# FUJITSU Software Infrastructure Manager V2.3

## Infrastructure Manager for PRIMEFLEX V2.3

## **Operating Procedures for Packet Analysis of Virtual Network**

#### October 2018

#### FUJITSU LIMITED

	Modification History						
Edition	Publication Date	Modification Overview					
01	August 2018	First Edition					
02	October 2018	2.2.1 Obtaining Analysis VM:					
		Added a table for supported ISM version and Analysis					
		VM					
		2.5 Traffic Check:					
		Added image for ISM 2.3.0.b or later					
		2.6 Packet Analysis:					
		Added parameters and descriptions for Analysis VM					
		Deploy Settings (vCenter) of ISM 2.3.0.b or later					
		2.6.3 Analysis Status Check:					
		Added actions for error message of ISM 2.3.0.b or later					

This document provides information on operating procedures for Packet Analysis of Virtual Network in FUJITSU Software Infrastructure Manager V2.3 and FUJITSU Software Infrastructure Manager for PRIMEFLEX V2.3.

"Infrastructure Manager for PRIMEFLEX" is available only in Japan, APAC, and North America.

Hereinafter, "Infrastructure Manager" is referred to as "ISM", and "Infrastructure Manager for PRIMEFLEX" is referred to as "ISM for PRIMEFLEX." When description is provided without distinguishing "Infrastructure Manager" from "Infrastructure Manager for PRIMEFLEX", it is referred to as "Infrastructure Manager" or "ISM" as a unified description.

For the details and abbreviations used in this document, refer to the manuals for ISM or ISM for PRIMEFLEX listed below.

- User's Manual
- Glossary
- Settings for Monitoring Target OS and Cloud Management Software

## 1. Overview of Packet Analysis of Virtual Network

## 1.1. Overview of Function

This function displays the trends of the traffic volume and the status of the traffic quality by port, by network, or by host based on the collected packet information. With this information, users can grasp the network trend and identify any trouble smoothly by themselves.



## 1.2. Structure

Analysis VM is deployed on the host OS where traffic performance is decreasing. Analysis VM captures and analyzes the actual packet flowing over the virtual switch to calculate the following performance information.

- Performance information by port number (TCP/UDP), by terminal (VM), or by session.
- Quality degradation information such as traffic volume, the number of packet loss, or the volume of traffic delay.

#### Point

- Analysis VM only analyzes the captured header information of the packet (L2, L3, L4 headers).
- After analyzing the header information, the captured header information is discarded without being saved, meaning that no information is saved.



## 1.3. Display Item

The function displays the following information.

I. Statistical performance information on the monitoring targets (host OS, virtual OS, or virtual network adapter)

Display Item	Description
CPU usage	Displays the utilization rate of the physical CPU
	on the target host.
CPU usage of VM vCPU	Displays the utilization rate of the virtual CPUs
	for each virtual machine operating on the target
	host.
CPU usage of virtual network adapter	Displays the CPU utilization rate in virtual
	network adapter units.
Traffic information of virtual network	Displays the volume of the sent and received
adapter	packets, the number of error packets, and the
	number of dropped packets for each virtual
	network adapter.

II. Packet analysis results showing information on details and quality of communication

Monitoring Targets of Analysis VM	Description
Port traffic information	Displays the sent and received packet
Network traffic information	Displays the sent and received packet
	information for each subnet.
Host traffic information	Displays the sent and received packet
	information for each host.
Host quality information	Displays the communication quality of the TCP
	(number of losses, delay time, etc.) for each
	host.

#### 1.4. System Requirements

To use Packet Analysis of Virtual Network, check the following resources in advance because they are additionally required.

For the system requirements for virtual machines operated by ISM-VA, refer to the "1.5.1 System Requirements for ISM-VA (Virtual Machines)" in "User's Manual."

•	System Rec	uirements l	for ISM-VA(	Virtual N	Machines)
	System nee	lancine inclus i			naennes

Number of nodes	Number of CPU cores	Memory capacity	Disk capacity	
1 to 100 4 cores or more		16 GB or more	85 GB or more	
101 to 400	6 cores or more	16 GB or more	160 GB or more	
401 to 1000	10 cores or more	20 GB or more	310 GB or more	

• System Requirements for Host Operated by Analysis VM

Number of CPU cores	Memory capacity	Disk capacity
2 cores or more	4 GB or more	20 GB or more

#### Note

- The upper limit of virtual adapter that can be monitored by the function is 1000.
- The upper limit of simultaneous analysis using Analysis VM is 10.
- The monitored data will be stored for up to 30 days, and the obsolete one will be deleted.
- The monitored data of Analysis VM will be deleted when Analysis VM is deleted.
- 1.5. Support Target
- 1.5.1. OS and Cloud Management Software to be supported

OS and Cloud Management Software that Packet Analysis of Virtual Network can be used for are as follows.

[OS] VMware : Esxi 5.5 / 6.0 / 6.5 / 6.7 Linux : Redhat Enterprise Linux 7.2 / 7.3 / 7.4 / 7.5

[Cloud Management Software] VMware : vCenter Server 5.5 / 6.0 / 6.5 / 6.7 vCSA 5.5 / 6.0 / 6.5 / 6.7

Linux: OpenStack (Red Hat Enterprise Linux)

#### Note

- To monitor the virtual network adapter, some settings may be required for OS or Cloud Management Software to be used in advance.
- For operational performance using OpenStack, contact your local Fujitsu customer service partner.

For a method to set OS or Cloud Management Software to be monitored, refer to "Settings for Monitoring Target OS and Cloud Management Software."

- 1.5.2. The Number of Monitoring Target Maximum 1000 virtual adapters
- 1.5.3. Data Retention Time Within 1 month

## 2. Procedure for Operating Packet Analysis of Virtual Network

## 2.1. Overview

Preparation	1. Obtain/Import the packet analysis for VM of virtual network.
Threshold Value Settings	2. Set threshold values of the virtual adapter.
Notification Check	<ol><li>When an abnormal threshold value occurs on the virtual adapter being monitored, user will receive notification.</li></ol>
$\sim$	
Traffic Check	4. Check traffic information.
V Furthe	er analysis
Packet Analysis	<ol> <li>5. Start packet analysis.</li> <li>6. Check packet analysis result.</li> <li>7. End packet analysis.</li> </ol>

#### 2.2. Preparation

#### 2.2.1. Obtaining Analysis VM

• Table for supported ISM version and Analysis VM

ISM version	Infrastructure Manager	Infrastructure Manager
	Analysis VM for KVM	Analysis VM for VMware
ISM 2.3.0	V1.0.0	V1.0.0
ISM 2.3.0.b	V1.1.0	V1.1.0

To obtain Analysis VM of virtual network, contact your local Fujitsu service partner.

#### 2.2.2. Importing Analysis VM

Deploy a VM image on ISM-VA.

Deploy the VM image in the file transferring area "/Administrator/ftp" within ISM-VA using FTP client.

For details, refer to the "2.1.2 FTP Access" in "User's Manual."

#### Note

• VM image to be used varies according to the type of hypervisor (VMware, KVM).

## 2.3. Threshold Value Settings

I. Log in to ISM GUI and select [Management] - [Network Map].



II. Select [Actions] - [Setting Virtual Adapter Threshold].

		2 Refresh			
Last Updated: June 22	, 2012 6:09:42 PM	Actions ~			
	Set VLAN				
Virtual Adapter In	Set Multiple VLANs				
Virtual Ada N	Set Link Aggregation				
St MAC Add	Edit Connection				
VLAI	Confirm connection s	tatus change			
Target Add Source Add	Update network information				
Affiliation I	Setting Virtual Adapter Threshold				
CPU Us	Packet analysis of virt	ual network			
<del>ريد CPU Core</del>	. 0				

- III. Check the virtual adapter names and select the ports to be monitored.
- IV. Select [Set Threshold] button.

Se	Setting Virtual Adapter Threshold							
P	Monitoring Virtual Adapter : 1 (Max 1000)							
	Node Name 🗘	Virtual Machine Name 🗘	Virtual Adapter Name 🗘	Monitor Threshold 🗘	Transmit Error Rate Critical Threshold	Transmit Error Rate Warning Threshold	Transmit Drop Rate Critical Threshold	Transmit Drop Rate Warning Threshold
~	RX Server-1	VM 1	PortGroupA	Enable	0.002 [%]	- [%]	0.020 [%]	0.005 [%]
~	RX Server-1	VM 1	PortGroupX	Disable	- [%]	- [%]	- [%]	- [%]
~	RX Server-1	VM 2	PortGroupB	Disable	5 [%]	4 [%]	100 [%]	30 [%]
~	RX Server-1	VM 3	PortGroupC	Disable	- [%]	- [%]	- [%]	- [%]
~	RX Server-1	VM 4	PortGroupD	Disable	5.55 [%]	2.22 [%]	- [%]	- [%]
	RX Server-2	VM 1	tap6a0dc72f-91	Disable	- [%]	- [%]	- [%]	- [%]
	RX Server-2	VM 2	tap6a0dc72f-xx	Disable	- [%]	- [%]	- [%]	- [%]
	RX Server-2	VM 3	tap6a0dc72f-yy	Disable	- [%]	- [%]	- [%]	- [%]
	CX2550-1	VM-1001	VirtualEther(VM-1001)	Disable	- [%]	- [%]	- [%]	- [%]
	CX2550-1	VM-1001	VirtualEther(VM-1001)-2	Disable	- [%]	- [%]	- [%]	- [%]
	CX2550-1	VM-1003	VirtualEther(VM-1003)	Disable	- [%]	- [%]	- [%]	- [%]
4								•
								Close

#### Point

• If actions for the threshold value setting is selected with a node, virtual machine or virtual adapter selected on the Network Map, the target virtual adapter will be selected.

V. Select [Enable] for Monitor Threshold and after setting the threshold values, select [Reflection].

Setting Virtual Adapter Threshold	d		?
Set Threshold			
Monitor Threshold Enable	O Disable		
Transmit Error Critical Thres hold	%	Transmit Error Warning Thr eshold	%
Transmit Drop Critical Thres hold	%	Transmit Drop Warning Thr eshold	%
Received Error Critical Thres hold	%	Received Error Warning Thr eshold	96
Received Drop Critical Thre shold	%	Received Drop Warning Thr eshold	%
			Reflection Cancel

Point

- When you enables Monitor Threshold, monitoring the virtual adapters is started.
- When you disables Monitor Threshold, monitoring the virtual adapters is stopped.
- When you enter threshold values, monitoring the threshold values is started.
- When you delete threshold values, monitoring the threshold values is stopped.
   \*Obtaining information will continue.

## 2.3.1. Precautions for Setting Threshold Values of Virtual Adapter

The number of the virtual adapter that can be monitored is maximum 1000.
 You can check the number of ports being monitored currently from "Monitoring Virtual Adapter" displayed on the upper side of the setting threshold screen.

Setting Virtual Adapter Threshold						?	
Monitoring Virtual Adapter : 1 (Max 1000)						Set Threshold	
Node Name 🗘	Virtual Machine Name 🗘	Virtual Adapter Name 🗘	Monitor Threshold 🗘	Transmit Error Rate Critical Threshold	Transmit Error Rate Warning Threshold	Transmit Drop Rate Critical Threshold	Transmit Drop Rate Warning Threshold

## 2.4. Notification Check

If any event that exceeds the threshold values of the virtual adapter is occurred, the following message will be displayed on [Events] - [Operation Log].

Event ID	Message
30030112	The upper warning threshold value was exceeded at the virtual adapter
	'virtual adapter name' of the virtual machine 'virtual machine name'. The
	monitoring item 'monitoring item name' with value 'measured value'
	exceeded threshold 'value set by user'.
50030114	The upper abnormal limit threshold value was exceeded at the virtual adapter
	'virtual adapter name' of the virtual machine 'virtual machine name'. The
	monitoring item 'monitoring item name' with value 'measured value'
	exceeded threshold 'value set by user'.

## 2.5. Traffic Check

- I. Select an applicable [Virtual Network Adapter].
- II. Select the node that was detected in the event in the above section 2.4.
- III. Select the virtual adapter name shown in the message of event detected in the section 2.4. Otherwise, select the virtual adapter name highlighted in the virtual machine that was notified in the event.

Dashboard	Structuring 🗡	Management Y Events Y Settings Y
Network Node List	<	Server > RX Server-1
🗸 🖩 🖍 Server	<b>4</b> *	
🔒 🔥 HP Server	Ļ	V RX Server-1
RX Server-1		¥ VM 1
RX Server-2	<u>ڳ</u>	
RX Server-3	¢	VM 2 vswitch1
RX Server-4	<b>\$</b>	VM 3
🗸 🗤 Switch	<b>.</b>	
✓ ∰⊙CFX2000-1		

IV. Scroll the bar downward on the [Virtual Adapter Information] window displayed in the right pane to see [Traffic Information].

Meanwhile, by selecting the [Graph] button located on the right of the information, you can check the transition of the monitored data on a graph.

In ISM 2.3.0.b or later, changes in every monitoring data can be checked simultaneously from the [Graph] button on the right side of [Traffic Information].

Virtual Adapter Information		
Virtual Adapter Name: Status: MAC Address: VLAN ID: PID: Target Address: Source Address: Affiliation Node Name: CPU Usage: CPU Core ID:	PortGroupA Error 00-23-32-47-25-e1 200 0 vswitch1 VM 1 RX Server-1 0.000 % 0	Graph
Connection Information		
Virtual Node Name		
vswitch1		
Traffic Information		
Acquisition Date:	December 13, 2017 5:13:	:39 PM
Monitoring Item Name	Latest Value	
Transmit Packet	1,472 [Packet]	Graph
Transmit Bute		
Tansmit byte	0 [Byte]	Graph
Transmit Error	0 [Byte] 15 [Packet]	Graph
Transmit Error	0 [Byte] 15 [Packet] 3.000 [%]	Graph
Transmit Error Transmit Error Rate Transmit Drop	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet]	Graph Graph Graph Graph
Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet] 0.010 [%]	Graph Graph Graph Graph Graph
Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet] 0.010 [%] 26 [Packet]	Graph Graph Graph Graph Graph Graph
Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet] 0.010 [%] 26 [Packet] 0 [Byte]	Graph Graph Graph Graph Graph Graph Graph
Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte Received Error	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet] 0.010 [%] 26 [Packet] 0 [Byte] 8,000 [Packet]	Graph Graph Graph Graph Graph Graph Graph Graph
Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte Received Error Received Error Rate	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet] 0.010 [%] 26 [Packet] 0 [Byte] 8,000 [Packet] 100.000 [%]	Graph Graph Graph Graph Graph Graph Graph Graph Graph
Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte Received Error Received Error Rate Received Drop	0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet] 0.010 [%] 26 [Packet] 0 [Byte] 8,000 [Packet] 100.000 [%] 200 [Packet]	Graph Graph Graph Graph Graph Graph Graph Graph Graph Graph

Example of the [Virtual Adapter Information] and graph display in ISM 2.3.0 / 2.3.0.a

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/irtual Adapter Informa	ation
Virtual Adapter Name: Status: MAC Address: VLAN ID: PID: Target Address: Source Address: Affiliation Node Name: CPU Usage: CPU Core ID:	PortGroupA Error 00-23-32-47-25-e1 200 0 vswitch1 VM 1 RX Server-1 0.000 % Graph 0
Connection Information	n
Virtual Node Name	
vswitch1	
Acquisition Date:	December 13, 2017 5:13:39 P M
Acquisition Date: Monitoring Item Nam	e Latest Value
Acquisition Date: Monitoring Item Nam Transmit Packet	e Latest Value
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte	December 13, 2017 5:13:39 P M e Latest Value 1,472 [Packet] 0 [Byte]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error	December 13, 2017 5:13:39 P M e Latest Value 1,472 [Packet] 0 [Byte] 15 [Packet]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error	December 13, 2017 5:13:39 P M e Latest Value 1,472 [Packet] 0 [Byte] 15 [Packet] 3.000 [%]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop	December 13, 2017 5:13:39 P M e Latest Value 1,472 [Packet] 0 [Byte] 15 [Packet] 3.000 [%] 5 [Packet]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate	December 13, 2017 5:13:39 P           e         Latest Value           1,472 [Packet]           0 [Byte]           15 [Packet]           3.000 [%]           5 [Packet]           0.010 [%]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet	December 13, 2017 5:13:39 P           e         Latest Value           1,472 [Packet]           0 [Byte]           15 [Packet]           3.000 [%]           5 [Packet]           0.010 [%]           26 [Packet]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte	December 13, 2017 5:13:39 P           e         Latest Value           1,472 [Packet]           0 [Byte]           15 [Packet]           3.000 [%]           5 [Packet]           0.010 [%]           26 [Packet]           0 [Byte]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte Received Error	December 13, 2017 5:13:39 P           e         Latest Value           1,472 [Packet]           0 [Byte]           15 [Packet]           3.000 [%]           5 [Packet]           0.010 [%]           26 [Packet]           0 [Byte]           15 [Packet]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte Received Error Received Error Rate	December 13, 2017 5:13:39 P           e         Latest Value           1,472 [Packet]           0 [Byte]           15 [Packet]           3.000 [%]           5 [Packet]           0.010 [%]           26 [Packet]           0 [Byte]           10.000 [%]
Acquisition Date: Monitoring Item Nam Transmit Packet Transmit Byte Transmit Error Transmit Error Rate Transmit Drop Transmit Drop Rate Received Packet Received Byte Received Error Received Error Rate Received Drop	December 13, 2017 5:13:39 P           e         Latest Value           1,472 [Packet]           0 [Byte]           15 [Packet]           3.000 [%]           5 [Packet]           0.010 [%]           26 [Packet]           0 [Byte]           10.000 [%]           200 [Packet]



Example of the [Virtual Adapter Information] and graph display in ISM 2.3.0.b or later.

#### 2.6. Packet Analysis

2.6.1. Start of Packet Analysis

If the cause of performance degradation cannot be identified even by completing up to the section 2.5, execute the packet analysis of the host where the event is being occurred.

Before executing the packet analysis, there are some precautions. Refer to the "Section <u>2.6.2 Precautions before Execution of Packet Analysis</u>."

#### Note

- If the condition has been improved after addressing the cause as a result of checking the packet analysis outcome, stop the packet analysis.
- Once the packet analysis is started, do not delete or change the node OS account or cloud management software settings.

Deploy Analysis VM for the host OS where the performance failure is being occurred.

Keceived Packet	SU,UUU [Packet]	Graph
Received Byte	80,000 [Byte]	Graph
Received Error	1,000 [Packet]	Graph
Received Error Rate	1.000 [%]	Graph
Received Drop	0 [Packet]	Graph
Received Drop Rate	0.000 [%]	Graph
Deploy VM for packe alyze packet informat ottleneck cause and s E2E Information	et analysis. It an star tion, and find b suggestion.	t Analysis
Deploy VM for packe alyze packet informat ottleneck cause and s E2E Information Traffic Information (No	et analysis. It an star tion, and find b suggestion. Analysis Data)	t Analysis
Deploy VM for packe alyze packet informat ottleneck cause and s E2E Information Traffic Information (No Quality Information (No	et analysis. It an tion, and find b suggestion. • Analysis Data) • Analysis Data)	t Analysis
Deploy VM for packe alyze packet informat ottleneck cause and s E2E Information Traffic Information (No Quality Information (No Host Information	tt analysis. It an tion, and find b suggestion. • Analysis Data) o Analysis Data)	t Analysis
Deploy VM for packe alyze packet information ottleneck cause and st E2E Information Quality Information (No Host Information Traffic Information (No	et analysis. It an tion, and find b suggestion. • Analysis Data) • Analysis Data)	t Analysis
Deploy VM for packe alyze packet informat ottleneck cause and st E2E Information Traffic Information (No Quality Information Traffic Information (No Quality Information (No	tt analysis. It an tion, and find b suggestion. Analysis Data) o Analysis Data) Analysis Data) o Analysis Data)	t Analysis
Deploy VM for packe alyze packet information tileneck cause and st E2E Information (No Quality Information (No Host Information (No Quality Information (No Network Information	tt analysis. It an tion, and find b suggestion. • Analysis Data) • Analysis Data) • Analysis Data) • Analysis Data)	t Analysis
Deploy VM for packe alyze packet information tileneck cause and st E2E Information (No Quality Information (No Host Information (No Quality Information (No Network Information Traffic Information (No	et analysis. It an tion, and find b suggestion. Analysis Data) o Analysis Data) o Analysis Data) o Analysis Data) a Analysis Data)	t Analysis

Enter the parameters.

## Analysis VM IP Address Settings

Item	Description
DHCP / IPv4	IP setting to be set to Analysis VM
IP address	Required if IPv4 is specified.
Subnet mask	Required if IPv4 is specified.
Default gateway	Required if IPv4 is specified. *vCenter will be shown only.
NTP server IP address	It is recommended that you specify NTP server.

## Analysis VM Deploy Settings (vCenter)

Item	Description	
Analysis VM name	Specify the Analysis VM name.	
Analysis VM Image file name	Specify vmdk file of Analysis VM.	
Analysis VM ovf file name	Specify ovf file of Analysis VM.	
Management port connection	Specify a port group that can be communicated	
* From ISM 2.3.0.b, it is not displayed due	with ISM.	
to the value is set automatically.		
Virtual switch type connected to	Select a virtual switch type.	
management port		
* From ISM 2.3.0.b, it is not displayed due		
to the value is set automatically.		
Port group name connected to mirror port	Specify a port group that the virtual adapter	
* From ISM 2.3.0.b, it is not displayed due	belongs to.	
to the value is set automatically.		
Switch name/ovs bridge name	Specify a distributed virtual switch connected to	
* From ISM 2.3.0.b, it is not displayed due	the virtual adapter to be analyzed.	
to the value is set automatically.		
Virtual switch port ID/virtual tap	Specify a port ID of the distributed virtual switch	
* From ISM 2.3.0.b, it is not displayed due	connected to the virtual adapter to be analyzed.	
to the value is set automatically.		
Datastore name	Specify a data store name.	
Folder name	Specify a folder to deploy the Analysis VM in.	
*Displayed for ISM 2.3.0.b or later.		
Virtual switch type connected to	Select the type of virtual switch for the connection	
management port	destination of the management port.	
*Displayed for ISM 2.3.0.b or later.		
Virtual switch name	Specify the name of switch that can communicate	

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*Displayed for ISM 2.3.0.b or later.	with ISM.
Network label / Port group	Confirm a connection destination that can
*Displayed for ISM 2.3.0.b or later.	communicate with ISM in vCenter and set it. Set
	the network label if it is a standard switch and the
	port group name if it is a distributed virtual
	switch.

Analysis VM Deploy Settings (OpenStack)

Item	Description
Analysis VM name	Specify the Analysis VM name.
Analysis VM Image file name	Specify qcow2 file of Analysis VM.
Network name connected to management	Specify a network that can be communicated with
port	ISM.
Network name connected to mirror port	Specify a network that the virtual adapter belongs
	to.
Switch/ovs bridge name	It is automatically entered and the value does not
	required to be changed.
Distributed virtual switch port ID/virtual tap	Specify a virtual adapter name to be analyzed.
Floating IP address settings	Select if you use floating IP address.
Floating IP address	Floating IP address is specified.
Security group	Specify a security group name to be applied to
	Analysis VM.
Project name	Specify OpenStack project name that the analysis
	target belongs to.

#### 2.6.2. Precautions before Execution of Packet Analysis

- Resources require to be obtained in advance because Analysis VM will be deployed on the target host OS.
  - For details, refer to the "<u>1.4 System Requirements.</u>"
- When Analysis VM is deployed, packet mirror settings will be executed on the target host automatically.
  - For details on the settings, refer to the following "[Reference] ISM Settings."
- During the execution of Packet Analysis, the performance of service VM may be degraded due to highly loaded node CPU because the resources on the target host is depleted for analyzing packets.

Keep in mind this before use.

- For vCenter, the virtual network adapter to be analyzed requires to be connected to the distributed virtual switch.
- For OpenStack, SSH requires to be authenticated in a security group applied to Analysis VM.

[Reference] ISM Settings

VMware: To set up, ReconfigureDvs\_Task command is used. For details on the command, refer to the VMware site.

OpenStack: To set up, OVScommand is used.

ovs-vsctl ---no-wait ---add Bridge [ovsName] mirrors [mirrorUuid] --[setSrcId] get Port [mirrorTargetName] --[setDstId] get Port [mirrorDestName] --[setId] create Mirror [setmirrorName] [setSelectPort] [setOutputPort]

[Reference : When measured in Fujitsu environment]

There is a possibility that the performance of the service VM will be downgraded by approximately 10%.

#### 2.6.3. Analysis Status Check

Select [Events] - [Events] and check events in [Operation Log].

Event ID	Message	Action
10030037	Setting of virtual network analysis was completed	Check the result of Packet
	(Analysis VM: analysis virtual machine name).	Analysis per the " <u>2.7 Packet</u>
	*For ISM 2.3.0 and ISM 2.3.0.a.	Analysis Result Check."
	Packet Analysis setting was completed (Analysis	
	VM: analysis virtual machine name).	
	*For ISM 2.3.0.b or later.	
50035216	An error has occurred while deploying of virtual	Specify the correct input
	network analysis. Deployment of analysis virtual	parameter and execute again. Or
	machine (analysis virtual machine name) failed.	check the status of Cloud
	*For ISM 2.3.0 and ISM 2.3.0.a.	Management Software.
		For the following error message,
	An error has occurred while deploying of packet	check the ISM version in "2.2.1

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	analysis. Analysis virtual machine (analysis virtual	Obtaining Analysis VM" and the
	machine name) deploying was failed.	support table of the Analysis VM
	(Error: error message)	version, specify the correct
	*For ISM 2.3.0.b or later.	Analysis VM file name and then
		execute again. *For ISM 2.3.0.b
		or later, it is displayed.
		"The file 'file name' is not correct"
		"The version 'analysis VM version'
		is not support".
50035217	An error has occurred while deploying of virtual	Specify the correct input
	network analysis. Setting of analysis virtual	parameter and execute again. Or
	machine (analysis virtual machine name) failed.	check the status of Cloud
	*For ISM 2.3.0 and ISM 2.3.0.a.	Management Software.
		*For ISM 2.3.0.b or later, the
	An error has occurred while deploying of packet	error messages in the following
	analysis. Analysis virtual machine (analysis virtual	separate list are displayed.
	machine name) setting was failed.	Respond to the error messages.
	(Error: error message)	
	*For ISM 2.3.0.b or later.	
	* Refer to the message list for Event ID50035217	
	Error.	
50035220	An error has occurred while deploying of virtual	Specify the correct file name and
	network analysis. A set file is illegal (Analysis VM:	execute again.
	analysis virtual machine name).	*This message is displayed only
		for ISM 2.3.0 and 2.3.0.a.

## Event ID50035217 Error Message List

Message	Action
"vCenter: xxxx"	Displays the message sent from vCenter.
	Check vCenter.
"OpenStack: xxxx"	Displays the message sent from OpenStack.
	Check OpenStack.
The file 'xxxx' is not correct.	Check the file name of the specified Analysis
	VM.
The version 'x.x.x' is not supported.	Check the version of Analysis VM.
The VM name 'xxxx' already exists.	Change the name of Analysis VM.

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Unable to find the datastore 'xxxx'.	Check the datastore name.
Unable to find the VM folder 'xxxx'.	Check the VM folder name.
Unable to find the switch 'xxxx'.	Check the virtual switch name.
Unable to find the port group 'xxxx'.	Check the network label/port group name.
Unable to find security_group with name or id 'xxxx'.	Check the security group name or the security
	group ID.
The network 'xxxx' does not exist.	Check the network name.
Cannot complete login to vCnter due to an incorrect	Check the user name and password for the
user name or password.	vCenter in the Cloud Management Software
	settings.
Cannot complete login to ESXi due to an incorrect user	Check the OS tab in the Details of Node screen
name or password.	and check the user name and password of ESXi.
Cannot complete login due to an incorrect IP address.	Check the IP address of Analysis VM.
The request you have made requires authentication.	Check the authentication settings of OpenStack.
There may be insufficient memory	Check the resources of the server of the
	deployment location for Analysis VM.

# 2.7. Packet Analysis Result Check

After approximately 10 minutes passed, select each item to see the information.

Stop depl analysis.	oyed VM to	г раскет	Stop An	alysis				
E2E Inform	ation							
Traffic Infor	mation							
Quality Info	ormation							
Host Inform	mation							
Traffic Infor	mation							
Ouality Info	rmation							
Network Ir	nformation							
	/							
Traffic Infor	mation							
Traffic Info	mation			_				
Traffic Info	mation nation mation			¥				
Traffic Info Port Inform Traffic Inform	mation mation mation							
Traffic Info Port Inform Traffic Inform Traffic Inform twork Traffic Information Virtual Machine N Virtual Machine N Virtual Adapter N Acquisition Date :	mation mation mation formation lame : VM 1 ame : PortGroupA : December 13, 201	7 5:13:39 PM						
Traffic Info Port Inform Traffic Inform Traffic Inform Virtual Machine N Virtual Machine N Virtual Adapter N Acquisition Date : Network Address	mation mation mation formation lame : VM 1 ame : PortGroupA : December 13, 201 IP Protocol	7 5:13:39 PM Transmit Packet	0	Transmit Byte	\$	Received Packet	0	Received Byte
Traffic Info Port Inform Traffic Inform Traffic Inform Work Traffic Inform Virtual Machine N Virtual Machine N Virtual Adapter N Acquisition Date : Network Address 255.255.250	formation formation lame : VM 1 lame : PortGroupA December 13, 201 UDP	7 5:13:39 PM Transmit Packet - (Pack	C Graph	Transmit Byte 0 (Byte)	Graph	Received Packet 9 [Packet]	Graph	Received Byte 2.952 (Byte
Traffic Info Port Inform Traffic Inform Traffic Inform Work Traffic Inform Virtual Machine N Virtual Adapter N Acquisition Date : Network Address 255.255.0 255.255.0	mation mation mation formation lame : VM 1 lame : PortGroupA December 13, 201 UDP HOPOPT	7 5:13:39 PM Transmit Packet - (Pack 0 (Pack	¢ (et] Graph (et] Graph	Transmit Byte 0 (Byte) 0 (Byte)	¢ Graph Graph	Received Packet 9 [Packet] - [Packet]	¢ Graph Graph	Received Byte 2.952 (Byte 2.952 (Byte
Traffic Info Port Inform Traffic Inform Traffic Inform Traffic Inform Wirtual Adapter N Acquisition Date : Network Address 255.255.255.0 255.255.255.0 10.0.0	formation mation formation lame : VM 1 ame : PortGroupA December 13, 201 UDP HOPOPT HOPOPT	7 5:13:39 PM Transmit Packet - (Pack 3,693.008 (Pack 3,693.009 (Pack	Cet] Graph Ket] Graph Ket] Graph	Transmit Byte 0 (Byte) 0 (Byte) 108.146.199.428 (Byte) 108.146.199.428 (Byte)	¢ Graph Graph Graph	Received Packet 9 [Packet] - [Packet] 3,693.008 [Packet]	© Graph Graph Graph	Received Byte 2.952 (Byte 2.952 (Byte 108:146.199.428 (Byte

#### 2.7.1. Precautions on the Display Results for Packet Analysis

• If a result data is not displayed even when Packet Analysis is started for the host registered in vCenter, check if the IP address of Analysis VM shown on ISM matches the IP address of Analysis VM shown in Cloud Management Software.

How to check the IP address of Analysis VM on ISM

- I. Log in to ISM.
- II. Select [Management] [Network Map].
- III. Select [Actions] [Packet Analysis Status].

IV. Check the [IP address] shown for the applicable [Analysis VM Name].

Packet Analysis Status								
The Stop Analysi	The Stop Analysis button stops analyzing the packet information and undeploys the analysig/VM.							
Node Name ု	Virtual Machine Name	Virtual Adapter Name	IP Address	IP Version	Port Number	Analysis VM Name	Status	Setting Analysis
RX Server-2	VM 1	tap6a0dc72f-91	192.168.200.10	IPv4	10000	Analysis VM A	Deployed	Stop Analysis
RX Server-1	VM 1	PortGroupA	192.168.200.10	IPv4	10000	Analysis VM B	Deploying	Stop Analysis

How to check the IP address of Analysis VM in vCenter / vCSA

- I. Log in to vCenter / vCSA.
- II. Select the server to be analyzed from the [Hosts and Clusters] list.
- III. Select [Analysis VM Name].

IV. Check the IP address shown in the [Summary] in the right pane on the screen.



• The results of the packet analysis will not be displayed if Analysis VM itself is migrated. In that case, execute the "<u>2.8 End of Packet Analysis</u>" and restart the packet analysis.

# 2.8. End of Packet Analysis

Select the [Stop Analysis] button.

Stop deployed VM for pa analysis.	acket Stop Analysis
E2E Information	
Traffic Information	
Quality Information	
Host Information	
Traffic Information	
Quality Information	
Network Information	
Traffic Information	
Port Information	

Analysis VM will be deleted from Cloud Management Software.

2.9. Differences between VMware and KVM in terms of Packet Analysis of Virtual Network

Functions supported		Display Item	VMware	KVM
		CPU usage	Y *1	Y
١.	I. Statistical performance information obtained from the monitoring target host.	CPU usage of VM vCPU	Y	Y
		CPU usage of virtual network adapter	Y *2	Y
		Traffic information of virtual network adapter	Y *3	Y
		Port traffic information	Y	Y
II.	Information on volume	Network traffic information	Y	Y
	and quality of the traffic from the packet analysis	Host traffic information	Y	Y
		Host quality information	Y	Y

\*1 Information on process CPU utilization cannot be displayed.

\*2 Information on CPU scheduler cannot be displayed.

\*3 The number of dropped packets only can be displayed.

Note

• Xen cannot be used.

## 2.10. Precautions When Migration Occurs

When VM migration is executed, re-obtain the information according to the following procedures.

Infrastructure Manager		🜲 20 😢 17 😧 1 Tasks 4	(?) Help 🗸 ISMAdministrator 🗸 FUJITSU
Dashboard Structuring 🖌 🗌 Manag	gement 🗙 🕴 Events 🗸	Settings Y	€ Refresh
		Users	▶ ≡ 1
Status	¥ Alarm	General	Y
17 Error	17 C Error 24 A Warning 1 € Uhrkrown 1 € Maintenance 20 € Normal	20 ≜ Error 4 ∰ Warni 28 ≩ Info 11 ♪ None	ng
	All Nodes ( 63 )	All Nodes ( 6	33)

I. Select [Settings] – [General] – [Could Management Software].

II. Select the [Get Could Management Software Info] button.

Dashboard Stru	icturing Y   Management Y   Events Y	Settings Y		€ Refresh
General Settings	Cloud Management Software List		Get	Cloud Management Software Info
Cloud Management Software	Q Search 15 / 15			Actions ~
Trap Reception	Cloud Management Software Name	IP Address	0 URL	○ Last Updated ○



III. Select [Management] - [Network Map].

IV. Select [Actions] - [Update network information].

