitsu provides their customers with numerous downloads and further information on the ServerView Suite and PRIMERGY servers

In "ServerView Suite" on the left side, links are offered on the following topics:

- Forum
- Service Desk
- Manuals
- Product information

- Security information
- Software downloads
- Training



The downloads include the following:

- Current software versions for the ServerView Suite and additional Readme files.
- Information files and update sets for system software components (BIOS, firmware, drivers, ServerView Agents and ServerView Update Agents) for updating the PRIMERGY servers via ServerView Update Manager or for locally updating individual servers via ServerView Update Manager Express.
- The current version of all documentation on the ServerView Suite.

All downloads from the Fujitsu web server are free of charge.

For PRIMERGY servers, links are offered on the following topics:

- Service Desk
- Manuals
- Product information
- Spare parts catalogue

### Access to the ServerView link collection

You can reach the link collection of the ServerView Suite in various ways:

1. Via ServerView Operations Manager.
  - ▶ Select *Help – Links* on the start page or on the menu bar.  
This opens the start page of the ServerView link collection.
2. Via the start page of the online documentation for the ServerView Suite on the Fujitsu manual server.



The start page of the online documentation can be reached via the following link: <http://manuals.ts.fujitsu.com>

- ▶ In the selection list on the left, select *x86 servers*.
  - ▶ Click the menu item *PRIMERGY ServerView Links*.  
This opens the start page of the ServerView link collection.
3. Via the ServerView Suite DVD2
    - ▶ In the start window of the ServerView Suite DVD2, select the option *Select ServerView Software Products*.
    - ▶ Click *Start* to open the page with the software products of the ServerView Suite.
    - ▶ On the menu bar select *Links* to open the start page of the ServerView link collection.




## 1.4 Documentation for ServerView Suite

The documentation can be downloaded free of charge from the Internet. You will find the online documentation at <http://manuals.ts.fujitsu.com> under the link *x86 servers*.

For an overview of the documentation to be found under ServerView Suite as well as the filing structure, see the ServerView Suite sitemap (*ServerView Suite -Site Overview*).

## 1.5 Notational Conventions

The following notational conventions are used in this manual:

	<b>Warning</b> This symbol is used to draw attention to risks which may represent a health hazard or which may lead to data loss or damage to the hardware
	<b>Information</b> This symbol highlights important information and tips.
	This symbol refers to a step that you must carry out in order to continue with the procedure.
<i>italics</i>	Commands, menu items, names of buttons, options, file names and path names are shown in italics in descriptive text.
<code>&lt;variable&gt;</code>	Angle brackets are used to enclose variables which are replaced by values.

### Screen Output

Please note that the screen output shown in this manual may not correspond to the output from your system in every detail. System-related differences between the menu items available can also arise.

# 2 Integration requirements

The requirements specified below must be satisfied for integration.

### Management station

- Microsoft System Center 2019 / 2016 / 2012 R2 / 2012 SP1 Operations Manager with latest updates
- SQL Server 2019 / 2016 / 2014 / 2012 / 2008.  
See the requirements for the relevant SCOM version
- Installed .NET Framework 4.5 or later is highly recommended
- Installed 'Fujitsu PRIMERGY iRMC Management Pack'

### Managed PRIMERGY servers

- Network access to the embedded Management Controller iRMC (integrated Remote Management Controller)
  - Out-of-band Server monitoring in SCOM based on System Report interface:
    - iRMC S4 with firmware 8.24F or later is supported
    - iRMC S5 with firmware 1.10P or later is supported
    - Note: You can check the SCOM 'Active Alerts' View for unsupported iRMC firmware alerts
  - Out-of-band Server monitoring based on the DMTF Redfish protocol:
    - iRMC S5 with firmware 1.23P or later is supported
    - iRMC S4 with firmware 9.04F or later is supported
  - Out-of-band RAID monitoring (DMTF Redfish protocol based):
    - iRMC S5 with firmware 1.23P or later is supported
    - iRMC S4 with firmware 9.05F or later is supported
- Local iRMC user account
  - For DMTF Redfish protocol out-of-band monitoring
    - Configured Redfish Role for the used iRMC account
- In order to be initially discovered by SCOM the PRIMERGY server needs to be powered on and not in BIOS/POST phase. The discovery script actively tests for this condition.

- Optional: Installed ServerView Agents for graceful shutdown / graceful reboot

## 3 Installation and uninstallation

### 3.1 Installing ServerView Integration Pack

The installation program *SVISCOM-OutOfBand.exe* is located on the ServerView Suite DVD at `<DVDroot>\SVSSoftware\Software\Integration_Solutions\SCOM`

or is available as a download from

[http://download.ts.fujitsu.com/prim\\_supportcd/SVSSoftware/](http://download.ts.fujitsu.com/prim_supportcd/SVSSoftware/)

The installation program first runs some basic checks then start the Installation Wizard. Follow the instructions displayed during the installation process.

#### 3.1.1 Installed files

The default installation path on the management station is:

— %ProgramFiles%\Fujitsu\ServerView Suite\SCOM Integration

The following files are copied into the installation directories:

Folder	Files
<i>Common</i> sub folder	<ul style="list-style-type: none"> <li>• <i>sv-intpack-scom-adm-en.pdf</i></li> <li>• <i>Whitepaper SCOM OMS integration-en.pdf</i></li> <li>• <i>OMS Views Subfolder:</i> <ul style="list-style-type: none"> <li>○ ServerView® PRIMERGY Server Health.omsview</li> <li>○ ServerView® PRIMERGY Power Consumption.omsview</li> <li>○ ServerView® PRIMERGY Ambient Temperature.omsview</li> <li>○ ServerView® iRMC Login and AVR Started.omsview</li> <li>○ Windows Power Consumption.omsview</li> </ul> </li> </ul>



<p><i>SVSICOM-OutOfBand</i> sub folder</p>	<ul style="list-style-type: none"> <li>• <i>EULA_en.pdf</i></li> <li>• <i>EULA_ja.pdf</i></li> <li>• <i>Quick Installation Guide.pdf</i></li> <li>• <i>sv-intpack-scom-outofband-en.pdf (this file)</i></li> <li>• <i>sv-intpack-scom-outofband-perfmon-en.pdf</i></li> <li>• <i>sv-intpack-scom-outofband-RAID-en.pdf</i></li> </ul>
<p><i>Management Packs</i> sub folder</p>	<ul style="list-style-type: none"> <li>• <i>Fujitsu.ServerView.Library.mp</i></li> <li>• <i>Fujitsu.ServerView.Image.Library.mpb</i></li> <li>• <i>Fujitsu.ServerView.IntegrationPackAdmin.mpb (optional)</i></li> <li>• <i>Fujitsu.ServerView.Monitoring.Cloud.mpb (optional)</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.iRMC.mpb</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.mpb</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.PowerMgmtTask.mpb (optional)</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.mpb (optional)</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.Overrides.xml (optional)</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.Cloud.mpb (optional)</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.Cloud.Overrides.xml (optional)</i></li> <li>• <i>Fujitsu.Servers.PRIMERGY.OutOfBand.RAID.mpb (optional)</i></li> </ul>



No automatic import of the installed Management Pack files is performed. You have to manually import the desired Management Packs into SCOM.

After installation start the SCOM console with the command  
*Microsoft.EnterpriseManagement.Monitoring.Console.exe /clearcache.*



In case other Fujitsu Integration Packs are also installed on the SCOM, the folder *Management Packs* may contain both the old *ServerView Core Library* (*Fujitsu.ServerView.Library.mp*) and the new *ServerView Core Library* (*Fujitsu.ServerView.Library.mpb*) after installation.

Please note that to install the new *ServerView Core Library* (*Fujitsu.ServerView.Library.mpb*) it is imperative not to also select the old *ServerView Core Library* (*Fujitsu.ServerView.Library.mp*) for import into SCOM. If both Libraries are selected, SCOM will refuse to import any of them.

### 3.1.2 Importing Management Packs

Management packs installed by the ServerView Out-Of-Band Server Integration Pack are located the folder 'Management Packs' within the installation folder. This folder holds all management packs from ServerView Integration Packs for System Center Operations Manager not only from the ServerView Out-Of-Band Server Integration Pack.

PRIMERGY Management Packs are imported in the usual way from the SCOM Console.

Not all Management Packs of the ServerView Out-Of-Band Server Integration Pack must be imported, some Management Packs are optional. See chapter 3.1.1 for details of the installed files. All Management Packs can be installed at one time.

Close the SCOM Console once after importing management packs to avoid locked files.

## 3.2 Update to a new version

Update installation is currently not supported by the ServerView Out-Of-Band Server Integration Pack installer executable. The recommended process is a full uninstallation of the old version followed by the installation of the new version.



The Management Packs of the ServerView Out-Of-Band Server Integration Pack themselves are usually update-compatible starting with version 8.3. New management packs can be imported on top of the old management packs.



You can do this either manually or use the Fujitsu ServerView Administration Page. See *sv-intpack-scom-adm-en.pdf* for its usage.

Follow chapter 3.3 Uninstalling ServerView Integration Pack to uninstall the old ServerView Out-Of-Band Server Integration Pack.

Follow chapter 3.1 Installing ServerView Integration Pack to install the new ServerView Out-Of-Band Server Integration Pack.


## 3.3 Uninstalling ServerView Integration Pack

The ServerView Out-Of-Band Server Integration Pack is uninstalled via the following steps:

- Remove the corresponding override management packs if any from SCOM.  
To keep existing override settings, e.g. to re-use in a new version, the override management packs should be exported and saved.
  - Remove the PRIMERGY Out-Of-Band Server Management Packs from SCOM.
-  If other ServerView Integration Packs for System Center Operations Manager have been installed, the ServerView Library Management Packs cannot be uninstalled.
- Uninstall the ServerView Out-Of-Band Server Integration Pack from the SCOM server.
-  To remove the Management Packs you need SCOM administrator rights. The old ServerView Out-Of-Band Server Integration Pack should be removed from all SCOM Remote Consoles.

### 3.4 Updating the ServerView Library Management Packs

The ServerView Library Management Pack and the ServerView Image Library Management Pack are used and referenced by all Fujitsu ServerView Integration Packs for System Center Operations Manager.

-  If a ServerView Integration Pack contains a newer version of one of the ServerView Library Management Packs this new version can usually be imported into SCOM without impact to any other Fujitsu ServerView Integration Management Packs.

In the rare case that a new version of one of the ServerView Library Management Packs is not compatible with the old version, it is necessary to uninstall all Fujitsu Management Packs including their Override Management Packs and reinstall all Fujitsu Management Packs from the folder 'Management Packs' together with the updated ServerView Library and ServerView Image Library Management Packs.

## 3.5 Restoring default View properties



The following steps are only recommended if you have updated from an earlier version of the Management Pack and the screenshots in the documentation show major differences to your local views (e.g. there are still major differences after you have set the view to its default via 'Personalize View' → 'Reset to Default').

The SCOM console saves view preferences in the local registry of the current user. When you delete an earlier version of the Management Pack these stored preferences will not be deleted by SCOM and as a result will be used again when an updated version of the Management Pack is installed. In case the definitions for the default view properties have been changed this might result in a mismatch between the actual settings (even if the previous default settings have not been changed by the user) and the recommended default view. In order to restore the default view properties you have to manually delete the old settings from the registry and restart the SCOM console.



Changing or removing settings from the registry is only for experienced users. Always back up your data before doing any modification!

These view preferences are stored locally in the registry on the UI machine and override what is in the database with the management pack.

On the machine that has the UI installed remove this:

```
HKEY_CURRENT_USER\Software\Microsoft\Microsoft Operations  
Manager\3.0\Console\GUIDViewname
```

Where **GUIDViewname** is: GUID+ViewName

Here is an example of a user customization done on the 'Active Alerts' view:

```
26c22529-473f-ff80-0559-04ce439b2f26Fujitsu.Servers.PRIMERGY.OutOfBand.ActiveAlertsView
```

# 4 Properties of the ServerView Out-Of-Band Server Integration Pack

## 4.1 Management Packs

The *Fujitsu ServerView Core Library* Management Pack contains the basic definitions to manage Fujitsu systems in a consolidated manner in SCOM. This Management Pack is distributed with all Fujitsu SCOM Integration Packs. It cannot be modified or exported.

The file name of this package is *Fujitsu.ServerView.Library.mpb*.

The *Fujitsu ServerView Image Library* Management Pack contains images common to all Fujitsu SCOM Management Packs. This Management Pack is distributed with all Fujitsu SCOM Integration Packs. It cannot be modified or exported.

The file name of this package is *Fujitsu.ServerView.Image.Library.mpb*.

The optional *Fujitsu ServerView AddOn Views* Management Pack contains definitions for additional interactive Views for detailed component health investigations.

This Management Pack requires SCOM 2012 SP1 UR6 or SCOM 2012 R2 UR2.

The file name of this package is *Fujitsu.ServerView.AddOnViews.mpb*.



On SCOM 2012 SP1 with UR6 Microsoft.SystemCenter.Visualization.Component.Library version 7.0.9538.1109 is required.

On SCOM 2012 R2 with UR2 Microsoft.SystemCenter.Visualization.Component.Library version 7.1.10226.1015 is required.

The optional *Fujitsu ServerView Administration Page* Management Pack contains an Addition to SCOM's Administration Pane which is designed to help with managing Fujitsu ServerView Integration Packs. For more information see *sv-intpack-scom-adm-en.pdf*.

The file name of this package is *Fujitsu.ServerView.IntegrationPackAdmin.mpb*.

The optional *Fujitsu ServerView Server - Collect Health State to OMS Management Pack* contains a rule targeting the SCOM Management Group and collects PRIMERGY Health State information using the OMS HTTP Data Collector API. For details see the installed white paper.

The file name of this package is *Fujitsu.ServerView.Monitoring.Cloud.mpb*.

## Properties of the ServerView Out-Of-Band Server Integration Pack

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The *Fujitsu PRIMERGY iRMC - Base Management Pack* Bundle contains the definitions for initial discovery and basic monitoring of Fujitsu PRIMERGY integrated Remote Management Controllers. It cannot be modified or exported.

The file name of this package is *Fujitsu.Servers.PRIMERGY.OutOfBand.iRMC.mpb*.

The *Fujitsu PRIMERGY Out-Of-Band Servers - Base Management Pack* Bundle contains the definitions for discovery and monitoring of Fujitsu PRIMERGY Out-Of-Band Servers via the integrated iRMC independent from the installed Server Operating System (Windows/Linux/ESXi/BSD or any other operating system). It cannot be modified or exported.

The file name of this package is *Fujitsu.Servers.PRIMERGY.OutOfBand.mpb*.

The optional *Fujitsu PRIMERGY Out-Of-Band Servers - Power Management Tasks* Management Pack Bundle contains task definitions which were previously part of the Base Management Pack. They have been separated into a Management Pack in order to install them only on demand. It cannot be modified or exported.

The file name of this package is *Fujitsu.Servers.PRIMERGY.OutOfBand.PowerMgmtTask.mpb*.

The optional *Fujitsu PRIMERGY Out-Of-Band Server - RAID Management Pack* Bundle contains additional definitions for discovery and monitoring the RAID components of Out-Of-Band Servers via the integrated iRMC. This is independent from the installed Server Operating System (Windows/Linux/ESXi/BSD or any other operating system). The Management Pack Bundle cannot be modified or exported.

The file name of this package is *Fujitsu.Servers.PRIMERGY.OutOfBand.RAID.mpb*.

The optional *Fujitsu PRIMERGY Out-Of-Band Servers - Performance Management Pack* Bundle contains additional performance collection rules and view definitions. It cannot be modified or exported.

The file name of this package is *Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.mpb*.

The optional *Fujitsu PRIMERGY Out-Of-Band Servers - Collect Performance Data to OMS Management Pack* Bundle contains the same set of Temperature or Power Consumption performance collection rules. But instead of storing the performance data in the local SCOM database the performance data is independently forwarded to a connected Microsoft Operations Management Suite workspace. It cannot be modified or exported.

The file name of this package is *Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.Cloud.mpb*.

The optional *Fujitsu PRIMERGY Out-Of-Band Server - Performance Monitoring Overrides* Management Pack adds overrides for the performance collection rules from the *Fujitsu PRIMERGY Out-Of-Band Server Performance Monitoring* Management Pack to enable some Performance Counters (Ambient Temperature and System Power Consumption). It can be edited to enable or disable Performance Collection Rules as desired.

The file name of this package is *Fujitsu.Servers.PRIMERGY.Out-Of-Band.PerfMon.Overrides.xml*.

The optional *Fujitsu PRIMERGY Out-Of-Band Server - Overrides for Collect Performance Data to OMS Management Pack* contains overrides to enable the recommended performance collection

rules.

You can modify this unsealed Management Pack to your monitoring requirements with any text editor to enable additional performance collection rules or modify the default performance collection interval for the rules. See the comments in the XML file for further details.

The file name of is *Fujitsu.Servers.PRIMERGY.OutOfBand.PerfMon.Cloud.Overrides.xml*



Please note that without importing the *Fujitsu PRIMERGY Out-Of-Band Server Performance Monitoring Overrides* Management Pack all performance collection rules are disabled by default. The same applies to the 'collect performance data to OMS' performance collection rules which are disabled by default.

## 4.2 PRIMERGY server computer groups

Detected PRIMERGY servers are categorized in groups:

- PRIMERGY BX models (e.g. BX2580)
- PRIMERGY CX models (e.g. CX2550)
- PRIMERGY RX models (e.g. RX2540, RX100)
- PRIMERGY SX models (e.g. SX150, SX350)
- PRIMERGY TX models (e.g. TX1330, TX300)
- Other models which do not fit in any of the above groups (e.g. CELSIUS C470)



Since there are no PRIMERGY MX or PRIMERGY Econel Servers with an integrated iRMC these servers are not covered by the Out-Of-Band Servers Management Pack (as opposite to other ServerView Integration Management Packs which use in-band information).

For a detailed description of the presentation of the servers and the PRIMERGY server computer groups, see section [4.6 Views](#).

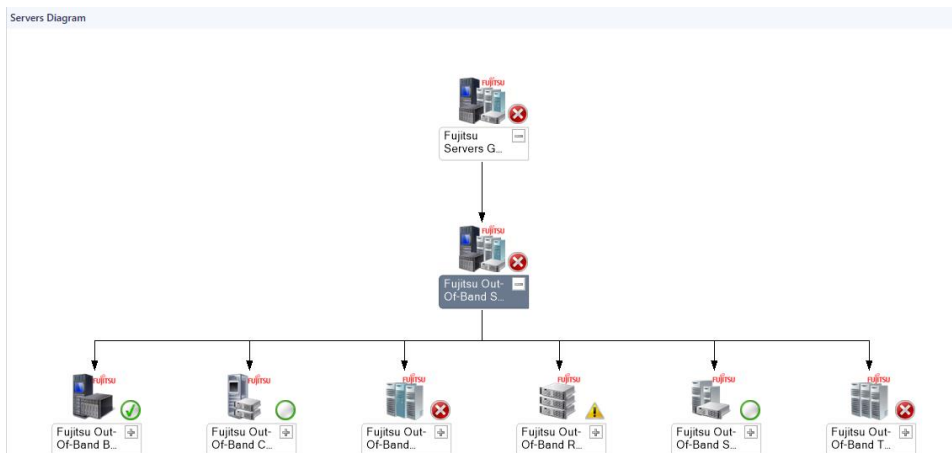


Figure 1 - Out-Of-Band Server Group diagram

## 4.3 Discovering and monitoring Fujitsu iRMC devices

**i** The iRMC of a Fujitsu PRIMERGY server can be discovered independent from the server's power state. This is different from the Out-of-Band Server discovery which discovers the PRIMERGY server components only when the server power state is on and the server is not in BIOS/POST phase.

Fujitsu iRMC devices are discovered during initial discovery with a SCOM template. For a detailed step by step instruction how to discover Fujitsu iRMC devices see section 7.

The initial discovery of an iRMC by default is evaluating the DMTF Redfish information from the iRMC. When Redfish is not supported by the iRMC firmware alternatively the HP-SIM integration response together with the System Report data is used.

If the firmware version of the iRMC is not supported, no Fujitsu iRMC device instance is discovered and the discovery is finished.

The *Fujitsu PRIMERGY iRMC - Base Management Pack* also contains a monitor for the iRMC device which is evaluating the overall system health state reported from the Global Error LED or Customer Self Service (CSS) LED of a PRIMERGY Server. This monitor can be used for large installations where an overall health status of a PRIMERGY server is sufficient. This monitor will be disabled with an override when the *Fujitsu PRIMERGY Out-Of-Band Server - Base Management Pack* is installed since the overall health state will then be determined by the



individual server components and health rollup monitors from the *Fujitsu PRIMERGY Out-Of-Band Server - Base Management Pack*.



When the Out-Of-Band Server Base Management Pack is installed an iRMC device will be reported as not monitored until the Out-Of-Band server is discovered and monitoring for the server components has started due to the disabled iRMC device monitor.

## 4.4 Discovering and monitoring Fujitsu PRIMERGY servers



The Fujitsu PRIMERGY server needs to be powered on and not in BIOS/POST phase for a successful Out-of-Band Server and components discovery. The discovery script actively tests for this condition.

PRIMERGY Out-Of-Band Servers and their components can be discovered and monitored only if the embedded iRMC has been discovered in SCOM.

The Out-of-Band Server discovery by default is evaluating the DMTF Redfish information from the iRMC. When Redfish is not supported by the iRMC firmware the HP-SIM integration response as together with the System Report data is used. HP-SIM integration response (if not disabled) returns basic system information like server model, serial number and iRMC firmware version and - if available - is used for model discovery as well as for supported firmware version check.

If the system or firmware version is not supported, no Fujitsu Out-Of-Band Server instance is discovered and the discovery is finished.

The interval for the discovery can be configured with an override.



PRIMEQUEST server nodes typically do may have an embedded iRMC but no suitable Redfish or System Report interface is available. Please see the separate Integration Pack for PRIMEQUEST which is available from Fujitsu.

### 4.4.1 Displayed properties of recognized PRIMERGY servers

The following properties of a managed server are displayed:

- *Display Name*: IP Address or DNS Name of the iRMC
- *Model*: complete model name of the server
- *Serial Number*: serial number of the server
- *Network Name*: IP Address of the iRMC (from the iRMC Device Object)
- *Operating System*: retrieved from the WinSCU configuration file of the iRMC
- *iRMC Firmware*: version of the iRMC Firmware
- *System Firmware*: version of the system firmware (BIOS)
- *Manufacturer*: system manufacturer
- *Manufacturing Date*: system manufacturing date (Note: not available with Redfish)
- *Chassis Model*: chassis name
- *Part Number*: ordering/part number of the server
- *Management URL*: URL used for Out-Of-Band Server Monitoring
- *DNS Name*: configured DNS name of the iRMC

The properties of a server which are discovered are displayed in the *Detail View* below a *Status* or a *Diagram* view.

### 4.4.2 Health state of a PRIMERGY server

The health state of a PRIMERGY Out-Of-Band server is determined by the state of its monitored hardware and software components. Health State of individual components is then propagated to the next layer in the hierarchy with roll up monitors. The component with the most severe error determines the final health state of the PRIMERGY Out-Of-Band server. This means additional implicit component redundancy is not supported.

This state is also passed on to the model group and the PRIMERGY server group (via roll-up monitor).

## 4.5 Discovering and monitoring the server

## components

The Out-Of-Band Server components are discovered and monitored with scripts on the basis of data retrieved via the iRMC data.

The Out-Of-Band Management Pack distinguishes between major hardware components (CPU/Memory/Fans/Power Supplies) which are major building blocks of every PRIMERGY server and available Component Status Information which report the consolidated health status as seen from the iRMC internal point of view.

Only components which exist are displayed in SCOM Diagram Views. If, for example, no fans can be detected (e.g. in a blade server where fans are managed by the chassis), the fan component is not discovered and therefore not monitored and not displayed. Subsystems which do not contain components with a usable state at discovery time are not displayed, either. All components are shown in Health Explorer but only existing components are monitored.

Instances of the same type in a component are logically combined in a group object and monitored together (e.g. all CPUs of a server belong to the processor group). In the case of an error the faulty instance is displayed in the Health Explorer. The instance with the severest error determines the overall state of the group and the health state is further propagated to higher levels in the object hierarchy.

By default events with the severity *Critical* generate an alert and events with the severity *Warning* do not generate an alert. This default setting can be overridden.

### 4.5.1 Discovering the hardware subsystems (components)

The hardware subsystems of a PRIMERGY server which are listed below can be discovered and monitored.

#### 4.5.1.1 Processors

Processors which physically exist are discovered, their data is displayed and their health state is monitored.

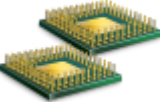
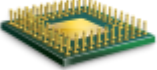
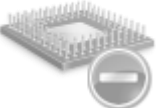


Processors which are not populated are discovered as 'not present' component by default. Note: this can be changed with an override for the discovery.

Not present components are used to indicate possible build-to-order configurations of

## Properties of the ServerView Out-Of-Band Server Integration Pack

the PRIMERGY server and are not monitored.

Icon	Information	
	<p><i>Display Name:</i></p> <p><i>ID:</i></p>	<p>'Processors'</p> <p>Same as 'Display Name', key of hosted object</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Model:</i></p> <p><i>Manufacturer:</i></p> <p><i>Number of Logical Cores:</i></p> <p><i>Number of Physical Cores:</i></p> <p><i>Max Clock Speed:</i></p> <p><i>L1/L2/L3 Cache Size:</i></p>	<p>Silk Print of the CPU Socket (e.g. 'CPU 1')</p> <p>Same as 'Display Name', key of hosted object &lt; e.g. Intel(R) Xeon(R) CPU E7-4820 v3 @ 1.90GHz &gt; &lt; e.g. 'Intel' &gt; &lt; e.g. 8 &gt; &lt; e.g. 4 &gt; &lt; e.g. 3500 &gt; &lt; e.g. 256KB &gt;</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Status:</i></p>	<p>Silk Print of the CPU Socket (e.g. 'CPU 2')</p> <p>Silk Print of the CPU Socket (e.g. 'CPU 2')</p> <p>'CPU not installed'</p>

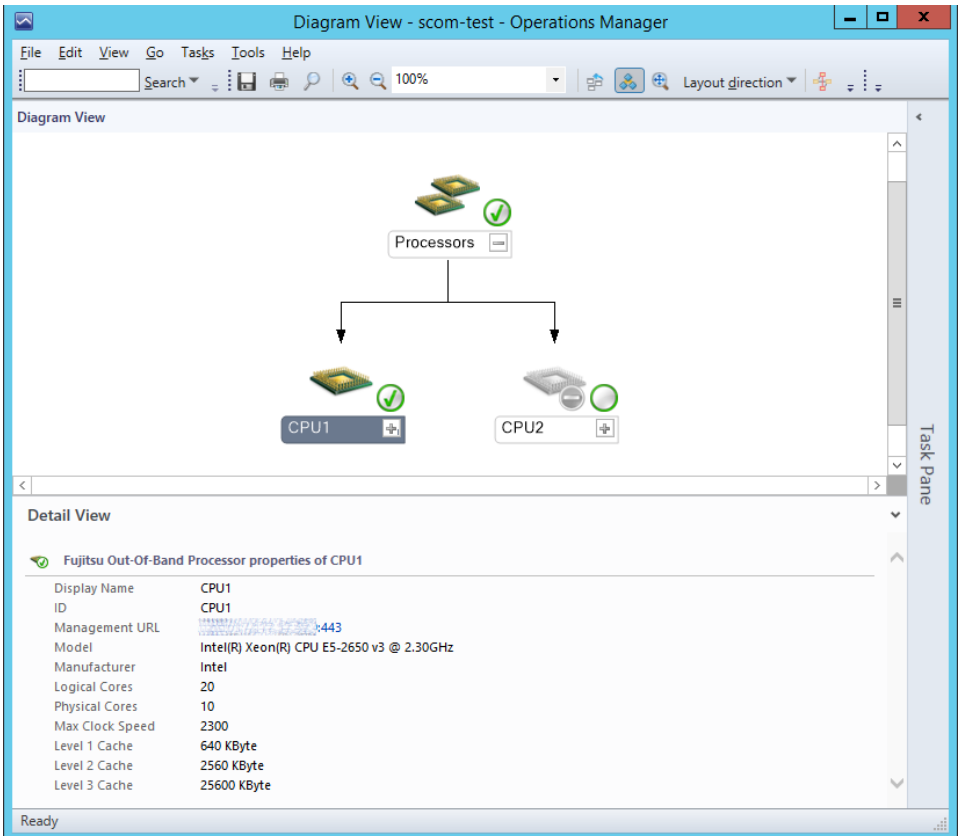


Figure 2 - Typical Processor Diagram View

## 4.5.1.2 Memory


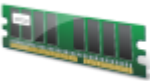

Memory modules which are populated are discovered, their Asset information from SPD data is displayed, and their health state is monitored.



Memory Modules which are marked as 'Not Usable' by the BIOS/iRMC will be displayed with a different icon and will not be monitored.

Since the number of Memory Modules can be up to 128 Modules per server and Memory Modules can be easily added or replaced by the customer, non-populated Memory Modules are not modeled as not present components.

## Properties of the ServerView Out-Of-Band Server Integration Pack

Icon	Information	
	<p><i>Display Name:</i></p> <p><i>ID:</i></p>	<p>'Memory'</p> <p>Same as 'Display Name', key of hosted group object</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Type:</i></p> <p><i>Size:</i></p> <p><i>Manufacturer:</i></p> <p><i>Manufacturing Date:</i></p> <p><i>Bus Frequency:</i></p> <p><i>Voltage:</i></p> <p><i>Part Number:</i></p> <p><i>Serial Number:</i></p> <p><i>Revision:</i></p> <p><i>Config Status:</i></p> <p><i>Management URL:</i></p>	<p>Silk Print of the Memory Module Socket (e.g. 'DIMM-1A')</p> <p>Same as 'Display Name', key of hosted object</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Config Status:</i></p> <p><i>Management URL:</i></p>	<p>Silk Print of the Memory Module Socket (e.g. 'DIMM-1A')</p> <p>Same as 'Display Name', key of hosted object</p>

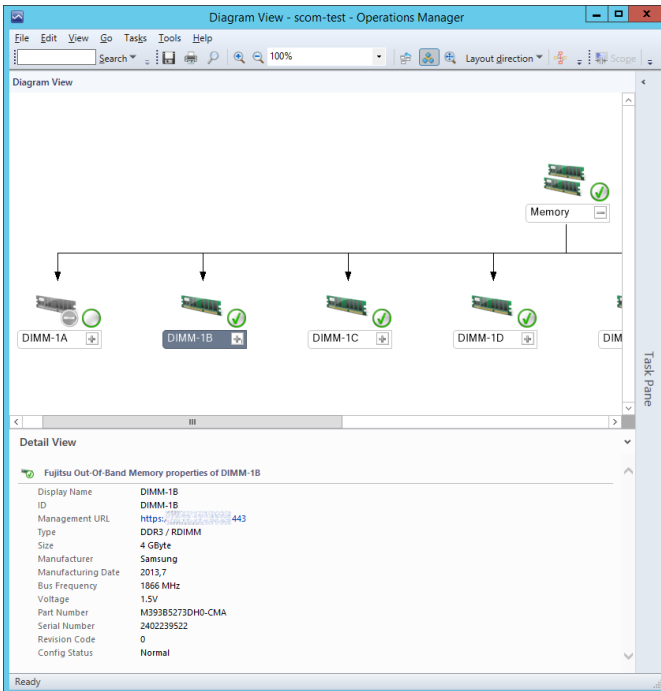


Figure 3 - Memory Diagram View

## 4.5.1.3 Fans (Cooling)

Connected fan modules of PRIMERGY servers and their connected extension modules are discovered and their health state is monitored.






Fans which are not populated are discovered as 'not present' component by default.

Note: this can be changed with an override for the discovery.

Not present components are used to indicate possible build-to-order configurations of the PRIMERGY server and are not monitored.

## Properties of the ServerView Out-Of-Band Server Integration Pack

Icon	Information	
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Management URL:</i></p>	<p>'Fans (Cooling)'</p> <p>Same as 'Display Name', key of hosted group object</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Management URL:</i></p>	<p>Silk Print of the Fan Connector (e.g. 'Fan SYS-1')</p> <p>Same as 'Display Name', key of hosted object</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Status:</i></p>	<p>Silk Print of the Fan Connector (e.g. 'Fan SYS-1')</p> <p>Same as 'Display Name', key of hosted object</p> <p>'Fan not installed'</p>



# Properties of the ServerView Out-Of-Band Server Integration Pack

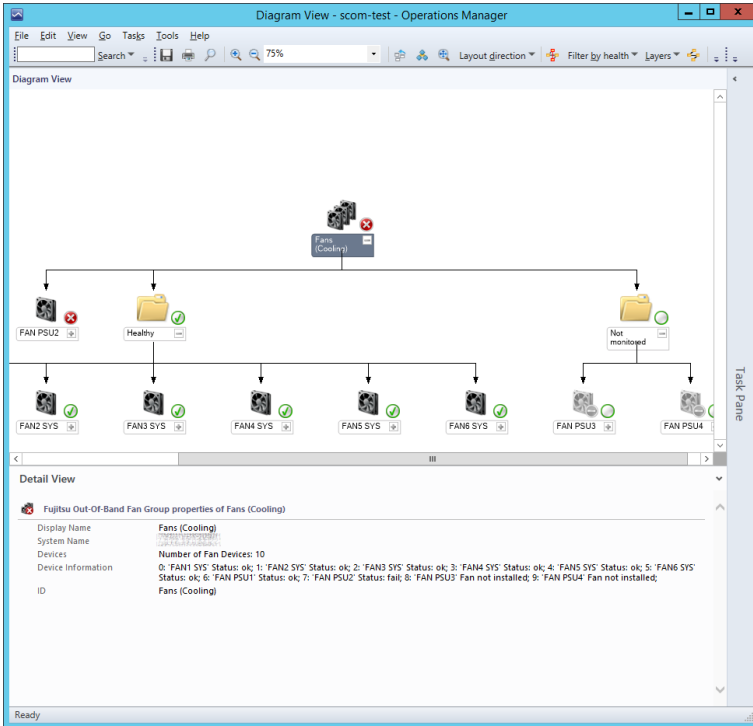


Figure 4 - Typical Fan Diagram View

## 4.5.1.4 Power Supplies

Power supply modules which physically exist are discovered, their data Asset information from PSU IDPROM data is displayed (if available within the iRMC), and their health state is monitored.






Power Supplies which are not populated are discovered as 'not present' component by default. Note: this can be changed with an override for the discovery.

Not present components are used to indicate possible build-to-order configurations of the PRIMERGY server and are not monitored.

Icon	Information	
	<i>Display Name:</i>	'Power Supplies'
	<i>ID:</i>	Same as 'Display Name', key of hosted group object

## Properties of the ServerView Out-Of-Band Server Integration Pack

Icon	Information	
		
	<i>Display Name:</i> <i>ID:</i> <i>Management URL:</i>	Silk Print of the PSU Connector (e.g. 'PSU 1') Same as 'Display Name', key of hosted object
	<i>Display Name:</i> <i>ID:</i> <i>Status:</i>	Silk Print of the PSU Connector (e.g. 'PSU 1') Same as 'Display Name', key of hosted object 'PSU not installed'

# Properties of the ServerView Out-Of-Band Server Integration Pack

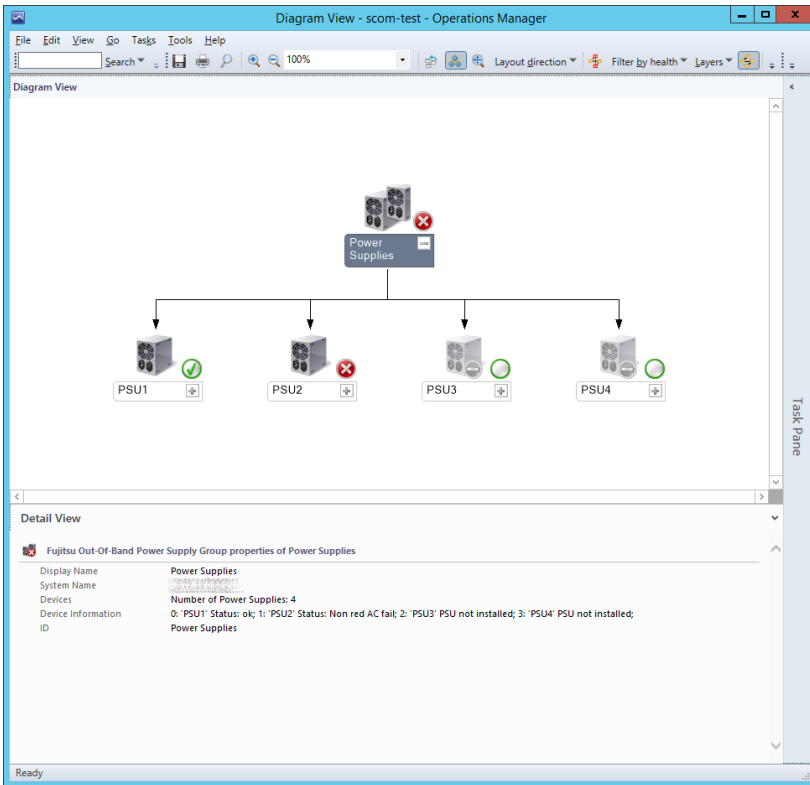


Figure 5 - Typical Power Supply Diagram View

## 4.5.1.5 Mainboard

Per server a single Mainboard Object is discovered, the Asset information for the Mainboard from the IDPROM data is displayed.




Since the Mainboard Object does not contain any direct health components, the Mainboard Object of the Out-Of-Band Server is not directly monitored by SCOM.



The Manufacturing Date information is not available with Redfish.

Icon	Information	
	<i>Display Name:</i>	Mainboard
	<i>ID:</i>	Same as 'Display Name', key of hosted object

Icon	Information	
	<i>Model:</i> <i>Manufacturer:</i> <i>Manufacturing Date:</i> <i>Part Number:</i> <i>Serial Number:</i> <i>Version:</i>	< e.g. 'D3349' > < e.g. 'Fujitsu' > < e.g. '2013/08/28 02:32:00' > < e.g. 'S26361-D3349-A100' > < e.g. 'QTFPK1133800038' > < e.g. 'B2A' >

### 4.5.2 Component Status Information

In addition to the hardware information mentioned in section [4.4.1](#) the iRMC provides various Component Status information about different subsystems monitored and consolidated internally by the iRMC.

A Component Status can be associated with a single component or can consolidate multiple sensor instances into a single Component Status. From an outside point of view a Component Status is defined by an IPMI Sensor Type, an IPMI Entity Id and Entity Instance which together uniquely identify the monitored Component/Subsystem.

For instance, while the iRMC internally monitors multiple different temperature sensors, all of these temperature sensors are consolidated into a single temperature Component Status instance. If any of the monitored temperature sensors reports a warning or critical condition, the temperature Component Status also indicates a warning or critical condition.

As a result, the number of objects to monitor from SCOM or any other Server Management Application can be reduced by monitoring only the consolidated Component Status instead of up to 20 temperature sensor instances.





The number of instrumented instances as well as the names of single Component Status instances is defined in the iRMC Sensor Data Record Repository (SDRR). All instances for which a typical server has multiple instances / fit into a specific category are grouped together. For reference you can use the 'ServerView Remote Management iRMC' task to see additional component status information and if the component has a LED for 'lightpath' indicator (see section [4.8.1](#) ).

## 4.5.2.1 Temperature Component Status

Due to the importance of Temperature sensors for the overall health state of a PRIMERGY server the temperature Component Status group is displayed directly below the Out-Of-Band Server object and the group object is instrumented as derived classes from the Health Collection class of the ServerView Core Library Management Pack.

Single Component Status instances with the Sensor Type of 'Temperature' are discovered and their health state is monitored.

Health Details are visualized in the '*Health Collection State*'View as well as in the '*Temperature Component Status*'View.

Icon	Information	
	<i>Display Name:</i> <i>ID:</i> <i>Devices:</i> <i>Device Information:</i>	Temperatures Same as 'Display Name', key of hosted group object <i>List of Temperature Component Status Names:</i>
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	< e.g. 'Temp' > Same as 'Display Name', key of hosted object < Temperature > < e.g. System > < e.g. 0 >

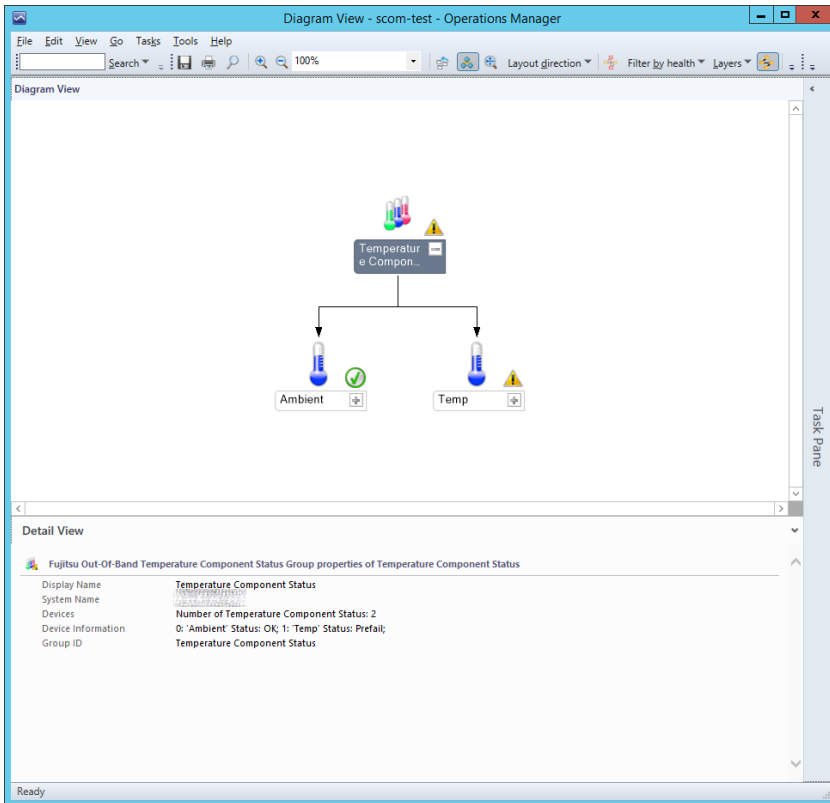


Figure 6 - Temperature Component Status

## 4.5.2.2 Voltage Component Status

Due to the importance of Voltage sensors for the overall health state of a PRIMERGY server the Voltage Component Status group is displayed directly below the Out-Of-Band Server object and the group object is instrumented as derived classes from the Health Collection class of the ServerView Core Library Management Pack.

Single Component Status instances with the Sensor Type of 'Voltage' are discovered and their health state is monitored.





Health Details are visualized in the *'Health Collection State'*View as well as in the *'Voltage Component Status'*View.



Since the CMOS Battery for the chipset and real time clock (RTC) of the server is considered a very important component for the server health, this typically has a

## Properties of the ServerView Out-Of-Band Server Integration Pack

separate Voltage Component Status.

Icon	Information	
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Devices:</i></p> <p><i>Device Information:</i></p>	<p>Voltage Components</p> <p>Same as 'Display Name', key of hosted group object</p> <p><i>List of Voltage Component Status Names</i></p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Sensor Type:</i></p> <p><i>Entity ID:</i></p> <p><i>Entity Instance:</i></p> <p><i>Management URL:</i></p>	<p>&lt; e.g. 'Voltages' &gt;</p> <p>Same as 'Display Name', key of hosted object</p> <p>&lt; Voltage &gt;</p> <p>&lt; System &gt;</p> <p>&lt; e.g. 0 &gt;</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Sensor Type:</i></p> <p><i>Entity ID:</i></p> <p><i>Entity Instance:</i></p> <p><i>Management URL:</i></p>	<p>&lt; e.g. 'Batt 3.0V' &gt;</p> <p>Same as 'Display Name', key of hosted object</p> <p>&lt; e.g. Voltage &gt; or &lt;Battery&gt;</p> <p>&lt; e.g. System &gt;</p> <p>&lt; e.g. 0 &gt;</p>
	<p><i>Display Name:</i></p> <p><i>ID:</i></p> <p><i>Sensor Type:</i></p> <p><i>Entity ID:</i></p> <p><i>Entity Instance:</i></p> <p><i>Management URL:</i></p> <p><i>Status:</i></p>	<p>&lt; e.g. 'BBU' &gt;</p> <p>Same as 'Display Name', key of hosted object</p> <p>&lt;Battery&gt;</p> <p>&lt; e.g. System &gt;</p> <p>&lt; e.g. 1 &gt;</p> <p>'Not Present'</p>

# Properties of the ServerView Out-Of-Band Server Integration Pack

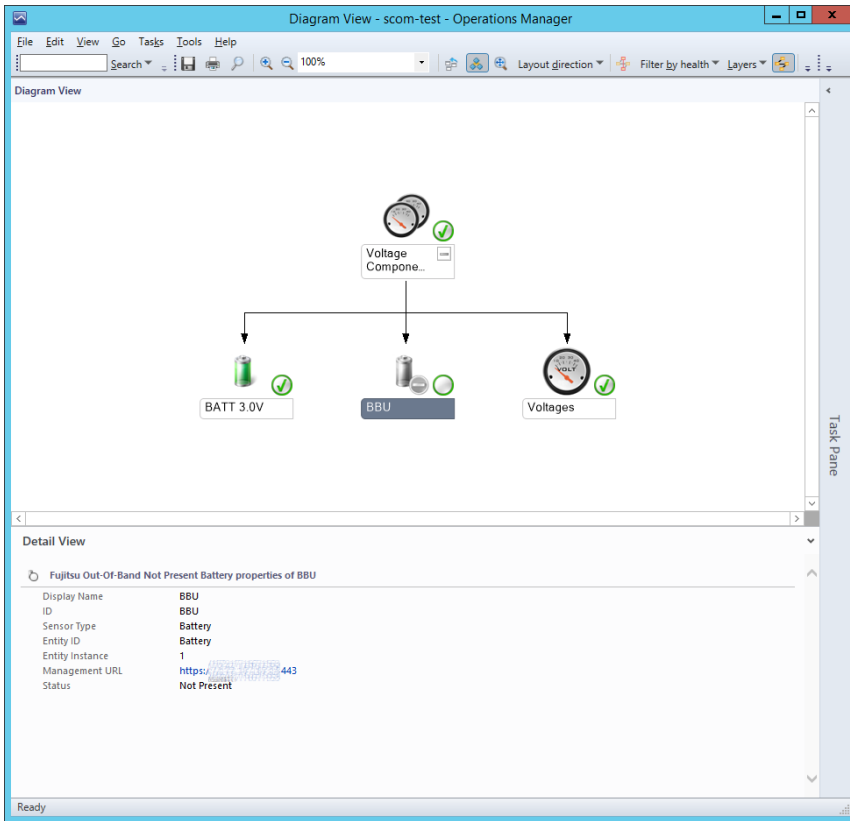



Figure 7 - Voltage Component Status

## 4.5.2.3 Other Component Status (Container Group)



The Other Component Status Object is a container/group object for all the remaining Component Status Objects.

Icon	Information	
	<p><i>Display Name:</i></p> <p><i>ID:</i></p>	<p>'Other Component Status '</p> <p>Same as 'Display Name', key of hosted group object</p>




## 4.5.2.4 Software Component Status

For each Component Status with the Sensor type of 'System Management Software' a Component Status instance is discovered and its health state is monitored.

Icon	Information	
	<i>Display Name:</i> <i>ID:</i>	'System Management Software' (Group) Same as 'Display Name', key of hosted group object
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	< e.g. 'ME' > Same as 'Display Name', key of hosted object < e.g. 'Management Subsystem Health'> < e.g. 'System Management Software' > < e.g. 0 >



## 4.5.2.5 'Power Monitoring' Component Status (Power Consumption)

Power Consumption is monitored if the iRMC supports power consumption monitoring and if the iRMC *Power Control Mode* is set to *Power Limit*. If the iRMC Power Control Mode is set to any other mode the Power Monitoring Component Status always shows OK.

Icon	Information	
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	<e.g. 'Power Level'> Same as 'Display Name', key of hosted object <> < Power Monitoring > < e.g. 2 >

## 4.5.2.6 'Power Unit' Component Status

Power Unit Component Status Objects are typically related to a redundant PSU configuration. They are discovered, their data is displayed and their health state is monitored.


Icon	Information	
	<i>Display Name:</i> <i>ID:</i>	'Power Unit Components' (Group) Same as 'Display Name', key of hosted group object
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	< e.g. 'PSU Config' > Same as 'Display Name', key of hosted object < e.g. 'Version Change' > < e.g. 'Power Unit / Power Domain' > < e.g. 0 >

## 4.5.2.7 PCIe Slot Components



PCIe Slot Component Status objects are related to the PCI Express (PCIe) Slots on the mainboard or Raiser/Expansion cards for BX or CX servers.



PCIe Slots which are not populated with an extension card are discovered as not present component. Not present components are used to indicate possible build-to-order configurations of the PRIMERGY server and are not monitored.


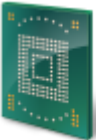
Icon	Information	
	<i>Display Name:</i> <i>ID:</i>	'Slot Components' (Group) Same as 'Display Name', key of hosted group object

## Properties of the ServerView Out-Of-Band Server Integration Pack


Icon	Information	
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	Silk Print of the PCIe Connector < e.g. 'Slot 2' > Same as 'Display Name', key of hosted object < e.g. 'Critical Interrupt' > < e.g. 'PCI Express Bus'> < e.g. 1 >
	<i>Display Name:</i> <i>ID:</i> <i>Status:</i>	Silk Print of the PCIe Connector < e.g. 'Slot 2' > Same as 'Display Name', key of hosted object 'Empty Slot'

### 4.5.2.8 Miscellaneous Component Status Objects

Other sub-classed Component Status objects which are visualized with a different icon are shown in the list below.

Icon	Information	
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	Used for 'BIOS' Component Status Objects
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	Used for 'System Management Controller' Component Status Objects

## Properties of the ServerView Out-Of-Band Server Integration Pack

Icon	Information	
	<i>Display Name:</i> <i>ID:</i> <i>Sensor Type:</i> <i>Entity ID:</i> <i>Entity Instance:</i> <i>Management URL:</i>	<i>Used for 'Other' Component Status Objects</i>

### 4.5.2.9 Out-Of-Band RAID Subsystem

See Out-Of-Band Server - RAID Management Pack documentation.

### 4.5.2.10 Out-Of-Band RAID Logical Drive

See Out-Of-Band Server - RAID Management Pack documentation.

### 4.5.2.11 Out-Of-Band RAID Physical Disk

See Out-Of-Band Server - RAID Management Pack documentation.

### 4.5.2.12 Out-Of-Band RAID Enclosures

See Out-Of-Band Server - RAID Management Pack documentation.

## 4.5.3 Updating the state of the hardware subsystems

By default, the configuration of the hardware components of a PRIMERGY server is discovered automatically every 4 hours. The discovery interval can be changed with an override.

Set the server in maintenance mode for a brief period. Once the maintenance mode has elapsed, SCOM automatically discovers the hardware components again. Alternatively change the discovery interval to force an update by performing a (temporary) override for the 'Management Pack Object Type: Discovery' → 'Target: Fujitsu Out-Of-Band Server'.

### 4.5.4 Software Services

The iRMC has no information about installed services running inside the Operating System of the Out-Of-Band Server except the available 'Software' Component Status object instances (see section 4.5.7) which typically only indicate a very high level point of view.

### 4.5.5 Monitoring hardware components

Hardware components are monitored by means of a PowerShell Script which evaluates the Health Status reported by the iRMC for the component. By default monitoring this script is called at regular intervals (default is 300 seconds; settable via override).

All hardware components are collected in a *Health Collection* and are displayed in the Health Explorer (see section 4.7).

If the monitoring function reports the *Warning or Critical* state for a component, a corresponding alert is generated. This can be changed with an override.

When the component returns to the *OK* state, the alert is resolved and is no longer displayed in the *Active Alerts* view (see section 4.6.1.1).



While separate Monitors have been defined for CPU / Memory Modules / Fans / Power Supplies and the Mainboard object, all Hardware Monitors share the same Data Source and SCOM internally uses a feature called 'Cookdown' to reduce the overhead when running multiple workflows per object. So only a single instance of the script is run to determine the health state of *all* hardware components together. Keep this in mind when overriding the monitoring interval of single monitors and if possible change all of them to the same value to preserve the 'Cookdown' optimization. A technical description of the 'Cookdown' mechanism of SCOM can be found on Microsoft's [TechNet](#).

### 4.5.6 Monitoring 'Component Status' information

Similar to the Hardware Component monitoring the Component Status objects are monitored together in a PowerShell script which collects the health information for all objects and supports Cookdown.

If the monitoring function reports the *Warning or Critical* state for a Component Status object, a corresponding alert is generated. This can be changed with an override.

When the Component Status returns to the *OK* state, the alert is resolved and no longer displayed in the *Active Alerts* view (see section 4.6.1.1).

### 4.5.7 Monitoring Software Services

The iRMC has no information about installed services running inside the Operating System of the Out-Of-Band Server except the available 'Software' Component Status information. Software Component Status objects are monitored together with the Component Status Monitoring Script.

The health state of the Software Component Status instances can be displayed in the 'Management Software Component Status' Health View below the 'Other Component Status Health' View Folder (see page 49).

### 4.5.8 'Health State Valid' Monitors

SCOM monitors support setting the health state of an object to one of the following values: OK (Success), Warning or Error. Unfortunately not all responses from the iRMC can always be mapped to one of these health states, e.g. when the servers power state is off a sensors might not deliver a valid reading so the current health state is 'Unknown' or when a component status instance has an Identification LED (Lightpath) and this LED has been turned on the original health state from the component status cannot be retrieved since the status 'identify' is reported instead of the health state.

In order to report these conditions the Out-Of-Band Management Pack defines additional health state valid monitors in addition to the regular health monitors for all the server hardware component and component status instances.

If the health state of a monitored object cannot be retrieved multiple times in a row this monitor will set the health state to Warning and an alert is generated. The monitor will reset itself to a healthy state if a valid health state has been reported from the iRMC for the component.

You can change the settings for these monitors with an override.



When you change the configuration for a hardware component or the component status monitor keep in mind that you also might also need to re-configure the values for the associated health state valid monitor.

## 4.5.9 Monitoring Repeated Communication Problems

In addition to the monitors for all the hardware component instances and the Component Status instances the Out-Of-Band Management Pack also contains monitors for multiple event log entries within a certain time period in relation to specific components. For instance, if the Processor information cannot be retrieved from the iRMC an event log entry is created (see section 5.2). If there are multiple events within the specified period of time with the same event number and the same Out-Of-Band Server IP in the event data the Health State of the Communication Monitor Object is set and a Warning alert is generated.

The monitors will reset itself to a healthy state if there are no more event log entries written within a second configurable timespan. The default value for health related monitors is 1000 seconds which is slightly larger than 3 times the default health monitoring period of 300 seconds. The default value for performance collection is 3000 seconds which is slightly larger than the default performance collection interval of 900 seconds.

You can change the settings with an override.



When you change the configuration for a hardware component or the component status monitor or the performance collection rules keep in mind that you also might also need to re-configure the values for the associated repeated communication monitor.

Repeated Communication Problem	Repeat Count	Time Interval in Seconds	Remarks
Processor	3	3600 (1 hour)	Detected and logged during Discovery and as fallback when Component Status information is not used or not available in Hardware Component Monitoring.
Memory	3	3600 (1 hour)	Detected and logged during Discovery and as fallback when Component Status information is not used or not available in Hardware Component Monitoring.
Fans	3	3600 (1 hour)	Detected and logged during Discovery and as fallback when Component Status information is not used or not available in Hardware Component Monitoring.
Power Supplies	3	3600 (1 hour)	Detected and logged during Discovery and as fallback when Component Status

## Properties of the ServerView Out-Of-Band Server Integration Pack

Repeated Communication Problem	Repeat Count	Time Interval in Seconds	Remarks
			information is not used or not available in Hardware Component Monitoring.
Component Status	10	3600 (1 hour)	Detected and logged during Discovery and during Component Status Monitoring as well as during Hardware Component Monitoring.
RAID	3	3600 (1 hour)	Detected and logged during RAID Status Monitoring. Optional, only when Management Pack is installed
SDR (Sensor Data Records)	3	7200 (2 hours)	Detected and logged during performance data collection. Optional, only when Performance Collection Management Pack is installed and System Report interface is used
Temperature	3	7200 (2 hours)	Detected and logged during performance data collection. Optional, only when Performance Collection Management Pack is installed
Power Consumption	3	7200 (2 hours)	Detected and logged during performance data collection. Optional, only when Performance Collection Management Pack is installed

## 4.6 Views

The health state in all views is displayed by the usual health state icons of the Operations Manager.



### 4.6.1 Views defined by the Fujitsu ServerView Core Library MP

When integrating the *Fujitsu ServerView Core Library* Management Pack a *Fujitsu ServerView Systems* node is created in the *Monitoring* pane of the SCOM Console. The following views are displayed in this node:

- Active Alerts
- Health Collection State
- Servers Diagram
- Systems State

These views display all objects which are assigned to the class the particular view targets. Which systems this class comprises depends on the further Fujitsu Management Packs that have been installed, e.g. the *Fujitsu PRIMERGY Out-Of-Band Servers* Management Pack.

The views installed by the *Fujitsu ServerView Core Library* Management Pack comprise all systems that are targeted by Management Packs that depend on the *Fujitsu ServerView Core Library* Management Pack and aim for an easy overview of all Fujitsu systems.

#### 4.6.1.1 Active Alerts View

The *Active Alerts* view displays all alerts which are assigned to the Fujitsu PRIMERGY Out-Of-Band Server class. Only alerts which have the resolution state *Not Closed* are displayed.

The following causes can trigger an alert:

- If a component monitor is in the *Critical* state and a corresponding alert is displayed for this component.  
This alert is "auto-resolving": As soon as the cause has been resolved, the alert is no longer displayed in the view.
- An event for which a rule is defined in the Management Pack is entered in the Windows Event Log of a monitored server. These alerts remain in the display until they are explicitly closed.

By default alerts are only generated by events which have been entered in the Windows Event Log (Application, Operations Manager or System) with the severity *Critical (Error)*. Events with the severity *Warning* can also be displayed if they are enabled by the user with an override for the monitor.

# Properties of the ServerView Out-Of-Band Server Integration Pack

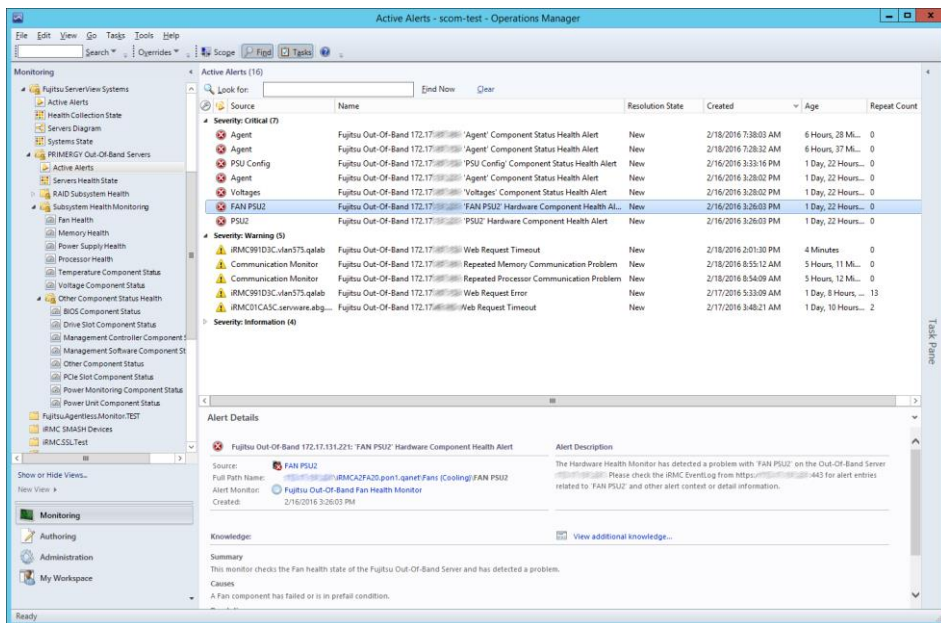


Figure 8 - Active Alerts View

Alerts which are placed in the resolution state *Closed* no longer appear in the *Active Alerts* view.

For some alerts Alarm Suppression is enabled. In this case, the alert is only reported once. Any next alert of this type causes the *Repeat Count* to be increased. To display the *Repeat Count* column use the *personalize view* setting.

## 4.6.1.2 Health Collection State Views

The *Health Collection State* views display the health state of the hardware components class the particular view targets.

A Health Collection provides some summary information regarding the grouped items with the *Devices* and *Device Information* property. The Out-Of-Band Management Pack provides the following specific information based on the components grouped together:

Health Collection	Devices	Device Information
<b>Processor</b> (full information)	List of <Index: Silk Print> e.g. 0: 'CPU1'	List of <Index: Model Phys. Cores: X Log. Threads: Y> e.g. 0: Intel(R) Xeon(R) CPU E3-1220 v5 @

## Properties of the ServerView Out-Of-Band Server Integration Pack

Health Collection	Devices	Device Information
		3.00GHz Phys. Cores: 4, Log. Threads: 4;
<b>Processor</b> (Processor information not available from BIOS, reboot required)	List of <Index: Silk Print> e.g. 0: 'CPU1'	List of <Index: 'Silk Print'> e.g. 0: 'CPU1'; 1: 'CPU2'
<b>Memory</b> (full information)	Overall Memory: XX e.g. Overall Memory: 40 GB	Memory Types: List of <'Type': Count> e.g. Memory Types: '8 GB': 4, '4 GB': 2
<b>Memory</b> (memory information incomplete, e.g. no SPD data, but some information available to the BMC)	Number of Memory Devices: N e.g. Number of Memory Devices: 2	List of <Index: 'Silk Print' > e.g. 0: 'DIMM-1A'; 1: 'DIMM-1B'
<b>Memory</b> (Information not available from BIOS, reboot required)	N/A	N/A
<b>Fans (Cooling)</b>	Number of Fan Devices: N	List of <Index: 'Silk Print'> e.g. 0: 'Fan SYS1'; 1: 'Fan PSU1'
<b>Power Supplies</b>	Number of Power Supplies: N	List of <Index: 'Silk Print'> e.g. 0: 'PSU1'; 1: 'PSU2' PSU not installed;
<b>Temperature Component Status</b>	Number of Temperature Component Status: N	List of <Index: 'Name'> e.g. 0: 'Ambient'; 1: 'Temperatures';
<b>Voltage Component Status</b>	Number of Voltage Component Status: N	List of <Index: 'Name'> e.g. 0: 'BATT 3.0V'; 1: 'Voltages';

# Properties of the ServerView Out-Of-Band Server Integration Pack

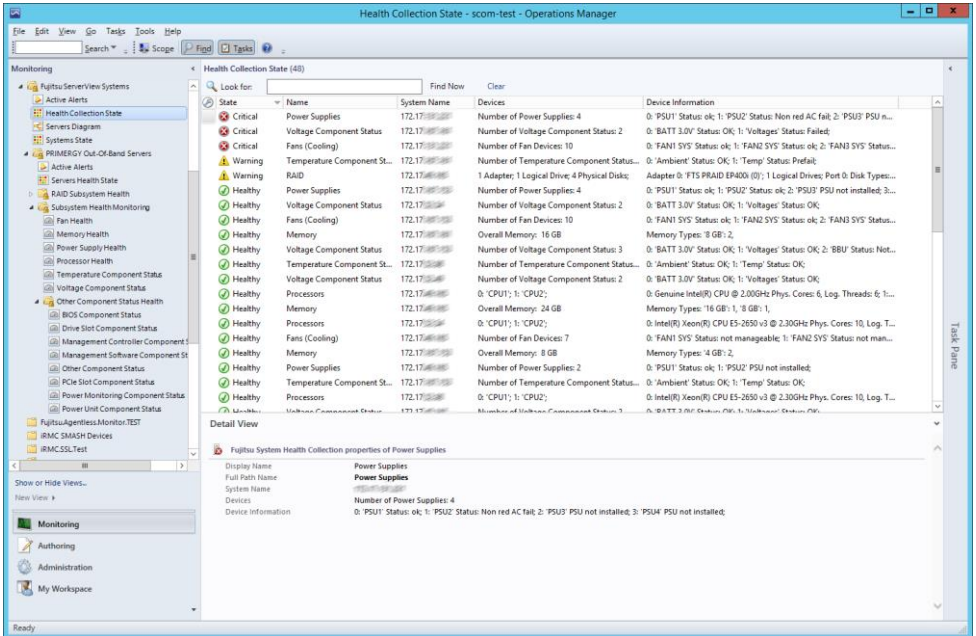



Figure 9 - Health Collection State View

 Since the Out-Of-Band Management Pack has different sources for information not all Health Collections will contain identical information compared to an in-band based Management Pack.

## 4.6.1.3 Servers Diagram View

*Servers Diagram* view is the graphical presentation of the complete Fujitsu systems infrastructure. The connection of Fujitsu systems to PRIMERGY servers to model groups and the connection of the components to the PRIMERGY servers are presented here.

When systems are included in a group, this is indicated by a non-empty circle near the computer symbol. This group can be expanded further to display the existing systems:

The state of the hardware and software components of a server is also shown in the *Servers Diagram* view. The components are displayed graphically together with the assigned server.

Components which are in a healthy state are included in the healthy group beneath the associated server.

# Properties of the ServerView Out-Of-Band Server Integration Pack

If more than one component is in the *Warning* or *Critical* state, these are collected in the corresponding groups and also presented (simultaneously) beneath the PRIMERGY server.

The discovered instances of a component and various properties are displayed in the *Detail View* below the component representation.

## 4.6.1.4 Systems State View

The *Systems State* view displays the state of all PRIMERGY servers which are assigned to the class the particular view targets and includes instances from all installed Integration Management Packs (e.g. Windows Servers, Linux Servers, ESXi Servers etc.).

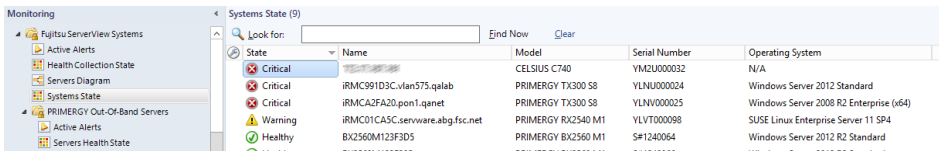


Figure 10 - Systems State View

The properties of the selected PRIMERGY server are displayed in the Details View below this view.

## 4.6.2 Views defined by the Fujitsu PRIMERGY iRMC - Base Management Pack

This Management Pack creates a new Folder in the Monitoring pane of the SCOM console with the name '*Fujitsu iRMC Monitoring*'.

The views installed by the Fujitsu PRIMERGY iRMC - Base Management Pack target and display PRIMERGY iRMC only.

The following views are displayed in this node:

- Active Alerts:  
Alerts for the iRMC device and when the Out-Of-Band Server Base Management pack is installed for components of the Fujitsu PRIMERGY server.
- Events:  
Events created from the templates during iRMC discovery or template modifications.
- iRMC State (Base Device):  
This view displays the properties of the iRMC Device which are discovered during the initial template discovery. These properties (such as the server serial) do not change after the initial template discovery.

- iRMC State (Extended Device): Some properties such as the iRMC Firmware Version or Asset Tag can change over time. In order to update these properties in SCOM a discovery targeting the iRMC device will collect and update these properties in an extended iRMC device. This view displays the properties of this extended iRMC device.

### 4.6.3 Views defined by the Fujitsu PRIMERGY Out-Of-Band Management Pack

When integrating the Fujitsu PRIMERGY Out-Of-Band Servers Management Pack a new node PRIMERGY Out-Of-Band Servers is created below the Fujitsu ServerView Systems node in the Monitoring pane of the SCOM Console.

The views installed by the Fujitsu PRIMERGY Out-Of-Band Servers Management Pack target and display PRIMERGY Out-Of-Band Servers only.

The following views are displayed in this node:

- Servers Health State
- Health Monitoring

#### 4.6.3.1 Servers Health State

This view presents an overview about all Out-Of-Band Servers and the health of the subsystems which are propagated to the Server object.

# Properties of the ServerView Out-Of-Band Server Integration Pack

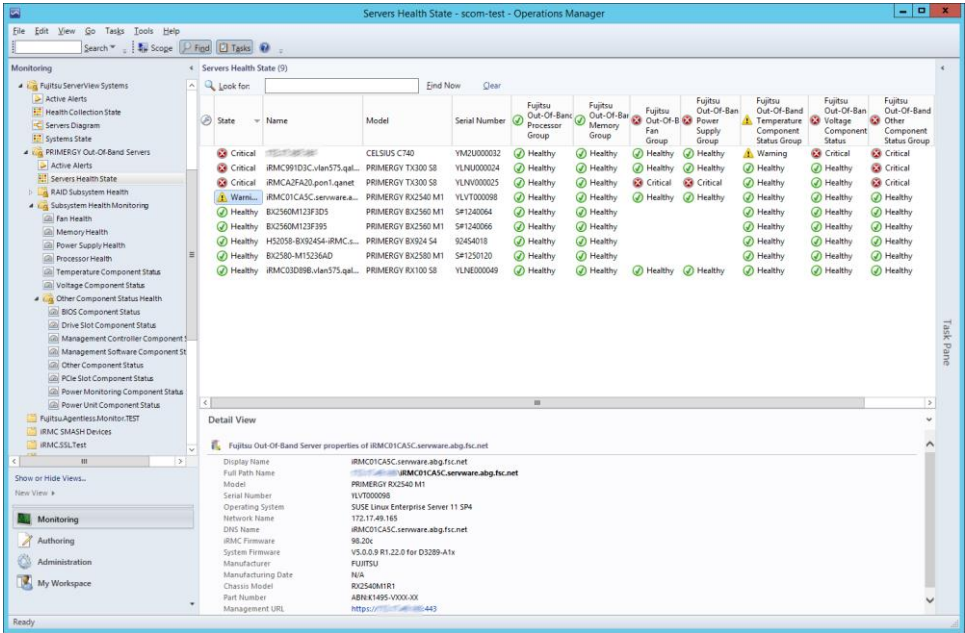


Figure 11 - Servers Health State View

## 4.6.3.2 Health Monitoring

This folder contains subsystem component specific views. Components can be hardware components such as CPU / Memory / Fans / Power Supplies or Component Status based objects.

# Properties of the ServerView Out-Of-Band Server Integration Pack

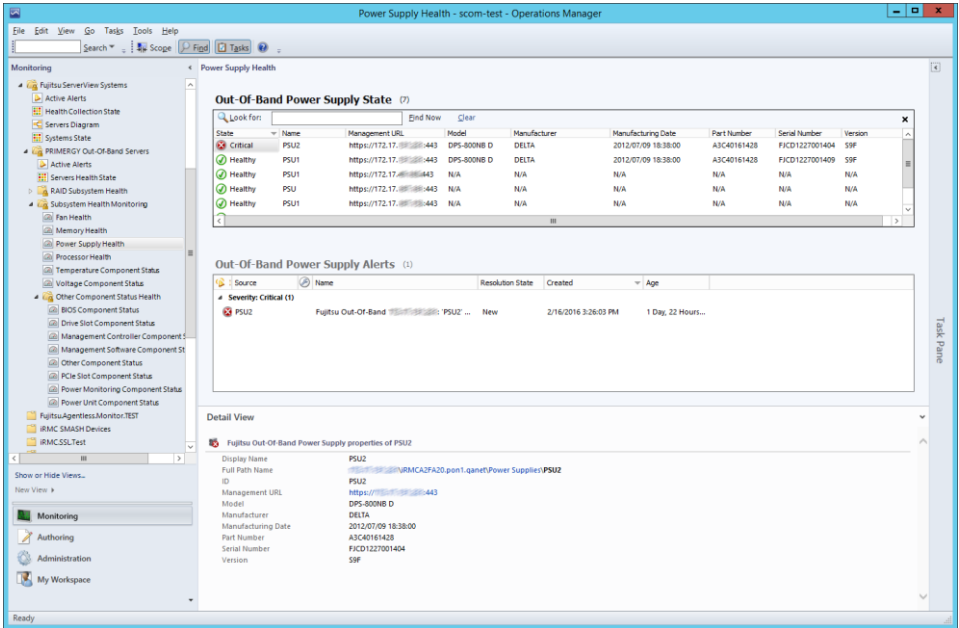


Figure 12 - Subsystem Specific Health Monitoring View

## 4.7 Health Explorer

The Health Explorer can be started from various views. It shows the components and dependencies in a tree structure. When components are in the *Warning* or *Critical* state, the corresponding subdirectories are automatically expanded in the display.

Two different displays are possible in the right-hand window of the Health Explorer: *Knowledge* and *State Change Events*. Information on what the monitor displays and which actions (resolutions) are possible and recommended is provided under the *Knowledge* tab.

All state transitions (*OK* <-> *Degraded* <-> *Error*) of the component selected from the navigation window on the left are displayed under the *State Change Events* tab. The state change is only shown for the first component responsible for the state change.

If the state is not *OK*, the component is placed in the *Degraded* or *Error* state and the faulty instance(s) are listed in the Health Explorer. If two or more components show different health states, the instance with the severest error determines the overall status of the group.



# Properties of the ServerView Out-Of-Band Server Integration Pack

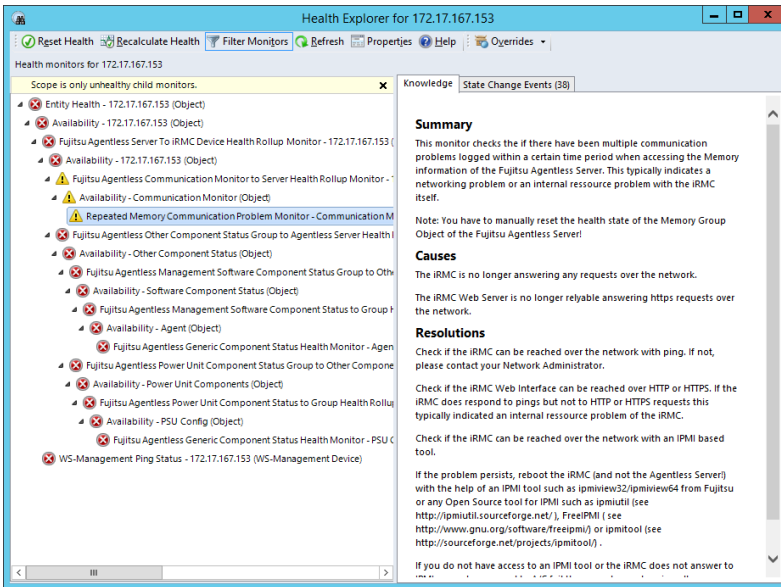


Figure 13 - Health Explorer

## 4.8 Fujitsu PRIMERGY Out-Of-Band Server Tasks

Tasks are actions which can be displayed and executed in different views. They are displayed in the *Actions* window when a PRIMERGY Out-Of-Band Server is highlighted or when an iRMC Device is selected.

Tasks within the context of the PRIMERGY Out-Of-Band Servers:

- ServerView Remote Management iRMC
- ServerView Remote Management iRMC Video Redirection
- ServerView Remote Management iRMC System Report

### 4.8.1 ServerView Remote Management iRMC

This task is used to start the default Browser with the Management URL of the selected Out-Of-Band Server. Detailed information about the current Server health is available within the iRMC

Web Interface, including but not limited to: Current Sensor Data, Event Log, internal Event Log, FRU/IDPROM (Asset) information, User Management, Power History etc.

### 4.8.2 ServerView Remote Management iRMC Video Redirection

This task is used to download and open the avr.jnlp file from the iRMC Web Interface with the default Browser and open the file. Depending on the iRMC configuration this will launch the AVR with Java Web-Start or as HTML5 compatible viewer. An installed Java Runtime Environment (JRE) is required on the Management Console when Java Web Start is used.



Please make sure that you have installed a valid AVR License on the iRMC of the Out-Of-Band Server.

### 4.8.3 ServerView Remote Management iRMC System Report

This task is used to download and view the System Report data which is also used as a technical base for the Out-Of-Band Management Pack.

### 4.8.4 Ping Fujitsu Out-Of-Band Server

This task uses ping.exe and can be used to verify basic network connectivity to the iRMC of the Fujitsu Out-Of-Band Server.

### 4.8.5 Ping Fujitsu Out-Of-Band Server (with route)

This task uses pathping.exe and can be used to verify basic network connectivity to the iRMC of the Fujitsu Out-Of-Band Server. pathping.exe provides additional information such as the network route and statistics information compared to ping.exe.

# 4.9 Power Management Tasks

The following Power Management Tasks are available within the context of the PRIMERGY Out-Of-Band Server or iRMC Device:



Starting with Version V8.1 of the Out-Of-Band Server Integration Pack the Power Management Tasks are distributed as an optional add-in Management Pack which can be installed on demand.



Power Management Tasks require that the configured iRMC user account has at least 'Operator' privilege. This is a requirement from the IPMI Specification.

- Remote Server Power On
- Remote Server Power Off
- Remote Server Power Cycle
- Remote Server Reset
- Request Server Reboot (requires ServerView Agents)
- Request Server Shutdown (requires ServerView Agents)

## 4.9.1 Remote Server Power On

This task can be used to remotely power on the Out-Of-Band Server via the scripting interface.

## 4.9.2 Remote Server Power Off

This task can be used to remotely power off the Out-Of-Band Server via the scripting interface.



Please make sure that all users of the Out-Of-Band Server have been notified and have saved their work before using this task.

### 4.9.3 Remote Server Power Cycle

This task can be used to remotely power cycle the Out-Of-Band Server via the scripting interface.



Please make sure that all users of the Out-Of-Band Server have been notified and have saved their work before using this task.

### 4.9.4 Remote Server Reset

This task can be used to remotely reset the Out-Of-Band Server via the scripting interface.



Please make sure that all users of the Out-Of-Band Server have been notified and have saved their work before using this task.

### 4.9.5 Request Server Reboot (requires ServerView Agents)

This task can be used to request a graceful reboot of the Out-Of-Band Server via the installed and running ServerView Agents.



Please make sure that all users of the Out-Of-Band Server have been notified and have saved their work before using this task.

## 4.10 Overrides

Customization of Monitors, Rules and the Discovery can be done with Overrides. As recommended, always create an override Management Pack first for customization and save any customization to this new Management Pack. Then configure the overrides according to your monitoring needs and scenarios.

The Out-Of-Band Management Pack provides the following override options:

### 4.10.1 Discovery Overrides

The following discovery overrides are supported:

- *Interval Seconds:*  
Interval in Seconds for the discovery script to run. The default is 14400 Seconds (every 4 hours).
- *Timeout Seconds:*  
Timeout in Seconds for the workflow / discovery PowerShell script. The default is 600 Seconds (10 Minutes).
- *Use DNS Name As Display Name:*  
Use the iRMC DNS Name (if available) as 'Display Name' of the Out-Of-Band Server object instance instead of the IP Address.
- *Use DNS Name As Network Name:*  
Use the iRMC DNS Name (if available) as 'Network Name' of the Out-Of-Band Server object instance instead of the IP Address.  
Note: Since a DNS Name can be associated with multiple IPv4 or IPv6 addresses use this override with care since the Network Name is defined as key for the ServerView Server Class in the Fujitsu.ServerView.Library Management Pack.
- *Discover Not Present Processors:*  
Include Not Present Processors in the discovery of the Fujitsu Out-Of-Band Server components
- *Discover Not Present Fans:*  
Include Not Present Fans in the discovery of the Fujitsu Out-Of-Band Server components
- *Discover Not Present Power Supplies:*  
Include Not Present Power Supplies in the discovery of the Fujitsu Out-Of-Band Server components

### 4.10.2 Monitor Overrides

The following standard monitor overrides are supported:

- **Interval Seconds:** Interval in Seconds when the monitor PowerShell scripts are executed. The default value is 300 Seconds (every 5 Minutes).
- **Timeout Seconds:** Timeout in Seconds for the workflow / monitor PowerShell script.

### 4.10.3 Health State Valid Monitor Overrides

The following standard monitor overrides are supported:

- Interval Seconds: Interval in Seconds when the monitor PowerShell scripts are executed. The default value is 300 Seconds (every 5 Minutes).
- Timeout Seconds: Timeout in Seconds for the workflow / monitor PowerShell script.
- Consolidator Count: Number of consecutive health state not valid to trigger a monitor state change. The default value is 3.
- Consolidator Time Window: Sliding Window in Seconds during which the consecutive health state not valid has to occur in order to trigger a monitor state change. The default is 1000 Seconds which is slightly larger than 3 times the default monitoring interval.

### 4.10.4 Rule Overrides

Rules can be disabled with an override to the standard 'Enabled' value.

## 4.11 Events and alerts



This section applies only to alerts for which rules are defined in the Management Pack(s).

Alerts remain visible in the *Active Alerts* view until they are explicitly closed (assigned the resolution state *Closed*).

### 4.11.1 Enabling and disabling alerts

By default all the events with the severity *Critical* generate an alert, and all the events with the severity *Warning* generate no alert.

To change the default settings override them in the Authoring section of the SCOM Console. The overrides must then be stored in a custom Management Pack which is writable.

## 4.12 Knowledge Base


A Knowledge Base is provided for the events and alerts. Depending on the alert various possible resolutions / actions after error are displayed.


## 5 Appendix

### 5.1 Supported PRIMERGY servers

The ServerView Out-Of-Band Server Integration Pack is supported for iRMC S4 with firmware 8.24F or later and iRMC S5 based PRIMERGY servers.

Please refer to the iRMC Firmware release notes for detailed information on PRIMERGY support.

 Unsupported iRMC firmware versions will create an event log entry and an informational alert in the SCOM server. You can see this alert in the 'Active Alerts' View of the Monitoring Pane in the SCOM Console.

 It is recommended to update to the latest iRMC firmware versions.

### 5.2 Entries in the Operations Manager's Event Log

The PowerShell Scripts for discovering and monitoring the PRIMERGY Out-Of-Band Servers and their components write messages to the Operations Manager's Event Log when an error occurs.

These entries can be found on the monitored servers under the name *Health Service Script*, while the message text specifies which Script generated the message.

Rules defined in the Management Pack check the event log for the above mentioned entries, which, if present, are displayed in the *Active Alerts* view.

The following table lists the used error numbers from the Out-Of-Band Management Pack:

Error Number	Script Name	Description
8009	ServerDiscovery.ps1	Used to log an unsupported firmware version.



Error Number	Script Name	Description
8011	HardwareComponentHealth.ps1 ComponentStatusHealth.ps1	Used to log generic problems encountered during Monitor Script execution, like exceptions or no data.
8017	ServerDiscovery.ps1	Used to log generic Script problems encountered during Discovery execution, like exceptions or no data.
8039	ServerDiscovery.ps1	Used to indicate that Memory Information not initialized in the iRMC. A Server Reboot will be required in order to provide memory information during BIOS/POST phase.
8049	ServerDiscovery.ps1 HardwareComponentHealth.ps1	No Fan Information available. If this is a repeated event, an alert will be generated.
8059	ServerDiscovery.ps1 HardwareComponentHealth.ps1	No Memory Information available. If this is a repeated event, an alert will be generated.
8069	ServerDiscovery.ps1 HardwareComponentHealth.ps1	No Processor Information available. If this is a repeated event, an alert will be generated.
8079	ServerDiscovery.ps1 HardwareComponentHealth.ps1	No Power Supply Information available. If this is a repeated event, an alert will be generated.
8089	ServerDiscovery.ps1 ComponentStatusHealth.ps1	No Component Status Information available. If this is a repeated event, an alert will be generated.
8123	ServerDiscovery.ps1	No Config Information available
8299	All (Logging/Tracing)	Error parsing trace/logging XML configuration file.
8399	All (WebRequest)	SSL Certificate Error (CA related)
8499	All (WebRequest)	SSL Certificate Error (CN related)

Error Number	Script Name	Description
8599	All (WebRequest)	Used to indicate 'no response' from the iRMC after retries. This is typically the case when the https handshake is aborted internally within 5 seconds and retries could not solve the problem.
8699	All (WebRequest)	Used to indicate invalid credentials for the iRMC access.
8799	All (WebRequest)	Used to indicate a timeout when accessing an iRMC resource, e.g. when the iRMC is not reachable from the network.
8999	All (WebRequest)	Used to indicate 'iRMC Busy'. The Web Server has responded with the 503 HTTP status code (Service Unavailable). This HTTP response is returned when there is no connection slot available to handle the request or the iRMC is out of resources.

## 5.3 Creating test entries in the Windows Event Log

To check whether an rule alert is enabled, disabled, or recognized, you can create test entries for these events in the Event Log of the relevant server using PowerShell.

The easiest way of doing so is by using the Operations Manager Shell.

See also <https://msdn.microsoft.com/en-us/library/bb437630.aspx> for details of the parameters.

- Open a 'Operations Manager Shell' window
- In this Power Shell window type the following commands (replace parameters as needed)
  - `$ScriptApi = New-Object -comObject "MOM.ScriptAPI"`
  - `$ScriptApi.LogScriptEvent("Event Source String" , 4711, 2, "Event Message String")`

## 5.4 Creating log files

Log files can be created for error analysis. The log files are stored in the subdirectory *SVISCOM\SVISCOM-Out-Of-Band* of the directory entered in the system environment variable *TEMP*. Usually this is the *C:\Windows\TEMP* directory (where *C:* represents the system partition in this example).

Logging options are defined in the file *SVISCOM-OutOfBand.xml* in this folder. If the file does not exist or was created by an older version of the Management Pack, a copy of the file with the name *SVISCOM-OutOfBand.xml\_* is generated on the SCOM server in the *%TEMP%\SVISCOM\SVISCOM-Out-Of-Band* folder.



Note that changes to the logging options will only be added to the *SVISCOM-OutOfBand.xml\_* file. *SVISCOM-OutOfBand.xml* from an older version of the ServerView Out-Of-Band Server Integration Pack may need to be updated accordingly.

*SVISCOM-OutOfBand.xml\_* contains debug options for all discovery and monitoring features of the management pack. See *SVISCOM-OutOfBand.xml\_* on the SCOM server for details.

In the case of error analysis using log files proceed as follows.

- ▶ Rename *SVISCOM-OutOfBand.xml\_* on the SCOM server to *SVISCOM-OutOfBand.xml*. If *SVISCOM-OutOfBand.xml* already exists, check that all options of *SVISCOM-OutOfBand.xml\_* also exist in the existing version of *SVISCOM-OutOfBand.xml*.
- ▶ Check the debug options (documented in detail within the *SVISCOM-OutOfBand.xml\_* file) for each feature to be monitored and set to the desired value.

The following log files are created as required:

- *ServerDiscoveryTrace\_<servername>.log*
- *ComponentStatusHealthTrace\_<servername>.log*
- *HardwareComponentHealthTrace\_<servername>.log*
- *WARNINGTrace\_<servername>.log*
- *ERRORTrace\_<servername>.log*

These files must be sent to Fujitsu Support for further analysis.

If you wish to disable the creation of log files again, delete or rename *SVISCOM-OutOfBand.xml* or change the logging options within the file.



Note that the *WARNINGTrace\_* and *ERRORTrace\_* files will only be created on demand if the scripts detect a warning or error condition during script execution and any logging

is enabled for the Out-Of-Band server.

## 5.4.1 Currentness of log files

When Fujitsu Management Packs are imported log files are generated promptly only if the initialization file is already available.

If the management pack already is imported log files are generated depending on the execution interval if the discovery or monitoring scripts.

In the worst case, 24 hours are necessary for all log files to be generated.



The server and component discovery is executed by default every 4 hours.

After the component discovery was successful, monitoring is run every 5 minutes.

### **Alternatively:**

To create a current set of discovery log files, put the server in maintenance mode for a short time and let SCOM exit the maintenance mode. SCOM executes the server and component discovery automatically after maintenance mode has ended.

# 6 Troubleshooting the Fujitsu Out-Of-Band Management Pack

## 6.1 Use the iRMC Web Interface to examine a PRIMERGY Server

If a PRIMERGY server seems to have a problem (e.g. the PRIMERGY Overall State is in Warning or Critical condition) and the cause of this problem cannot be determined via SCOM, it may help to use the iRMC Web Interface for closer examination, especially examining the System Event Log and/or the internal Event Log. The System Event Log also contains a list of known root causes and recommended actions for Major and Critical Events.

Highlight the server and use the 'ServerView Remote Management iRMC' console task to start the iRMC Web Interface.

## 6.2 Java Runtime Environment (JRE)



Alternatively to using Java Web Start you can configure the iRMC to use HTML5 for Advanced Video Redirection (AVR).

The iRMC Advanced Video Redirection can run as Java Application in the Java Web-Start context which is a separate process from the browser (as opposite to a Java Applet which runs in the browser's process space). Java Web-Start is part of the regular Java Runtime Environment. If your actual installed JRE does not support Java Web-Start please install an alternative JRE which does support Java Web-Start (e.g. Oracle Java Runtime Environment).

### 6.3 Enable / Disable Windows Installer Logging (Debug)

In case there are problems with the installation procedure refer to the following Microsoft knowledge base article (<http://support.microsoft.com/kb/223300>) that describes how to enable and disable logging.

### 6.4 Hints and known issues

- Tasks which report a failed result via non zero exit code are still listed as Success in the 'Task Status' view (e.g. the request for a graceful shutdown will fail if no ServerView Agents are installed in the O/S of the Out-Of-Band Server). This is known issue of SCOM which bases the result of a task only on the submittal of the task.  
See <https://social.technet.microsoft.com/forums/systemcenter/en-US/3fd55e43-df1a-4a66-ac8d-aa958bae6ee4/successdefrag-failed>
- If the Fujitsu iRMC are accessible only with a configured local proxy you might need to manually configure the SCOM to use this proxy.  
See <https://blogs.technet.microsoft.com/momteam/2016/08/25/support-tip-some-microsoft-operations-manager-management-packs-require-proxy-configuration/>
- If the configured iRMC user account does not have the 'Configure iRMC' extended permission, the following properties of the discovered Fujitsu iRMC device and the Fujitsu Out-Of-Band Server will not be available when the System Report interface is used:
  - Asset Tag (iRMC)
  - DNS Name (iRMC and Out-Of-Band Server)
  - Server Operating System (Out-Of-Band Server)
- The Tasks from the optional 'Fujitsu PRIMERGY Out-Of-Band Server - Power Management Tasks Management Pack' (see section 4.9) require that the configured iRMC user account has at least 'Operator' privilege. This is a requirement from the IPMI Specification.
- When the Out-Of-Band Server Base Management Pack is installed an iRMC device will be reported as not monitored until the Out-Of-Band server is discovered and monitoring for the server components has started due to the disabled iRMC device monitor. When the Out-Of-Band Server is successfully discovered the health state of the iRMC device is calculated from the server components and health rollout monitors.

# Troubleshooting the Fujitsu Out-Of-Band Management Pack

- When the DMTF Redfish protocol is used for discovery the following properties are not supported:
  - Mainboard: Manufacturing Date
  - Power Supply: Manufacturing Date
- When the DMTF Redfish protocol is used for discovery the following additional properties are available which are not supported with the System Report interface:
  - Power Supply: Nominal Power
- In order to use the DMTF Redfish protocol make sure you have enabled the Redfish Role for the used local iRMC user account:

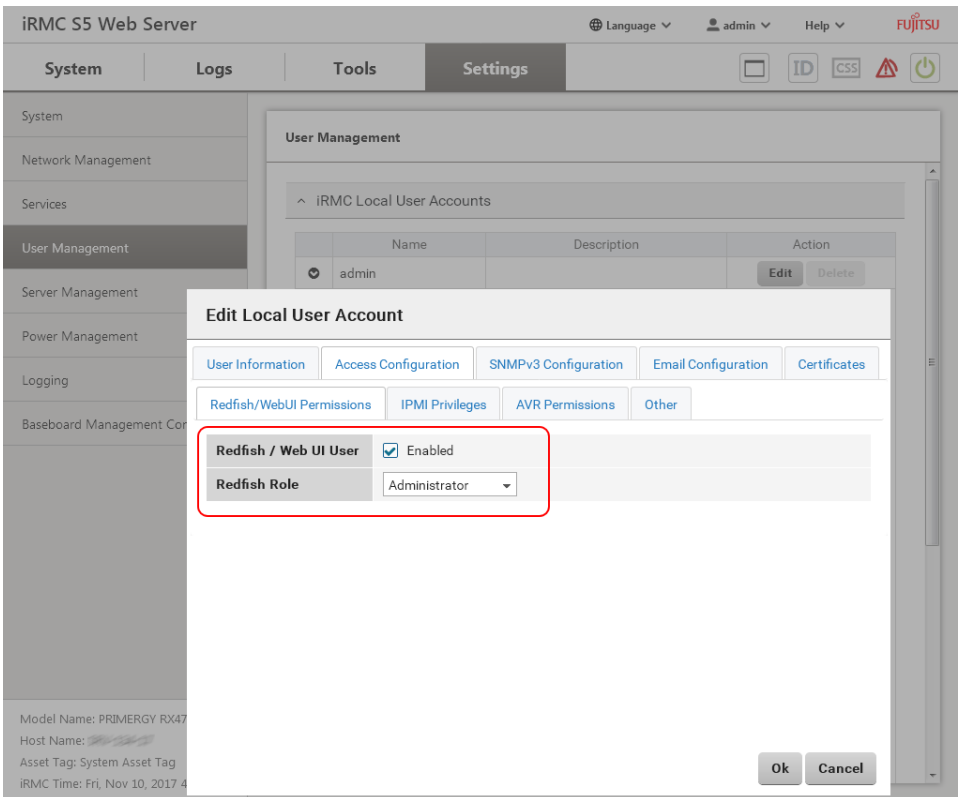


Figure 14 - Redfish Role Configuration for an iRMC S5 user

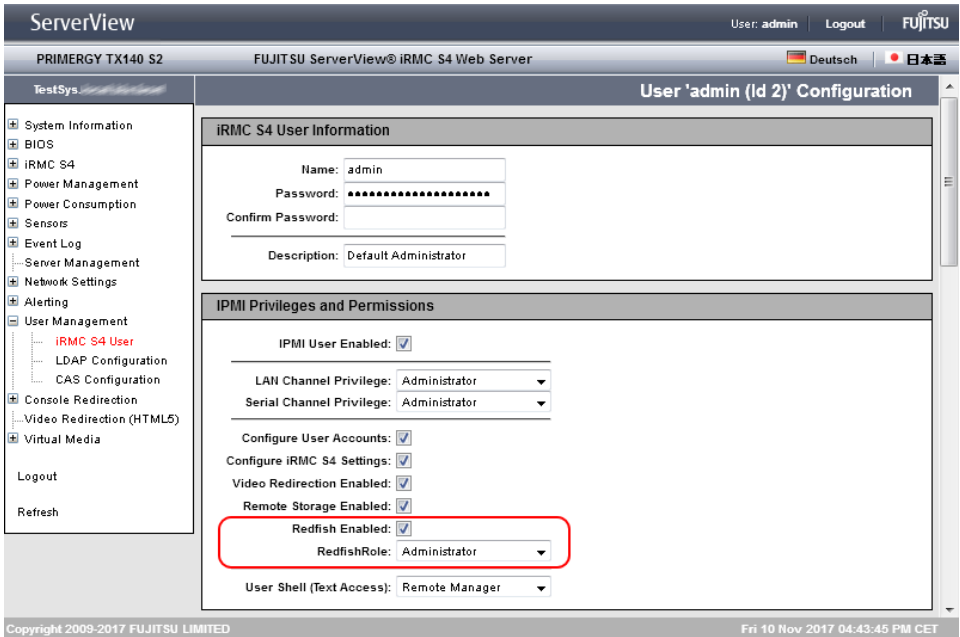


Figure 15 - Redfish Role configuration for an iRMC S4 user

## 6.5 Verify that a given CA Certificate is installed correctly

The following examples show as a sample the process of installing the "ServerView Root CA" file which issued the default SSL certificate which was shipped as default certificate for some iRMC S4.



The following steps are for demonstration of the underlying process only. It is not required to use the pre-installed default SSL certificates from the iRMC.





It is strongly recommended to replace the default SSL certificates of the iRMC with certificates issued by your local Public Key Infrastructure (PKI)!

- Open the Microsoft Management Console MMC, select File → Add/Remove Snap-in...
- Select "Certificates" → click 'Add' and from the Certificates Snap-in Dialog Box select 'Computer Account' and click 'Next', select 'Local Computer'
- Click 'Finish' for the Snap-in Dialog and 'OK' for the Add/Remove Snap-in Dialog.
- Expand 'Certificates (Local Computer)' → Trusted Root Certification Authorities → Certificates
- Check if the CA is listed there

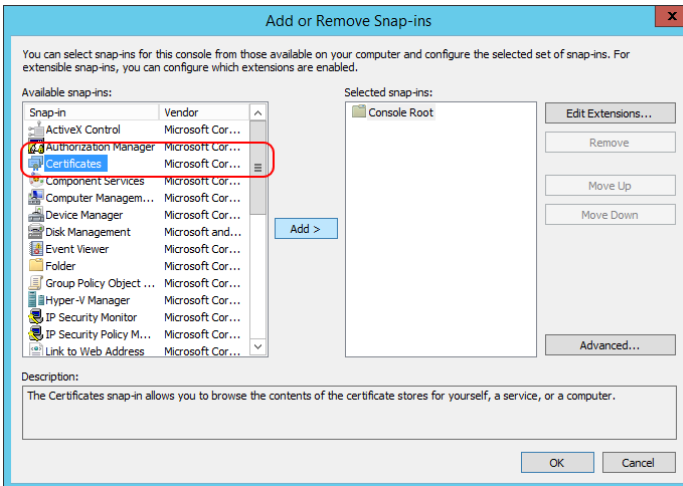


Figure 16 - MMC Certificate Snap-In

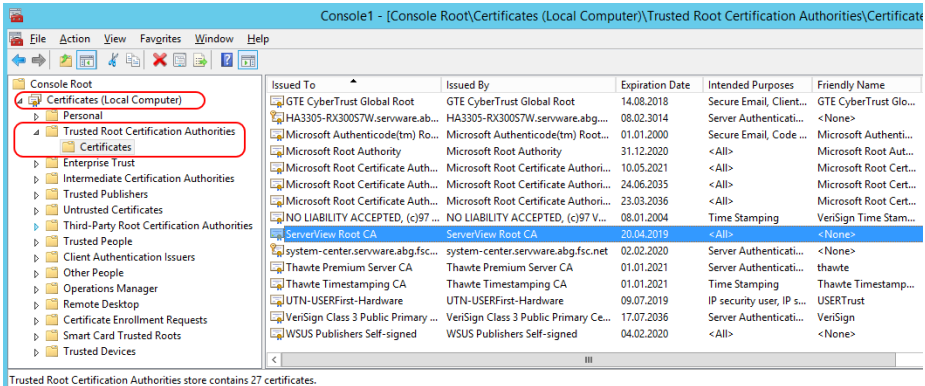


Figure 17 - Trusted Root Certificates

## 6.5.1 Install a given CA certificate into the Trusted Root Certificates Authorities store



The following steps are for demonstration of the underlying process only. It is not required to use the pre-installed default SSL certificates from the iRMC.



It is strongly recommended to replace the default SSL certificates of the iRMC with certificates issued by your local Public Key Infrastructure (PKI)!



It is important that you install the CA certificate into the Cert store of the local machine and not into the Cert store of the current user. SCOM workflows run under a different account than the current user! If you are using a resource Pool with multiple Management Servers you have to install the Certificate into all Management Servers of this Management Pool.

- Double click on the certificate file and check its authenticity (e.g. by verifying the fingerprint of the certificate with a trusted person from the PKI department)
- Click 'Install Certificate' and select 'Local Machine'
- Select 'Place all certificates in the following store' and click 'Browse...'
- Select 'Trusted Root Certification Authorities', click 'Next'
- Verify that the selected values are correct and click 'Finish',
- Close the Certificate Dialog with OK

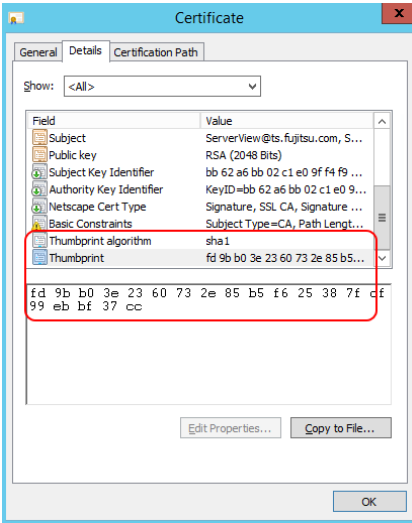


Figure 18 - Certificate fingerprint

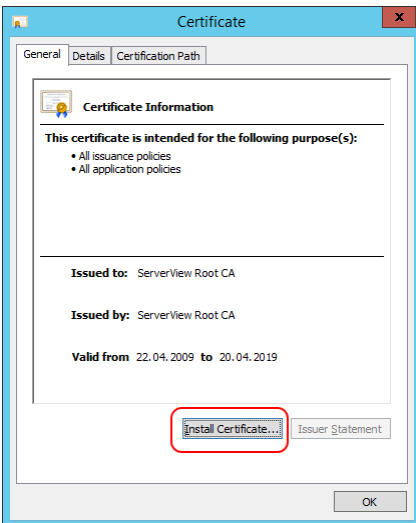


Figure 19 - Install Certificate

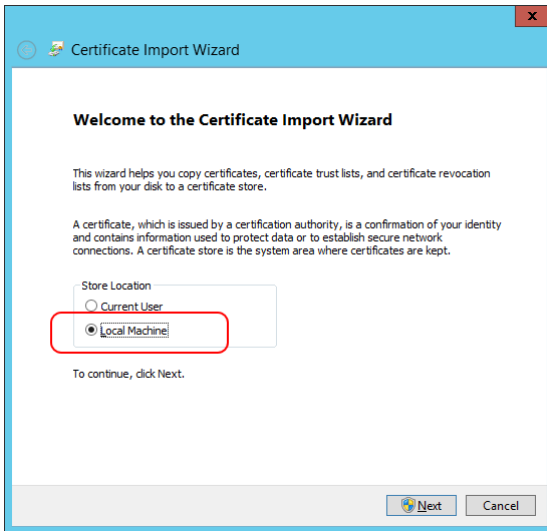


Figure 20 - Certificate store selection

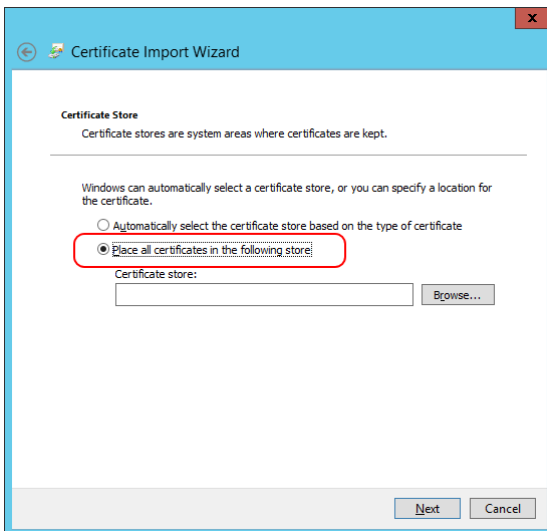


Figure 21 - Store Selection continued

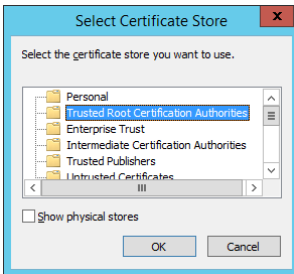


Figure 22 - Trusted Root Certification Authorities

# 7 Step-by-step walkthrough: Discovering Fujitsu iRMC devices

The following walkthrough shows the required steps to successfully discover Fujitsu iRMC devices. The discovery for the Fujitsu Out-Of-Band Server and its components will run as an additional discovery with the Fujitsu iRMC device as target therefore it is required that you discover the Fujitsu iRMC first.

1. Create a SCOM Run As account with the username and password of a local iRMC user. You can also create a new Run As Account during the configuration of the Template.
  - a. Open the SCOM Operation Console
  - b. Go to 'Administration' → Right Click on 'Run As Configuration' and select 'Create Run As Account'
  - c. Select as Run As account of type 'Simple Authentication', 'Basic Authentication' or 'Digest Authentication'; select a display name for the Run As account and continue with the next page.
  - d. Fill out username and password and continue with the next page.
  - e. Depending on your local SCOM infrastructure select how the Run As account will be optionally distributed and finish the Run As account wizard by selecting 'Create'.
2. Create a new Fujitsu PRIMERGY iRMC Template
  - a. In the SCOM Operations Console Go to 'Authoring' → right click on 'Management Pack Templates' → 'Add Monitoring Wizard...'
  - b. Select 'Fujitsu PRIMERGY iRMC Monitoring' and click 'Next'
  - c. Select a friendly name for the template and create a new Management Pack or select an existing Management Pack where the template configuration data is stored and click 'Next'.
  - d. Optional: Select a Resource Pool from which the Fujitsu iRMC will be monitored. If you keep the default 'All Management Servers Resource Pool' selection, the workflows will be distributed across all your Management Servers. Click 'Next'
  - e. From the drop down list select the Run As account created in step 1 above. Alternatively you can create a new Run As account in this step of the Template

Wizard.

Click 'Next'.

- f. Click 'Add...' to add Fujitsu iRMC devices. A new dialog will open.
- g. Specify the network range you want to scan for Fujitsu iRMC devices. You can scan subnets or IP ranges or specify a text file which contains an IP address list (one IP address per line). Click 'Scan for Devices'
- h. Optional: click on 'Advanced Settings' and adjust settings for your environment. If no devices are detected you might retry discovering devices with disabled CA and CN checks for https (see section 6.5 - Appendix B how to solve certificate problems).
- i. From the list of detected Fujitsu iRMC devices select the ones you want to monitor with SCOM, click 'Add' click OK.
- j. Verify the listed Fujitsu iRMC devices you want to add and click 'Create'



The discovered Fujitsu iRMC devices will be visible in the SCOM console after you have finished the Template Wizard. Since the discovery for the Fujitsu Out-Of-Band Server will run for a Fujitsu iRMC device as target it will take some time until the Out-Of-Band Server will be visible in the Operations Console (typically twice the discovery interval which by default is every 4 hours).

# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

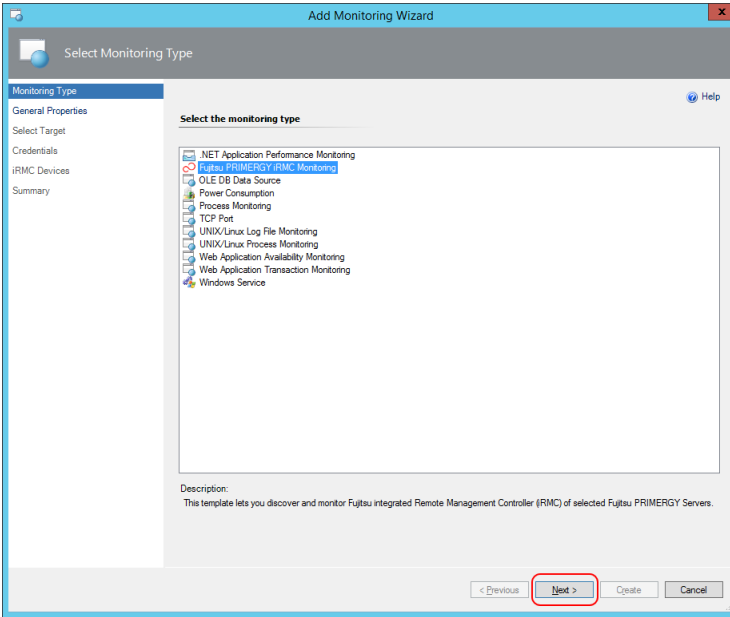


Figure 23- Select 'Fujitsu PRIMERGY iRMC Monitoring' as Template

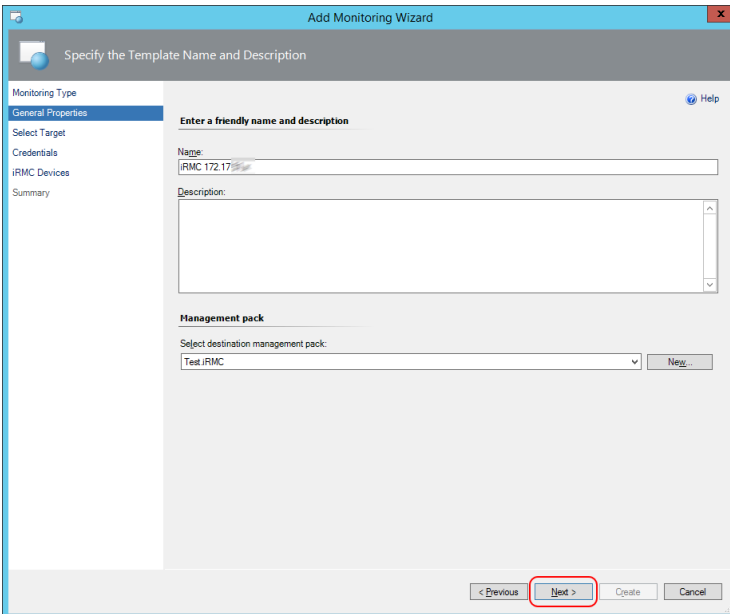


Figure 24 - Select a template name and a destination management pack to store the results



# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

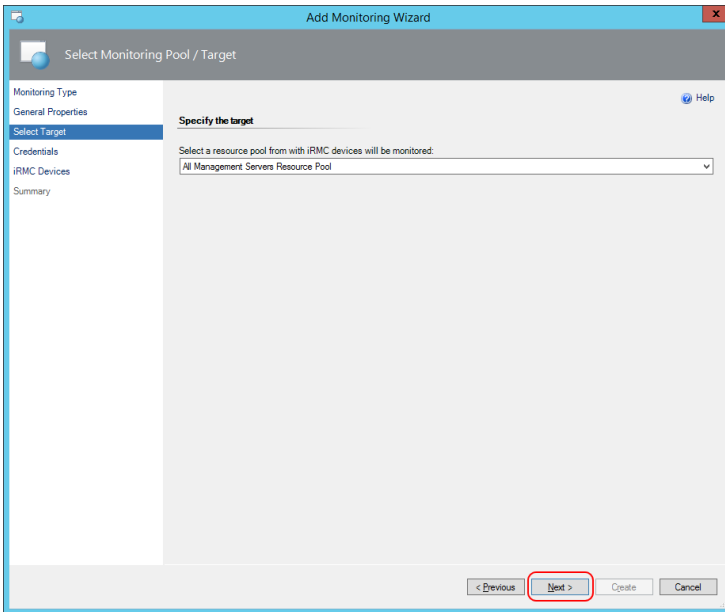


Figure 25 - Select a Resource Pool which will monitor the Fujitsu iRMC Devices

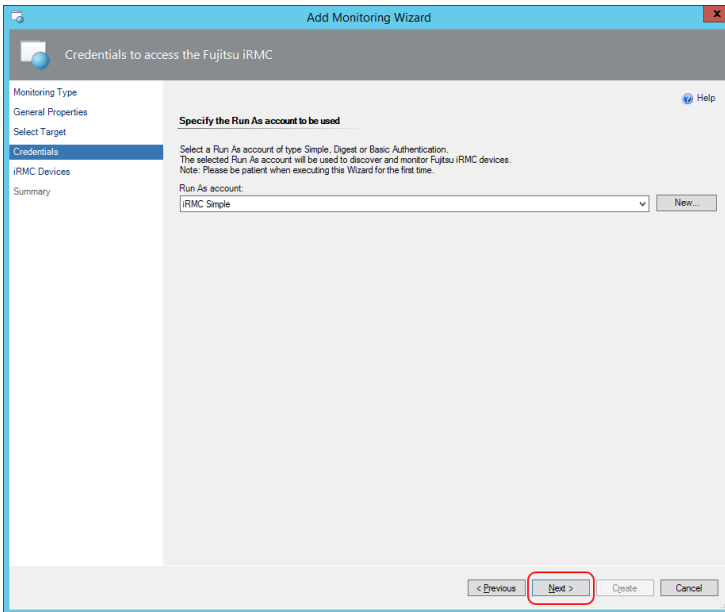


Figure 26 - Select the previously created Run As Account or create a new one

# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

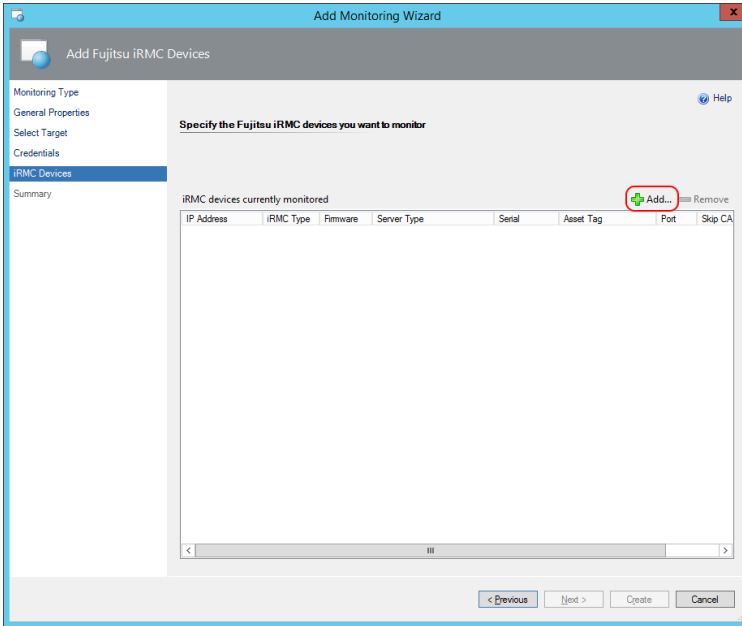


Figure 27 - Click Add...

# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

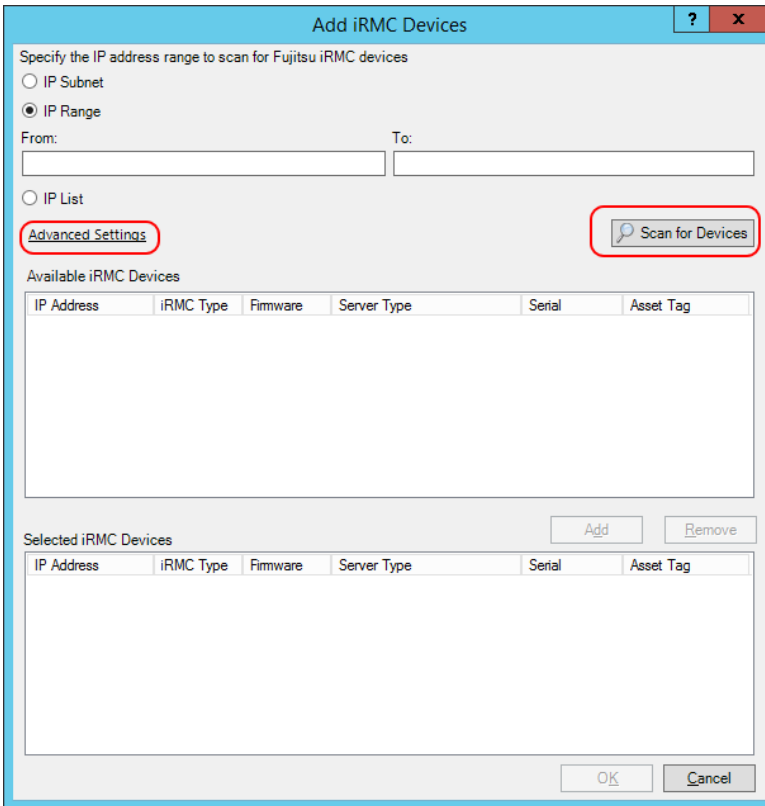


Figure 28 - Specify the network range you want to scan for Fujitsu iRMC devices

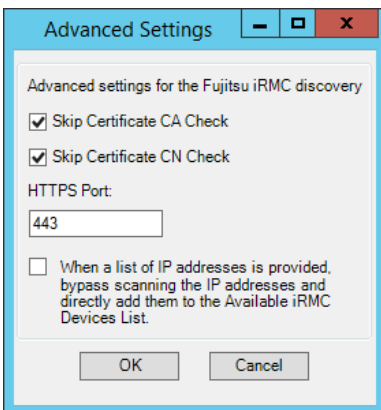


Figure 29 - Advanced Settings Dialog

# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

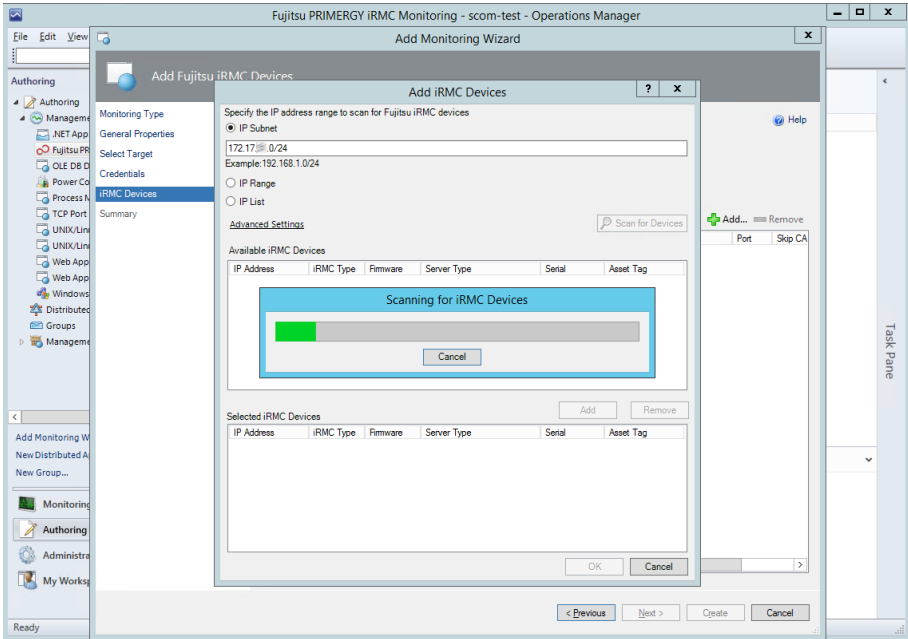


Figure 30 - Depending on your selected network range, the scan can take some time

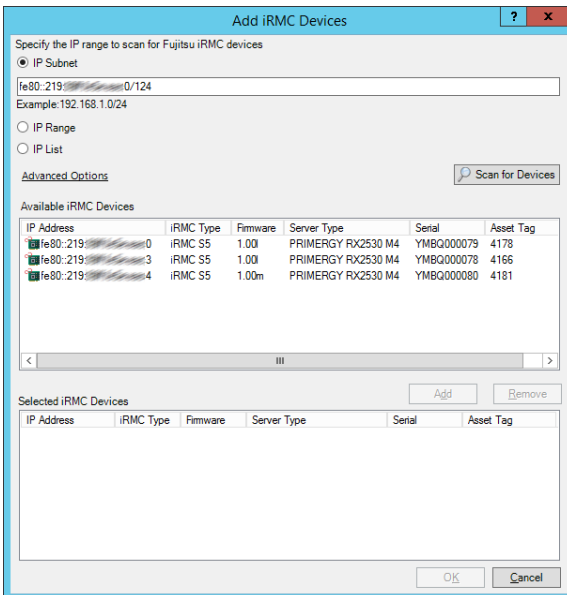


Figure 31 - Sample scan results for IPv6 Link Local Addresses

# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

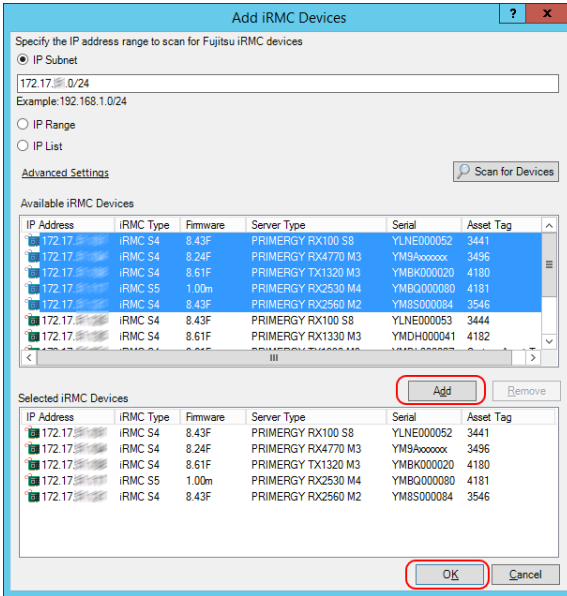


Figure 32 - From the returned list select the ones you want to monitor and click 'Add' and 'OK'

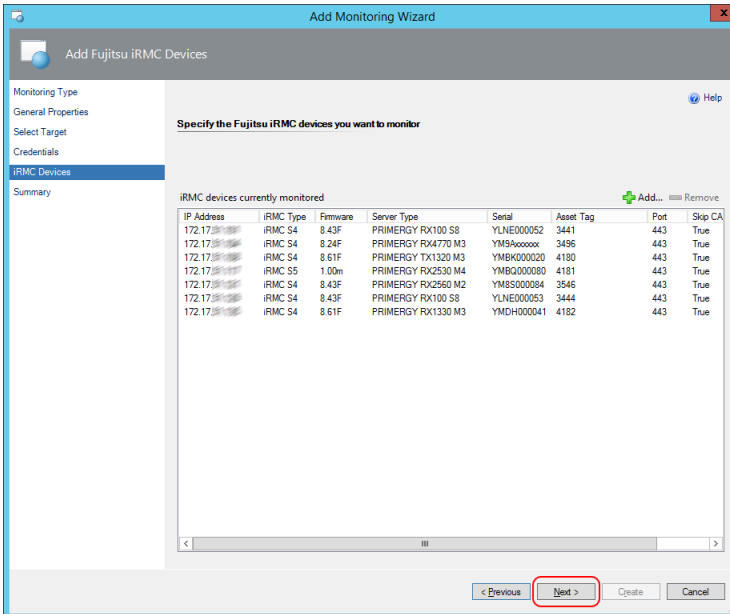


Figure 33 - Click Next or add additional Fujitsu iRMC devices as needed

# Step-by-step walkthrough: Discovering Fujitsu iRMC devices

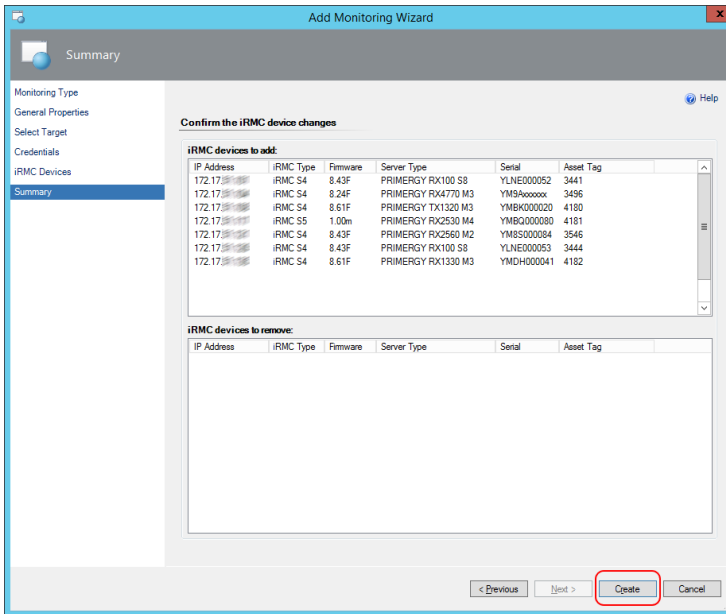


Figure 34 - Verify the freshly added / selected Fujitsu iRMC and click Create to save the results