

## Introduction of MasterScope SystemManager G

NEC Corporation 2018



### Introduction

This document introduces MasterScope SystemManager G 8 released in April 2018.



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### 1. About SystemManager G



### What is MasterScope?

MasterScope is NEC's integrated operations management software brand that leverages the expertise and advanced technologies cultivated by NEC over many years. NEC delivers more than 3,000 MasterScope systems to customers annually.

MasterScope provides end-to-end support for systems encompassing ICT infrastructure to applications, and meets our customers' needs for easy-to-operate products.





### Positioning of SystemManager G in the MasterScope series

SystemManager G is a MasterScope monitoring product. SystemManager G enables integrated monitoring of the entire system via functions for monitoring the layers above the OS and an interface to aggregate alerts.





### What is MasterScope SystemManager G?

- An all-in-one integrated monitoring product that covers all systems, from onpremises to in the cloud
- Start small and scale out later according to your monitoring requirements





### Benefits of SystemManager G

Enjoy robust support for monitoring operations, from failure detection to visualization and handling, through integrated monitoring of the entire system. Realize stable system operation and better operational efficiency.



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### Fast Failure Detection

Initial response to failures is accelerated because not only notifications are displayed on the window, but operators in remote locations are also informed of failures through email notifications and warning lamps and beeps.

#### Detect



#### **Email notification**



- Rules can be freely configured to send emails to related parties according to the contents of the failure.
   Notifications include the date and time the failure occurred, the
- node that failed, the severity, and failure details.

#### Warning lamps and beeps



 Rules can be freely configured to cause warning lamps to light and beep according to the contents of the failure.

#### Monitoring window alert display



Performance Monitor

- The icon color changes according to the failure level.
  - Tree structure showing all the items being monitored under the node
- Click the icon to display failure details.



### Visualization of Failure Locations

Detected failures are displayed graphically on the monitoring window in real time. This allows you to immediately grasp the status and severity of the failure, reducing the time required to recover the system.

#### Visualize



#### Understanding failures through physical maps



#### Icons can be freely placed on the map.

- Understand the severity of the failure by a change in the icon color.
- Click an icon to see a more detailed map.

#### Message classification display



- Sort and display detected failures according to user-specified rules in the same way as sorting folders in mailers.
- Identify the extent of impact by dividing failures into processing and system units.



### Troubleshooting Guide and Automated Recovery

Information..

Previous

The user is informed of the actions to take for known failures as soon as the failure is detected. This enables quick and smooth recovery. Self-recovery can also be instigated through the issuance of a command triggered by failure detection, minimizing down time.

#### Recover



#### Informing the user of the actions to take sage Option Informing Troubleshooting steps are FORWARD described using photographs set the BMC, press BMC RESET Switch at least five second is being initialized, STATUS LED 1 and 2 light green and amber simultaneou BMC RESET Switch ), 0, 9 ... 🔇 : : ... 2 &

Confirm

Push the

reset

switch

Print

and diagrams. Procedures can be created by

using html, allowing you to link to and utilize existing operating procedures and other documents.

#### Automating failure handling



- A user-specified command can be executed on any monitoring target triggered by a detected failure.
- Self-recovery from known failures can be instigated **as** part of the command issuance flow.



### 2. Features of SystemManager G



### Three Major Features of SystemManager G

### Feature 1 Simple configuration

- Monitoring functions bundled in a simple, all-in-one configuration
- Monitoring information displayed on a single screen
- Simple configuration
  - Intuitive for unskilled operators
  - Import/export
  - Auto-build

### Feature 2 Easy to scale out

- Functions expanded easily
- Supports large-scale systems

### Feature 3 Linkage with other products

- Integrated monitoring through linkage with other products
- MasterScope integrated console



SystemManager G has a simple three-module structure consisting of a View, a Manager and an Agent, providing all the required server monitoring functions in a single package.



as standard.



### Feature 1 Monitoring Information Displayed on a Single Screen

The system's status is displayed on a single screen using an easy-to-understand GUI. There is no need to launch multiple tools, thereby reducing operating costs.

#### The monitoring information Example: MasterScope SystemManager G view to be displayed can be customized. 6 MasterScope Integrated Console File View Operation Setting Window Messages in server units <u>Performance</u> 🖬 🌆 🛤 🕬 🙀 🤋 System 5tł opology View - South America - Bra... 🗕 🗖 🗙 Topology View - South America Brazil - Rio de Australia ~ 1Hour ¥ Sea + Reporting Mark Auto Add Counter Show latest Server status Severity Color Mark Severity Node Generated Date .00 FATAL DEMO-ITPM 2017/08/30 90 FATAL DEMO-ITPM 2017/08/30 Brazil FATAL DEMO-ITPM 2017/08/30 Rio de Janeiro 80 NORMAL DEMO-ITPM 2017/08/27 3rd Floor NORMAL DEMO-ITPM 2017/08/27 70 4th Floor NORMAL DEMO-ITPM 2017/08/27 🔊 5th Floor 60 NORMAL DEMO-ITPM 2017/08/27 Server Rack1 DEMO-ITPM 2017/08/27 NORMAL 50 £ Server Rack2 DEMO-ITPM 40 Message Count in Category Message Count in View MAJOR MINOR FATAL CRITICAL 30 0 Eventlog Monit 167 Message Monit 20 NORMA Performance M 3663 10 Processor Dotal statt south America - Brazil - Rio de Janeiro - 5th 13:58:16 14:2014:3014:40 14:58:16 🗐 System 17/08/31 17/08/31 Description Windows Servic -**G** Severity Co... Name Status Star ш > Ma Application Information Started Messages from all nodes Save Messages ande Display Severity Color Severity Mark Generated Date Generated Ti... Message Text Report Comment Re ^ Node NORMAL DEMO-ITPM 2017/08/31 14:49:22 An account was logged off. Subject: Security ID: ... 20 NORMAL DEMO-ITPM 2017/08/31 14:57:11 Service become normal state.(NODE=DEMO-ITP. 20 ~ Ready Login:Administrator localhost Configuration Mode



### **Feature 1** Simple Configuration: Intuitive for Unskilled Operators

SystemManager G can be configured and operated intuitively through the GUI. Scripting knowledge is not required to configure monitoring settings.



### **Feature 1** Simple Configuration: Import/Export

Configured monitoring items can easily be applied to different servers by using the import/export function. Monitoring settings can also be collectively registered by using a command.





### **Feature 1** Simple Configuration: Auto-Build

Ansible roles are provided free of charge to automate operations from installing the product to configuring the monitoring settings. You can build your system automatically without any errors by executing a playbook from an Ansible server, thereby reducing SI costs.



### Feature 2 Functions Expanded Easily

A range of expanded functions are available simply by registering a new license. This allows you to flexibly raise the monitoring level or scale out your system according to your needs.

#### Expanded functions (options) Message Manager Event correlation classification display hierarchization analysis function function function Classification and Detection of complex Integrated failures by combining display of failure management by **Basic functions** messages like folder multiple rules bundling multiple sorting in mailers Managers Management Middleware Hypervisor Cloud monitoring functions monitoring monitoring **Reporting function** Performance monitoring ESXi performance and Monitoring of cloud • Message peculiar to applications log monitoring environments such management Example: Table area, as AWS No need to install Command GC rate, heap execution additional modules. Functions can be Schedule control Service level Customizable expanded simply by performance monitoring monitoring registering a license. Monitoring functions Threshold monitoring Monitoring of of user-specified external responses **Performance monitoring** command results Loa monitorina Process/service Higher monitoring level and expanded range of monitoring Service port monitoring monitoring targets File capacity monitoring



### Feature 2 Supports Large-Scale Systems

#### MasterScope SystemManager G supports Manager hierarchization, enabling large-scale distributed systems to be efficiently monitored.

#### Example system requirements

- Each system is monitored by its own system administrator, but the customer wants all systems to be monitored centrally by a single monitoring department.
- The customer wants Managers to be hierarchized to disperse the workload.
- Monitoring target servers: Hundreds of machines (Win, Linux, Unix)
- Number of systems: Multiple systems
- Solution provided by MasterScope SystemManager G
   Point 1

Systems are managed efficiently individually and as a whole by using the Manager hierarchization function.

#### Point 2

The workload of aggregating messages is reduced by filtering the messages sent to the MoM Manager based on the message severity.



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**Feature 3** Integrated Monitoring Through Linkage with Other Products

SystemManager G can be linked with other products by using the system's log monitoring function and event trigger actions. Events can be aggregated to enable integrated monitoring.



### **Feature 3** MasterScope Integrated Console

The console provides a simple integrated GUI that enables server, application, and network monitoring to be managed in an integrated way, and allows users to perform all operations from configuring settings to actually monitoring their systems on a single GUI.



### 3. Function List



#### Major Functions of MasterScope SystemManager G (Standard Functions)

Category	Function	Functional outline					
Monitoring functions	Service and process monitoring	<ul> <li>Windows service alive monitoring/process alive monitoring</li> <li>Threshold monitoring of process ID changes and the number of startup processes.</li> </ul>					
	Performance monitoring	<ul> <li>Resource information (CPU/memory usage, disk usage, etc.) is collected from each server and threshold monitoring of upper and lower limitation is performed. Performance monitoring per process is available as well.</li> <li>Threshold monitoring and notification to the operator by three judgment methods: sequential, N times continuous, N times average.</li> <li>Resource information can be accumulated and displayed as a graph or printed out. Support for analyzing operating status and problems.</li> </ul>					
	Log monitoring • Event logs • Syslogs • Application logs	<ul> <li>Message monitoring by extracting necessary logs from syslogs, event log, and any text log files output by applications.</li> <li>Suppress identical messages on the Agent side to avoid message overload.</li> </ul>					
	File capacity monitoring	<ul> <li>Monitor existence, capacity, and updates of files and directories.</li> <li>Prevent disk space exhaustion and enable early detection of essential system file deletion or update.</li> </ul>					
	Service port monitoring	Monitor open/close status of user-specified TCP/UDP ports					
	Topology management	Monitoring target servers can be grouped by location or customer-specified role.					
	Message management	Messages can be accumulated and managemed per server or system. Messages can be marked according to the presence of comments or response status, allowing information to be shard between operators.					
Management functions	Notification control	<ul> <li>Notification by email or alarm lamp triggered by message issuance, change in monitoring process or service status, or excess of resource threshold values.</li> <li>Commands can be executed on the Manager triggered by message issuance.</li> </ul>					
	Configuration management	Centralized view of monitoring target server configuration information (such as devices, systems, software, networks, and disks)					
	User management	Limitation of investigation range authorities for each user prevents operational errors and improves security by assigning appropriate authorities.					
	Audit logs	Support for internal control by managing the operational details and result history of operations performed on the console and automatically executed.					
	Schedule control	Schedule monitoring to start/stop for each server.					
	Command execution	Predefined recovery commands can be executed triggered by events.					
Build functions	Agent auto-build	Ansible scenarios (roles) is provided to perform operations from Agent installation to monitoring configuration. Remote execution and error-free auto-building of Agents.					

For details about each function, see the separate List of SystemManager G Functions.



#### Major Functions of MasterScope SystemManager G (Optional Functions)

Category	Function	Functional outline					
Monitoring functions	Application monitoring	Monitoring of performance with graphical view of application operating status. Accumulation of operating status data a statistics for system problem analysis and improvement.					
	IT service response monitoring	Monitoring of end-to-end operating status and response for HTTP, Mail, DNS, TCP, and FCP based on settings that accord with the user's purpose.					
	Hypervisor monitoring	Monitoring of virtual server resources and events for the hypervisor (VMware ESXi).					
	Cloud service monitoring	Instances on the cloud can be monitored via an API provided by public cloud (CloudWatch) without installing an Agent.					
	Customizable performance monitoring	User-specified commands and program output results can be extracted by column and used as monitor counters. It can be displayed as a graph or output as a unified form.					
	Message management (Monitoring from a business perspective)	Events reported from monitoring targets can be classified on the Business View from the perspective of the customer's business.					
	Knowledge management	Users are informed of actions to take for failure recovery.					
Management	Message correlation analysis	Correlation analysis function of multiple event information, automated action, and notification. Conditions can be specified such as the satisfaction of condition 1 & condition 2, and the occurrence of an event for the specified number of times within the specified time frame.					
Tunctions	Manager hierarchization	Messages across the entire system are monitored centrally by linking multiple Managers hierarchically and having lower- level Managers report collected messages to higher level Managers.					
	Performance analysis	Regression analysis on collected performance data shows the tendency and predicts the future values. Correlation analysis on collected performance data detects abnormal behavior and suggests the cause.					
	Web Console	Web-based monitoring dashboard to view overall system status at a glance.					
Control	Operation control	Commands can be executed for monitoring target servers at user-specified timing.					
functions	Workflow control	Flows such as failure recovery and daily operations can be predefined as scenarios and automatically executed.					
Linkage functions	Application linkage	Logs collected by MasterScope SystemManager G can be output as text files.					
	Service desk linkage	Incidents can be registered to incident management software automatically or manually.					

For details about each function, see the separate List of SystemManager G Functions.



## 4. An Overview of New Features and Enhancements in SystemManager G 8



### Web Console

# Web browser console allows you to monitor systems from terminals without View installed.

\*MasterScope SystemManger G8 Web Console is required. MasterCope **Server Status** Infrastructure Management Arrest Configuration/ I feldere Reference HTTP\or HTTPS Message Monitoring MasterCope \*BusinessView Option is required. System Administrator Notice
 Text Failure Monitoring SystemManager G Web Console erCcope **Monitoring Template** Configuration/ Hanitaring Templat Data Reference Transfer Monitoring Operator **Performance Report** 1110 SystemManager G **Application Management** Manager Daniel Long Per Configuration/ Reference **Application Administrator** 



### Feature Overview 1: Monitoring Dashboard

**Option** Web Console

### You can create and customize your dashboard with widgets to get a quick view of the system status as soon as you login.





### Feature Overview 2: Performance Report

Option Web Console

Performance reports are displayed using tabs. Host availability, ranking, and capacity management by regression lines are newly added features.



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### 5. License Model and Configuration Examples



### **Basic Product Configuration**

### SystemManager G consists of three layers: a View, a Manager, and a Monitoring Agent. It also supports remote monitoring.



#### ♦View

The View is the window on which monitoring settings are configured and monitoring is performed, and is used connected to the Manager. The number of View licenses required is equivalent to the maximum number of Managers connected simultaneously.

#### Manager

The Manager centrally manages the information output from the Agents. Monitoring settings are configured via the Manager.

#### ♦ Agent

An Agent is installed on each monitoring target server and monitors the operating status of the server and the operation logs, and notifies the Manager if an anomaly is detected.

#### **Optional functions**

To use an optional function, a license for the corresponding function must be registered on the Manager.

#### Application monitoring option

This option can be used to monitor features peculiar to applications, such as the size of the table area in a DB, the transaction amount, and the number of Web server connections.

In addition to an Agent, a license for each monitoring target application is required.

#### Business View option

This option provides functionality to classify messages collated by the Manager according to freely specifiable rules.

Additionally, if a message matches a sorting rule, the option also provides a knowledge function to display the corresponding handling method.

For this option, a license is required for each Manager.



### System Configuration Example (1/2)

Example 1: Basic configuration with Windows

- View x 1
- Manager x 1
- Monitoring target servers x 20



Product name	Overview	Qty
MasterScope SystemManager G Manager for Windows/Linux	Manager	1
MasterScope SystemManager G Agent for Windows/Linux(20)	20 Agents	1
MasterScope Media April 2017 edition	Installation media	1

Example 2: Cluster configuration of management server using Windows

- View x 1
- Manager x 1 cluster group (2 machines)
- Monitoring target servers x 20



Product name	Overview	Qty
MasterScope SystemManager G Manager for Windows/Linux	Manager	2
MasterScope SystemManager G Agent for Windows/Linux(20)	20 Agents	1
MasterScope Media April 2017 edition	Installation media	1

\*One View license is bundled with the Manager license.

 $\ensuremath{^*\textsc{One}}$  View license is bundled with the Manager license.



### System Configuration Example (2/2)

Example 3: Business application monitoring configuration

- View x 1
- Manager x 1 cluster group (2)
- \* The Business View function is used.
- Monitoring target servers x 20
  - \* Oracle Database x 1, IIS x 1



Product name	Overview	Qty
MasterScope SystemManager G Manager for Windows/Linux	Manager	2
MasterScope SystemManager G BusinessView Option for Windows/Linux	Business View option	2
MasterScope SystemManager G for Windows/Linux(20)	20 Agents	1
MasterScope SystemManager G Oracle Monitoring Option for Windows/Linux	Oracle Monitoring option	1
MasterScope SystemManager G IIS Monitoring Option for Windows	IIS Monitoring option	1
MasterScope Media April 2017 edition	Installation media	1

\* One View license is bundled with the Manager license.



### License Types (Standard Functions)

Product name	Remarks
Viewer	
MasterScope SystemManager G View	
Manager	
MasterScope SystemManager G Manager for Windows/Linux	Includes one View license
Agent (installation license)	
MasterScope SystemManager G Agent for Windows/Linux (1/5/20)	
MasterScope SystemManager G Agent for UNIX (1/5/20)	





### License Types (Options)

Product name	Remarks			
Manager options				
MasterScope SystemManager G BusinessView Option for Windows/Linux				
MasterScope SystemManager G ApLinker Option for Windows/Linux				
MasterScope SystemManager G Invariant Analyzer Option for Windows/Linux				
MasterScope SystemManager G Workflow Option for Windows/Linux				
MasterScope SystemManager G Operations Option for Windows/Linux				
MasterScope SystemManager G EventCorrelation Option for Windows/Linux	The Business View option is required.			
MasterScope SystemManager G ServiceManagerLinker Option for Windows/Linux	The Business View option is required.			
MasterScope SystemManager G Hierarchical Manager Option for Windows/Linux	The Business View option is required.			
MasterScope SystemManager G Customizable Performance Monitoring Option for Windows/Linux				
Web Console				
MasterScope SystemManager G Web Console				
Performance analysis function Additional counter license				
MasterScope SystemManager G Invariant Analyzer Additional Counter (1,000/10,000/100,000)	The Invariant Analyzer option is required.			



### License Types (Options)

Product name	Remarks		
Agent options			
MasterScope SystemManager G Oracle Monitoring Option for Windows/Linux			
MasterScope SystemManager G Oracle Monitoring Option for UNIX			
MasterScope SystemManager G SQL Server Monitoring Option for Windows			
MasterScope SystemManager G IIS Monitoring Option for Windows			
MasterScope SystemManager G WebLogic Monitoring Option for Windows/Linux	Multiple options can be applied to a single Agent.		
MasterScope SystemManager G WebLogic Monitoring Option for UNIX			
MasterScope SystemManager G Apache Monitoring Option for Windows/Linux			
MasterScope SystemManager G Tomcat Monitoring Option for Windows/Linux			
MasterScope SystemManager G Tomcat Monitoring Option for UNIX			
MasterScope SystemManager G SAP ERP Monitoring Option for Windows			
MasterScope SystemManager G WebSphere Monitoring Option for Windows/Linux			
MasterScope SystemManager G WebSphere Monitoring Option for UNIX			
MasterScope SystemManager G Java Monitoring Option for Windows/Linux			





### License Types (Probe)

Product name	Remarks
Probe (IT service response monitoring)	
MasterScope SystemManager G IT Service Response Monitor for HTTP 1/5/20Target	
MasterScope SystemManager G IT Service Response Monitor for Mail 1Target	
MasterScope SystemManager G IT Service Response Monitor for DNS 1Target	
MasterScope SystemManager G IT Service Response Monitor for TCP 1Target	
MasterScope SystemManager G IT Service Response Monitor for FTP 1Target	
Probe (hypervisor monitoring)	
MasterScope SystemManager G Hypervisor Monitor for vmware	
Probe (cloud service monitoring)	
MasterScope SystemManager G Cloud Monitor for Amazon Web Services	



### Supported Platforms

Supported: • Not supported: -

Supported platforms	Manager	Agent	Remote Host	Remote Monitoring Agent	Viewer	Application Server for Web Console
Windows Server 2016	。 *1, *2	。 *1, *2	。 *1, *2	。 *1, *2	。 *1, *2	o *4
Windows Server 2012/2012 R2	。 *1	。 *1	。 *1	o *1	o *1	o *5
Windows Server 2008/2008 R2	。 *1	。 *1	。 *1	° *1, *3	o *1	。 *6
Windows 10	-	-	-	-	0	-
Windows 8/8.1	-	-	-	-	0	-
Windows 7	-	-	-	-	0	-
Red Hat Enterprise Linux 7	0	0	0	-	-	0
Red Hat Enterprise Linux 6	0	0	0	-	-	0
Red Hat Enterprise Linux 5	0	0	0	-	-	-
SUSE Linux Enterprise Server 11	-	0	-	-	-	-
Oracle Linux (UEK R2) 6.2/6.4	0	0	0	-	-	-
HP-UX 11iv3(IPF)	0	0	-	-	-	-
Solaris 10/11 (SPARC)	-	0	-	-	-	-
AIX 6.1/7.1	-	0	-	-	-	-

\*1 Not support for Server Core.

\*2 Not supported for Nano Server.

\*2 Only support 2008 R2.

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\*4 Only support the environment installed with Desktop Experience option. \*5 Only support the environment installed with Server with a GUI option.

\*6 Only support the environment installed with Full Installation option.

• For the latest information and status of support for monitoring target applications, see the product website.



### 6. Appendix Case Studies



### Case Study: ALL NIPPON AIRWAYS CO., LTD (ANA) Master Scope

Centralized large scale common platform monitoring solution linking internal/external systems with the International flight system (SaaS). This enables a stable large scale operation (99.995 % availability) consisting of more than 350 servers and network devices

#### **Customer Challenges**

- Centralized monitoring of ANA's domestic/international flight systems
- Operational monitoring of ANA's Exadata system (high speed, huge volume transaction processing)
- Easy status monitoring of the individual systems & services

#### **MasterScope Benefits**

- Integrated monitoring of over 350 servers/network devices with MasterScope already familiarized being used for the previous platform system (CAP)
- Integrated system made available through a dedicated Oracle Exadata connector
- Intuitive graphical UI for a quick monitoring of the full system status



#### Integrated monitoring system overview

- MasterScope integrated monitoring of both Altéa and ANA's internal/external systems through the large scaled SOA platform utilizing over 1,200 interfaces.
- A dedicated connector developed with Oracle for MasterScope allowing Exadata system monitoring which processes over 1000TPS of data transaction at high speed.
- Integrated admin screen allowing monitoring of all platforms enabling a quick failure detection and issue solving solutions to be deployed providing an enhanced yet stable operation.



### Case Study: ALL NIPPON AIRWAYS CO., LTD (ANA) Master Cope

Integrated common platform monitoring through MasterScope. Evaluated as being "A great tool in locating any point of failure with ease and simple controls".





## **Thank You**



Realize simple and integrated system operation

For more product information,
visit >> <u>http://www.nec.com/masterscope/</u>

For more information, please contact your local NEC representative or contact us at <a href="mailto:global@soft.jp.nec.com">global@soft.jp.nec.com</a>



# Orchestrating a brighter world

NEC brings together and integrates technology and expertise to create the ICT-enabled society of tomorrow.

We collaborate closely with partners and customers around the world, orchestrating each project to ensure all its parts are fine-tuned to local needs.

Every day, our innovative solutions for society contribute to greater safety, security, efficiency and equality, and enable people to live brighter lives.

# **Orchestrating** a brighter world

