

IMC

Service Health Manager 7.3 (E0502P01)

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What's New in this Release

The version IMC SHM 7.3 (E0502P01) can be upgraded from only IMC SHM 7.3 (E0502).

All features released in IMC SHM 7.2 (E0402) and later versions.

Features released in IMC SHM 7.3 (E0502P01)

- None.

Features released in IMC SHM 7.3 (E0502)

- None.

Features released in IMC SHM 7.2 (E0402P05)

- None.

Features released in IMC SHM 7.2 (E0402H04)

- None.

Features released in IMC SHM 7.2 (E0402P03)

- None.

Features released in IMC SHM 7.2 (E0402)

- **Path Analysis**
 - Provides the function of path analysis, including path definition, path baseline and polling path. When polling result is inconsistent, the alarm can be generated.
- **SLA Service**
 - Provides the RESTFUL interfaces of viewing the SLA services health data by accessing **imcrs** application in browser.

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Problems Fixed in this Release

IMC SHM 7.3 (E0502P01) fixes the following problems, including all bugs fixed in IMC SHM 7.2 (E0402) and later versions.

Resolved Problems in IMC SHM 7.3 (E0502P01)

1. The importing of HP devices to SHM fails because the SHM component does not support HP devices.

Resolved Problems in IMC SHM 7.3 (E0502)

1. The upgrading of SHM 7.1 to IMC SHM 7.3 (E0501) failed if SHM 7.1 is first upgraded to IMC SHM 7.2 (E0402) (all patches including H04 are installed).
2. When the NQA feature is not enabled on a device, the NQA device importing fails.

Resolved Problems in IMC SHM 7.2 (E0402P05)

1. KQIs and compound KQIs cannot be correctly linked in a manually created SLA when their total number exceeds 26.

Resolved Problems in IMC SHM 7.2 (E0402H04)

1. When the number of NQA instances on the NQA instance topology exceeds 100, NQA devices cannot be correctly linked on the topology.

Resolved Problems in IMC SHM 7.2 (E0402P03)

1. In NQA Instance Details Reports of the UDP jitter type, the following UDP Jitter indexes have incorrect values:
 - Max positive jitter delay(ms)
 - Min positive jitter delay(ms)

- Average positive jitter delay(ms)

Resolved Problems in IMC SHM 7.2 (E0402)

1. The path analysis result is not refreshed according to the change of analysis criteria, unless you click Tracert Path twice.
2. Click the path analysis page. A page error occurs.
3. SHM uses the tracert function for path analysis. You can set a path as a baseline path, and set the alarm policy for the inconsistent polling result.

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SHM Software Distribution Contents

The SHM software contains the following files and programs:

1. **SHM\manual\readme_shm_7.3 (E0502P01).html** - This file
2. **SHM\windows\install** - IMC SHM installation program for Windows OS
3. **SHM\linux\install** - IMC SHM installation program for Linux OS

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Installation Prerequisites

Server Requirements

The following are the minimum hardware requirements and supported software programs to run IMC:

- Hardware
 - Pentium 4 3.0 GHz processor
 - 4 GB of RAM
 - 50 GB hard disk space
- Operating system (Versions marked X64 are recommended):
 - Windows Server 2008 with Service Pack 2
 - Windows Server 2008 X64 with Service Pack 2
 - Windows Server 2008 R2 with Service Pack 1
 - Windows Server 2012 with KB2836988
 - Windows Server 2012 R2
 - Red Hat Enterprise Linux 5.5 (Enterprise and Standard versions only)

- Red Hat Enterprise Linux 5.5 X64 (Enterprise and Standard versions only)
- Red Hat Enterprise Linux 5.9 (Enterprise and Standard versions only)
- Red Hat Enterprise Linux 5.9 X64 (Enterprise and Standard versions only)
- Red Hat Enterprise Linux 6.x X64 (Enterprise and Standard versions only)
- VMware
 - VMware Workstation 6.5.x
 - VMware Workstation 9.0.x
 - VMware ESX Server 4.x
 - VMware ESX Server 5.x
- Hyper-V:
 - Windows Server 2008 R2 Hyper-V
 - Windows Server 2012 Hyper-V
- Database
 - Microsoft SQL Server 2008 Service Pack 3 (Windows only)
 - Microsoft SQL Server 2008 R2 Service Pack 2 (Windows only)
 - Microsoft SQL Server 2012 Service Pack 2 (Windows only)
 - Microsoft SQL Server 2014 (Windows only)
 - Oracle 11g Release 1 (Linux only)
 - Oracle 11g Release 2 (Linux only)
 - MySQL Enterprise Server 5.5 (Linux and Windows) (Up to 1000 devices are supported)
 - MySQL Enterprise Server 5.6 (Linux and Windows) (Up to 1000 devices are supported)
- IMC Platform Compatibility
 - IMC Platform version: IMC PLAT 7.3 (E0504) and its patches.

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Port Usage

IMC uses the following TCP/IP ports.

Component	Subcomponent	Protocol	Port	Configurable	Use	Server	Client	Notes
SHM	--	TCP	61616	Yes	Used for communication in Master-Slave deployment environment.	IMC master server (all addressed)	All IMC users	None
SHM	--	TCP	22	Yes	SSH port, used to Configure Cisco device.	IMC master server (all addressed)	All IMC users	None
SHM	--	TCP	23	Yes	Telnet port, used to Configure Cisco device.	IMC master server (all addressed)	All IMC users	None
SHM	--	UDP	161	Yes	SNMP port, used to manage SNMP devices, elements.	IMC master server (all addressed)	All IMC users	None
SHM	--	TCP	1433	Yes	SQL Server database listening port (Windows only).	IMC master server (all addressed)	All IMC users	None

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Typical Installation

Before installing SHM, make sure the IMC is installed correctly. To install SHM, click **Install** button on the **Monitor** tab of the Intelligent Deployment Monitoring Agent, then select the *components* sub-directory of the upgrade package, and click **OK** button to launch the installation wizard.

For detailed installation instructions, please refer to IMC deployment guides.

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Installing and Upgrading IMC

Please follow these instructions for upgrading the IMC:

1. Back up the IMC database on the Environment tab in the Deployment Monitoring Agent.
2. Stop IMC in the Deployment Monitoring Agent.
3. Click **Install** button in the **Monitor** tab of the Deployment Monitoring Agent.
4. Select the *windows/install/components* subdirectory of the upgrade package, and click **OK** button.
5. After the installation finishes, the Deployment Monitoring Agent will detect the components that need to be upgraded. Click **OK** button to start upgrading the components.
6. In Distributed deployment mode, upgrade all components deployed on every subordinate server.
7. After all components are updated, start all processes in the Deployment Monitoring Agent window.

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Removing IMC

You can remove SHM component through the intelligent deployment monitoring agent. To do this, follow these steps:

1. In the Intelligent Deployment Monitoring Agent window, select **Stop IMC** on the **Monitor** tab to stop all processes of IMC.
2. On the **Deploy** tab, right-click the SHM component, and select **Uninstall the Component** from the shortcut menu.
3. A dialog box appears, indicating that the component was successfully removed. Click **OK**.

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KQI Index Details

Class Name	KQI	KPI	KPI Description	Calculation Method	KQI Rating
Device Status	CPU Usage	CPU Usage	PERF	Average	5Rating: 60~80 4Rating: 30~60 3Rating: 0~30 2Rating: 80~90 1Rating: Other

	Memory Usage	Memory Usage	PERF	Average	5Rating: 60~80 4Rating: 30~60 3Rating: 0~30 2Rating: 80~90 1Rating: Other
	Device Response Time	Device Response Time	PERF	Average	5Rating: 0~10 4Rating: 10~30 3Rating: 30~50 2Rating: 50~100 1Rating: Other
	Device Unreachable	Device Unreachable	PERF	Average	5Rating: 0~0 4Rating: 1~20 3Rating: 20~30 2Rating: 30~50 1Rating: Other
	Device Alarms	Critical Alarms	ALARM	Formula:(Critical Alarms*0.8+Major Alarms*0.5+Minor Alarms*0.2+Warning Alarms*0.1)	5Rating: -~0 4Rating: 0~2 3Rating: 2~5 2Rating: 5~10 1Rating: Other
		Major Alarms	ALARM		
		Minor Alarms	ALARM		
		Warning Alarms	ALARM		
NQA Voice Quality	Voice MOS	Voice MOS	SHM	Average	5Rating: 5~+ 4Rating: 4~5 3Rating: 3~4 2Rating: 2~3

					1Rating: Other
	Voice icpif	Voice icpif	SHM	Average	5Rating: 5~+ 4Rating: 4~5 3Rating: 3~4 2Rating: 2~3 1Rating: Other
	Jitter	S2D_PLUS_AVG_JITTER	SHM	Average	5Rating: 0~5 4Rating: 5~10 3Rating: 10~20 2Rating: 20~30 1Rating: Other
		S2D_NEG_AVG_JITTER	SHM		
		D2S_PLUS_AVG_JITTER	SHM		
		D2S_NEG_AVG_JITTER	SHM		
	one way average relay	s2davgdelay	SHM	Average	5Rating: 0~5 4Rating: 5~15 3Rating: 15~25 2Rating: 25~50 1Rating: Other
		d2savgdelay	SHM		
	Average RTT	Average RTT	SHM	Average	5Rating: 0~10 4Rating: 10~30 3Rating: 30~50 2Rating: 50~100 1Rating: Other
	Packet Loss Rate	Packet Loss Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01

					2Rating: 0.01~0.1 1Rating: Other
	Error Rate	Error Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other
	Unreachable Rate	Unreachable Rate	SHM	Average	5Rating: 0~0 4Rating: 1~20 3Rating: 20~30 2Rating: 30~50 1Rating: Other
Application Traffic	Traffic	Traffic	NTA	Sum	5Rating: Other
	Speed	Speed	NTA	Average	5Rating: Other
Interface Traffic	In Traffic	In Traffic	NTA	Sum	5Rating: Other
	Out Traffic	Out Traffic	NTA	Sum	5Rating: Other
	In Speed	In Speed	NTA	Average	5Rating: Other
	Out Speed	Out Speed	NTA	Average	5Rating: Other
Host Traffic	In Traffic	In Traffic	NTA	Sum	5Rating: Other
	Out Traffic	Out Traffic	NTA	Sum	5Rating: Other
	In Speed	In Speed	NTA	Average	5Rating: Other
	Out Speed	Out Speed	NTA	Average	5Rating: Other

					Other
Interface Performance	Interface Performance	inspeed	PERF	Sum	5Rating: Other
		outspeed	PERF		
	Max bandwidth Usage	inutilizationratio	PERF	Maximum	5Rating: 60~80 4Rating: 30~60 3Rating: 0~30 2Rating: 80~90 1Rating: Other
		oututilizationratio	PERF		
Valid Through Usage		inspeed	PERF	Formula: SUM(inspeed) *(1- AVG(inpacketlost) + SUM(outspeed) * (1- AVG(outpacketlost)	5Rating: Other
		outspeed	PERF		
		inpacketlost	PERF		
		outpacketlost	PERF		
NQA Link Quality	Jitter	S2D_PLUS_AVG_JITTER	SHM	Average	5Rating: 0~5 4Rating: 5~10 3Rating: 10~20 2Rating: 20~30 1Rating: Other
		S2D_NEG_AVG_JITTER	SHM		
		D2S_PLUS_AVG_JITTER	SHM		
		D2S_NEG_AVG_JITTER	SHM		
	one way average relay	s2davgdelay	SHM	Average	5Rating: 0~5 4Rating: 5~15 3Rating: 15~25 2Rating: 25~50 1Rating: Other
		d2savgdelay	SHM		
Average RTT	Average RTT	SHM	Average	5Rating: 0~10 4Rating: 10~30 3Rating: 30~50	

					2Rating: 50~100 1Rating: Other
	Packet Loss Rate	Packet Loss Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other
	Error Rate	Error Rate	SHM	Average	5Rating: 0~0 4Rating: 0~0.001 3Rating: 0.001~0.01 2Rating: 0.01~0.1 1Rating: Other
	Unreachable Rate	Unreachable Rate	SHM	Average	5Rating: 0~0 4Rating: 1~20 3Rating: 20~30 2Rating: 30~50 1Rating: Other

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KPI Index Details

Class Name	KPI	Key Word	Description	Data Resource	Unit	Defa Valu
Device	CPU Usage	cpu:2		PERF	%	
	Memory Usage	memory:4		PERF	%	
	Device Response Time	response:6		PERF	ms	

	Device Unreachable	unreachable:8		PERF	%	
	Critical Alarms	critical		ALARM		
	Major Alarms	major		ALARM		
	Minor Alarms	minor		ALARM		
	Warning Alarms	warn		ALARM		
Interface	inspeed	inspeed:1		PERF	bps	
	outspeed	outspeed:5		PERF	bps	
	inutilizationratio	inutilizationratio:9		PERF	%	
	oututilizationratio	oututilizationratio:13		PERF	%	
	inpacketlost	inpacketlost:33		PERF	%	
	outpacketlost	outpacketlost:41		PERF	%	
NQA Voice	Voice MOS	mos		SHM		
	Voice icpif	icpif		SHM		
	S2D_PLUS_AVG_JITTER	S2D_PLUS_AVG_JITTER		SHM	ms	
	S2D_NEG_AVG_JITTER	S2D_NEG_AVG_JITTER		SHM	ms	
	D2S_PLUS_AVG_JITTER	D2S_PLUS_AVG_JITTER		SHM	ms	
	D2S_NEG_AVG_JITTER	D2S_NEG_AVG_JITTER		SHM	ms	
	s2davgdelay	s2davgdelay		SHM	ms	
	d2savgdelay	d2savgdelay		SHM	ms	
	Average RTT	rtt		SHM	ms	
	Packet Loss Rate	lostpacket		SHM	%	
	Error Rate	errorratio		SHM	%	
	Unreachable Rate	unreachablerate		SHM	%	
NQA Link	S2D_PLUS_AVG_JITTER	S2D_PLUS_AVG_JITTER		SHM	ms	
	S2D_NEG_AVG_JITTER	S2D_NEG_AVG_JITTER		SHM	ms	
	D2S_PLUS_AVG_JITTER	D2S_PLUS_AVG_JITTER		SHM	ms	
	D2S_NEG_AVG_JITTER	D2S_NEG_AVG_JITTER		SHM	ms	
	s2davgdelay	s2davgdelay		SHM	ms	
	d2savgdelay	d2savgdelay		SHM	ms	
	Average RTT	rtt		SHM	ms	
	Packet Loss Rate	lostpacket		SHM	%	
	Error Rate	errorratio		SHM	%	
	Unreachable Rate	unreachablerate		SHM	%	

NTA Application	Traffic	traffic		NTA	MB	
	Speed	speed		NTA	MB	
	In Traffic	trafficIn		NTA	MB	
	Out Traffic	trafficOut		NTA	MB	
	In Speed	speedIn		NTA	Mbps	
	Out Speed	speedOut		NTA	Mbps	

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Known Problems

- No alarm is generated when the path polled by a path analysis task is changed.
- Some report data is missing because the HP devices do not support the MIB for some statistics collection.
- The HP devices do not support the deployment of DHCP instances.

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