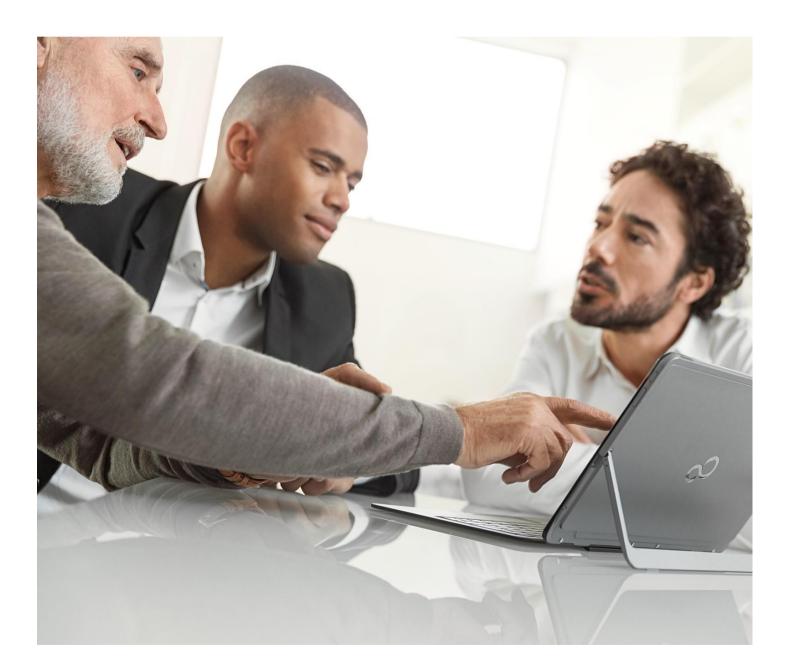


# White paper FUJITSU Software Infrastructure Manager Overview

An overview of software that helps manage and operate whole datacenter environment that includes infrastructure platforms such as servers, storage, and facility devices, from a single interface



### Index

Abstract	2
Path to achieving software-defined infrastructure	2
Feature 1 – Consolidation	3
Servers, storage, and network switches are	
managed using a single GUI	3
A variety of firmware updates can be carried out in	
a single process	3
Virtual resources provided by vCenter and other	
virtual machine management software are	2
supported	3
Enabling physical and virtual devices to be seen and controlled	4
Triggering actions with API	4
Feature 2 – Visualization	4
Visualization of location and status of devices	4
Entire datacenter floor status seen in a single 3D	4
view	4
The entire status of a datacenter is visible in a single	
converged view.	4
Network connection is displayed on map	5
Feature 3 – Automation	5
Device settings can be copied and deployed to	
other devices	5
Defined actions are called automatically by events	5
Power consumption is controlled as a group	5
Other features	6
Devices are managed without agent software	6
No pre-configuration is required on the device side	6
System Requirements	6
Managed devices	6
Management nodes	6
Consoles	6
Licenses	7
Required licenses	7
Product lineup	7
Copyright	7
Disclaimer	7

## Abstract

## Path to achieving software-defined infrastructure

In today's digital world, where more and more devices are connected via the internet, data is king and organizations that are able to differentiate and innovate using this information lead the game. In order to keep up with the increasing number of operations, companies keep adding more and more computing, storage or networking devices to the existing legacy setup. However, the number of IT resources used to manage the datacenter remains the same and hence a challenge.

Different types of devices require a variety of complex management software and tasks to manage infrastructure platforms. This leads to problems such as lower productivity, an increase in troubleshooting time and customer response time. Thanks to its total management of infrastructure platform devices, ISM solves these problems.

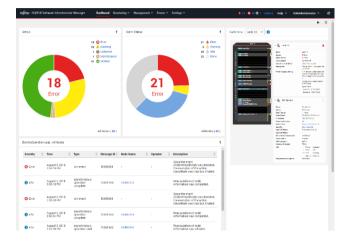
FUJITSU Software Infrastructure Manager (also referred to as "ISM" below) has a simple and intuitive interface that offers a complete view of datacenter status. One of the key functions of ISM is the multiple FW upgrading and OS deployment which significantly reduces the time and cost required for the activities. Furthermore, ISM provides an API for communicating with other applications and scripts, and helps to automate tasks. ISM makes sure that sufficient datacenter infrastructure platform management is achieved.



## Feature 1 – Consolidation

## Servers, storage, and network switches are managed using a single GUI

A datacenter is made up of many types of devices, and the failure of one device impacts on the whole infrastructure environment, disrupting business operations. Organizations often use different vendor-specific or device-specific software to manage these components, making the overall administration inefficient and time consuming ISM indicates and manages servers, storage, network switches, and the entire system in a single GUI.

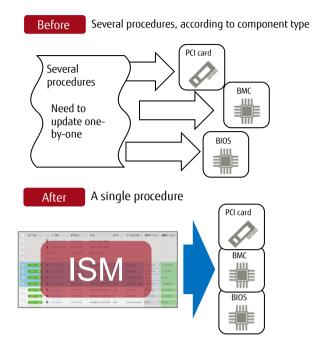


## A variety of firmware updates can be carried out in a single process

Firmware management is an important task of a datacenter administrator. Security awareness for firmware on devices and the importance of firmware management is growing. However, it is complicated for many administrators to manage it in view of the complexity and tools involved in updating each component.

One of the reasons for this complexity is the existence of several types of firmware, especially on servers. BIOS, BMC, and firmware of PCI cards have to be maintained. Furthermore, the update procedure is different depending on the device type and component type, and is one of the key reasons which lead to firmware management difficulties.

ISM displays the firmware versions of all types of firmware and of all components in single view, and provides single procedure to update all types of firmware. The administrator does not need to search for a device or component dedicated to the update procedure and can update multiple types of devices and components in a single process.



## Virtual resources provided by vCenter and other virtual machine management software are supported

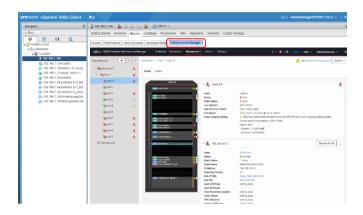
ISM can communicate with VMware vCenter Server, OpenStack, and similar kinds of virtual resource management software. It collects and displays information and statuses of physical and virtual nodes.

The status and resources of VMware vSAN and Microsoft Storage Spaces Direct, which are in the spotlight these days as a base technology for HCI (Hyper Converged Infrastructure), are also displayed along with physical device information in the ISM dashboard.

tual Resource List <	Al Stonge Pools / Mileare Vite	al SAU / viacDatastoret				
All Storage Peols	Information			the capacity		
VMware Virtual SAN	Status	0			Used capacity 15.7218	
Microsoft Storage Spaces Direct	Pool Name				Free capacity 6 29TB	
E ENNIS DOAF	Type	Victorie Victorii SAN		Total capacity 22.01TB		
	Version	Virtual GAVE 6.2				
	Availability					
	Deduplication	Disable				
	Compression					
	Cluster Name	vsanClustert				
	Node List					
	Q. Search Node List	O 🔺 🛛 O O 6/6				
	Node Name	Hest Name	Studiel Name	C IP Address	0 OS Name	
	INST-02439-1	HONEY	HRIMEHOV RO2530 M2	192.168.20.13	VMAsane & B	
	8 IIST-8045142	112672	PRIMERSY RX2530 MZ	192,108,20.14	VMinare 6.0	
	🕑 нат-лжама	HOOTO	PRIMEROV RX2530 M2	192.108.20.15	VM/vare 6.0	
	🕑 HS1 0X 5V 4	HDST4	PRIMERCY RX2530 M2	192.108.20.16	VMvare 6.0	
	A #51-0X-5V-5	HORTS	DRIMFICY RX2530 MP	192.168.20.17	VMware 6.0	
	S IIST-KOSSVA	HOSTS	FRIMEROV ROOMD MZ	192,168,20,18	Webser & D	

## Enabling physical and virtual devices to be seen and controlled

ISM collects and displays information about physical and virtual devices from VMware, Microsoft and other software. On the other hand, ISM also provides physical device information in a view on vCenter. This collaboration makes seamless, easy maintenance between virtual and physical resources.



When a physical server has to be booted to maintain the system, seamless procedures, such as the shutdown or migration of virtual machines, checking of physical server inventory, and updating of firmware, are possible in VMware or Microsoft view.

## Triggering actions with API

All functions and information provided in the ISM GUI can be triggered with external programs or scripts using integrated API.

ISM can be integrated in an existing management stack using an API.

## Feature 2 – Visualization

## Visualization of location and status of devices

Devices mounted on a rack are visualized in an ISM view. Devices have an LED on the front panel to indicate status and the indicator is also visible.

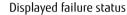
Administrators can see the location of a failed device in a rack as if they were standing in front of it.



## Entire datacenter floor status seen in a single 3D view

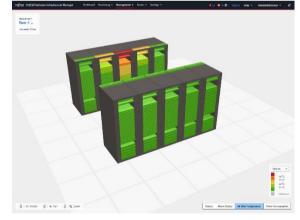
The entire status of a datacenter is visible in a single converged view. This view displays hardware failure statuses, the severity of received SNMP traps, intake air temperature, power consumption, as well as a visual image of the device.

It is very easy to locate faulty hardware in a datacenter and directly click on the device to investigate the problem.





Displayed inlet air temperature



Devices that have old firmware and require updating are indicated

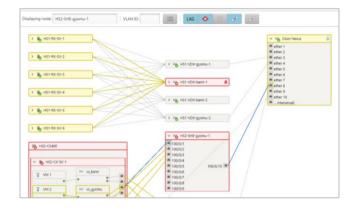
ISM periodically collects firmware information applied on managed devices. Collected information is displayed in a table, and old versions of firmware that are currently applied are highlighted in device information.

fumean	Node List									
Update	Q. Search	update Mod	e: 41	v Digles	r only upd	etable nodes 19871	138			Filter Action
import	Estatus 0	0 Node Name	0 IP Address	Model Name	Type 0	Firmware Name ()	Current Version	🗧 Latest (Online) 🚯	Latest (Offine)	O C CLOM Office
SCHOL			1 192,160,123,12	S8-X01612						-
	-	50 x 90.00	h 2 192,168 123,13	\$11 X316T2						
	Ciperinte	H Seraes	140 348 121 M	PRIVEFOY DV2020 WI	1284	Colored LANLO	40	- no		
	_ tydaalk	FX Derver	192,100,123,14	MINERCY RED-20 MI		LAN POLCED 4	A.	+ .		
	L Epekatik	Tor Server	192.168 123.54	PRINCEGY RE2320 MI	BIDS	8X2550 M1 FM4C	7 23683 33	- 7.82983.60	7.82983.08	
	Перани	Rt. Server-	192,160 1 23,14	PRIMEROV DK2520 MI	ienc.	CRE DVD V11.14.03	94.6.3.4H1.15.0	- 980318340		22
		HSI-RO-EV	2 192,168,20,14	PRIMERCH RE2500 M2						
		1111 R1-V0161	192,100,10,2	V0X 6740						
	=		197,16810.3	V0X 6340						
		IIII SR-X David	192,109,123,12	99-X310T2						
		L CX600		CK560 M1						
		()) . CX1640 (	10.26112.101	PRIMERCY COMMENCY						
	=	a como 🖉 🔟	10.26132.302	PRINCEGY CK1640 M1						
		III	10 26 112 103	PRIVEROV CONFRONT						e
		III Contrato A	1026112104	MINERCO						

## Network connection is displayed on map

ISM displays the network connection of virtual resources, including virtual switches, as well as physical resources on a map.

Administrators can see the impact of physical and virtual server failures in a single view.

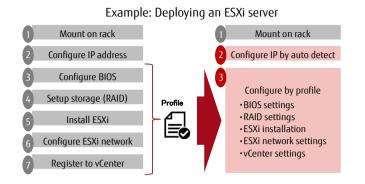


## Feature 3 – Automation

## Device settings can be copied and deployed to other devices

It is possible to configure device settings by creating a group of settings, referred to as a "profile", and applying the profile to the hardware. Then, this profile can be copied over to other devices which support the same settings.

For example: when you set up 10 servers with the same settings, you only need to create one profile. You can copy the profile to nine other servers. If you want to change something on a server, you can change the settings for each server. The parameters of an OS installation can also be saved to a profile, reducing the number of steps and time involved in deployment



## Defined actions are called automatically by events

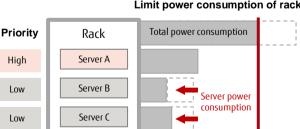
You can configure ISM to send an e-mail automatically when it receives an SNMP trap or detects an event, such as a device failure. Sending SNMP traps to other stations, logging messages to Syslog servers, and the execution of a batch file or a script on an external server can be configured as well as sending an email.

This function makes troubleshooting easier and minimizes system downtime.

## Power consumption is controlled as a group

FUJITSU PRIMERGY and PRIMEQUEST servers provide a function to limit power consumption by defining thresholds; moreover, ISM can control power consumption for groups of several servers based on defined limit values. With this function, ISM does not cap power consumption of a server with high power consumption if the total value of the group has not exceeded the defined value.

When you calculate the number of servers to be mounted on a rack, power consumption is considered as well as size and weight. In many cases, extremely large values are assumed just to be on the safe side, and many empty slots remain as a result. You do not need to use such a large value in the calculation if you use ISM's group power capping function. ISM limits power consumption by defined values and you can mount more servers on a rack.



## Rack power control

#### Limit power consumption of rack

## Using API to support task automation

ISM does provide an API for triggering actions such as getting device information or updating firmware. You can create an automated process by combining other applications that have API.

For example, if you need to load new firmware on several servers during the night before starting a service, you can complete the task efficiently and with certainty by scripting using the ISM API. Similarly, the following steps are implemented in a script and automated.

- 1. Collect status from VMware r or OpenStack, and check if all virtual machines are stopped on the device
- 2. Check if newer firmware is available for the device using the ISM API
- 3. Update the firmware using the ISM API

## Other features

## Program is provided as virtual appliance to make installation easier

ISM is provided as a virtual machine appliance. You can start ISM simply by deploying the virtual machine image in your virtualization environment (VMware ESXi, Hyper-V, RHEL KVM) with a few settings.

## Devices are managed without agent software

You are not required to install special programs like agent software on managed devices. ISM communicates via a management network port that is embedded in a device such as an iRMC, which is the BMC name of the FUJITSU Server PRIMERGY and PRIMEQUEST. Once you have registered the device in ISM, ISM starts to collect status data and information from the device automatically.

## No pre-configuration is required on the device side

When you set up a new device in your datacenter an IP address usually needs to be configured or an administrator has to get the IP address that was assigned by DHCP by logging into BIOS. A combination of ISM and the latest PRIMERGY models (M4 generation and later) eliminates such pre-configuration processes. ISM detects PRIMERGY automatically when PRIMERGY is attached to the same network segment, after which you can configure all server settings from ISM view. You do not need to connect a display and keyboard to each server for management.

## System Requirements

## Managed devices

Туре	Model
Server	FUJITSU Server PRIMERGY / PRIMEQUEST
Storage	FUJITSU Storage ETERNUS DX, AF, LT, AB, HB,
	AX, HX / NetApp FAS, AFF
Network device	FUJITSU Network SH, SR-X, IPCOM VX / CISCO
	Catalyst, Nexus / Brocade VDX, ICX
Other	PDU / UPS / Rack / CDU

## Details for supported models and functions are available on the following web page.

http://www.fujitsu.com/infrastructuremanagement

## Management nodes

ISM is provided as virtual machine appliance (VA). These are the minimum requirements to be assigned to a virtual machine appliance.

ltem	Description
CPU	2 cores
Memory	8GB
Disk	35GB
Network	1Gbps
Hyper-visor	- Hyper-V
	- VMware ESXi
	- KVM

Details for supported hypervisors are available on the following web page. <u>http://www.fujitsu.com/infrastructuremanagement</u>

## Consoles

These are the requirements for a console to access the ISM GUI.

ltem	Description
Device	PC, server, Windows10 tablet, Android tablet,
	iPad
Web browser	PC, server, Windows10 tablet:
	<ul> <li>Microsoft Internet Explorer</li> </ul>
	- Microsoft Edge
	- Mozilla Firefox
	- Google Chrome
	Android tablet: Google Chrome
	iPad: Safari

Details for supported browsers are available on the following web page. <u>http://www.fujitsu.com/infrastructuremanagement</u>

## Licenses Required licenses

ISM requires the following licenses for use.

- Server licenses
- 1x license is required for the ISM VM appliance
- Node licenses A license is required for each node managed by ISM.

## Product lineup

- Server license
- 1-node license
- 5-node license
- 10-node license
- 20-node license
- 100-node license

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