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JP1 Version 11

JP1/Automatic Job Management System 3 Linkage Guide

Notices

■ Relevant program products

For details about the applicable OS versions, and the service packs and patches required for JP1/Automatic Job Management System 3, see the *Release Notes*.

JP1/Automatic Job Management System 3 - Manager (For Windows):

P-2A12-3KBL JP1/Automatic Job Management System 3 - Manager version 11-50

The above product includes the following:

P-CC2A12-4KBL JP1/Automatic Job Management System 3 - Manager version 11-50 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

P-CC2912-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

P-CC8212-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64), CentOS 7)

P-CC2A12-3NBL JP1/Automatic Job Management System 3 - Print Option Manager version 11-10 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

JP1/Automatic Job Management System 3 - Manager (For HP-UX):

P-1J12-3KBL JP1/Automatic Job Management System 3 - Manager version 11-50

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P-CC1J12-4KBL JP1/Automatic Job Management System 3 - Manager version 11-50 (For HP-UX(IPF))

P-CC2912-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

P-CC8212-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64), CentOS 7)

P-CC1J12-3NBL JP1/Automatic Job Management System 3 - Print Option Manager version 11-10 (For HP-UX(IPF))

JP1/Automatic Job Management System 3 - Manager (For Solaris):

P-9D12-3KBL JP1/Automatic Job Management System 3 - Manager version 11-50

The above product includes the following:

P-CC9D12-4KBL JP1/Automatic Job Management System 3 - Manager version 11-50 (For Solaris 11(SPARC), Solaris 10(SPARC))

P-CC2912-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

P-CC8212-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64), CentOS 7)

P-CC9D12-3NBL JP1/Automatic Job Management System 3 - Print Option Manager version 11-10 (For Solaris 11(SPARC), Solaris 10(SPARC))

JP1/Automatic Job Management System 3 - Manager (For AIX):

P-1M12-3KBL JP1/Automatic Job Management System 3 - Manager version 11-50

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P-CC1M12-4KBL JP1/Automatic Job Management System 3 - Manager version 11-50 (For AIX)

P-CC2912-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

P-CC8212-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64), CentOS 7)

P-CC1M12-3NBL JP1/Automatic Job Management System 3 - Print Option Manager version 11-10 (For AIX)

JP1/Automatic Job Management System 3 - Manager (For Linux):

P-8112-3KBL JP1/Automatic Job Management System 3 - Manager version 11-50

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P-CC2912-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2)

P-CC8212-39BL JP1/Automatic Job Management System 3 - Web Console version 11-50 (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64), CentOS 7)

P-CC8112-3NBL JP1/Automatic Job Management System 3 - Print Option Manager version 11-10 (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64) ,CentOS 7)

JP1/Automatic Job Management System 3 - Agent (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2):

P-2A12-33BL JP1/Automatic Job Management System 3 - Agent version 11-50

JP1/Automatic Job Management System 3 - Agent (For HP-UX(IPF)):

P-1J12-33BL JP1/Automatic Job Management System 3 - Agent version 11-50

JP1/Automatic Job Management System 3 - Agent (For Solaris 11 (SPARC) and Solaris 10 (SPARC)):

P-9D12-33BL JP1/Automatic Job Management System 3 - Agent version 11-50

JP1/Automatic Job Management System 3 - Agent (For AIX):

P-1M12-33BL JP1/Automatic Job Management System 3 - Agent version 11-50

JP1/Automatic Job Management System 3 - Agent (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64) ,CentOS 7):

P-8112-33BL JP1/Automatic Job Management System 3 - Agent version 11-50

JP1/Automatic Job Management System 3 - Agent Minimal Edition (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2):

P-2A12-38BL JP1/Automatic Job Management System 3 - Agent Minimal Edition version 11-50

JP1/Automatic Job Management System 3 - Agent Minimal Edition (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64) ,CentOS 7):

P-8112-38BL JP1/Automatic Job Management System 3 - Agent Minimal Edition version 11-50

JP1/Automatic Job Management System 3 - View (For Windows):

P-2A12-34BL JP1/Automatic Job Management System 3 - View version 11-50

The above product includes the following:

P-CC2A12-44BL JP1/Automatic Job Management System 3 - View version 11-10 (For Windows Server 2016, Windows 10, Windows 8.1, Windows 8, Windows Server 2012 R2, Windows Server 2012, Windows 7, Windows Server 2008 R2)

P-CC2A12-3MBL JP1/Automatic Job Management System 3 - Print Option version 11-50 (For Windows Server 2016, Windows 10, Windows 8.1, Windows 8, Windows Server 2012 R2, Windows Server 2012, Windows 7, Windows Server 2008 R2)

JP1/Base (For Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2):
P-2A2C-6LBL JP1/Base version 11-50

JP1/Base (For HP-UX(IPF)):
P-1J2C-6LBL JP1/Base version 11-50

JP1/Base (For Solaris 11 (SPARC) and Solaris 10 (SPARC)):
P-9D2C-6LBL JP1/Base version 11-50

JP1/Base (For AIX):
P-1M2C-6LBL JP1/Base version 11-50

JP1/Base (For Linux 6.1(x64) or later, Linux 7.1, Oracle Linux 6(x64), Oracle Linux 7, SUSE Linux 12, CentOS 6(x64) ,CentOS 7):
P-812C-6LBL JP1/Base version 11-50

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■ Microsoft product name abbreviations

This manual uses the following abbreviations for Microsoft product names.

Abbreviation		Full name or meaning
Excel		Microsoft(R) Excel
		Microsoft(R) Office Excel
Exchange Server		Microsoft(R) Exchange 2000 Enterprise Server
		Microsoft(R) Exchange 2000 Server
		Microsoft(R) Exchange Server
IE	Internet Explorer	Microsoft(R) Internet Explorer(R)
		Windows(R) Internet Explorer(R)
Microsoft SQL Server		Microsoft(R) SQL Server
		Microsoft(R) SQL Server Enterprise Edition
MSMQ		Microsoft(R) Message Queue Server
Outlook	Outlook 2007	Microsoft(R) Office Outlook(R) 2007
	Outlook 2010	Microsoft(R) Office Outlook(R) 2010
	Outlook 2013	Microsoft(R) Office Outlook(R) 2013
Outlook Express		Microsoft(R) Outlook(R) Express
Windows 10		Windows(R) 10 Enterprise
		Windows(R) 10 Pro

Abbreviation		Full name or meaning
Windows 7		Microsoft(R) Windows(R) 7 Enterprise
		Microsoft(R) Windows(R) 7 Professional
		Microsoft(R) Windows(R) 7 Ultimate
Windows 8		Windows(R) 8 Enterprise
		Windows(R) 8 Pro
Windows 8.1		Windows(R) 8.1 Enterprise
		Windows(R) 8.1 Pro
Windows Server 2008	Windows Server 2008 R2	Microsoft(R) Windows Server(R) 2008 R2 Datacenter
		Microsoft(R) Windows Server(R) 2008 R2 Enterprise
		Microsoft(R) Windows Server(R) 2008 R2 Standard
Windows Server 2012	Windows Server 2012	Microsoft(R) Windows Server(R) 2012 Datacenter
		Microsoft(R) Windows Server(R) 2012 Standard
	Windows Server 2012 R2	Microsoft(R) Windows Server(R) 2012 R2 Datacenter
		Microsoft(R) Windows Server(R) 2012 R2 Standard
Windows Server 2016		Microsoft(R) Windows Server(R) 2016 Datacenter
		Microsoft(R) Windows Server(R) 2016 Standard

Windows is sometimes used generically, referring to Windows Server 2016, Windows 10, Windows 8.1, Windows 8, Windows Server 2012, Windows 7, Windows Server 2008.

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Summary of amendments

The following table lists changes in the manuals (3021-3-B12-20(E), 3021-3-B13-20(E), 3021-3-B14-20(E), 3021-3-B15-20(E), 3021-3-B16-20(E), 3021-3-B17-20(E), 3021-3-B18-20(E), 3021-3-B19-20(E), 3021-3-B20-20(E), 3021-3-B21-20(E)) and product changes related to these manuals.

Changes	Location
The Web GUI now support the following functions: • Viewing monthly schedules • Adding execution schedules • Change plan (change time) • Change plan (execute immediately) • Change plan (execution prohibited) • Change plan (release change) • Change delay monitor	Overview *6.3*, *8.2.1*, *8.2.2* System Design (Configuration) Guide *3.2.1(3)*, *3.2.1(4)*, *3.4.7* Configuration Guide *3.4.3(4)*, *3.4.3(5)(n)*, *3.4.3(6)*, *13.3.3(4)*, *13.3.3(5)(m)*, *13.3.3(6)* Troubleshooting *C.1* Operator's Guide *A.4*, *A.5*, *A.6*, *A.7*, *A.10*, *A.19*, *A.20*, *A.22*, *A.23*, *A.24*, *A.25*, *A.26*, *A.27* Messages *KNAK2023-E*, *KNAK2427-Q*, *KNAK2428-Q*, *KNAK2429-E*, *KNAK2430-Q*
The API now supports the function to acquire unit information.	Command Reference *6.6.1(1)*, *6.6.1(4)*, *7.1.2*, *7.1.18*, *7.3.2*, *7.4.5(7)*, *7.4.5(8)*, *D.1*, *D.2*, *D.3*, *D.4*
The maximum size of the Java heap on the Web Console server can now be changed, and the default value was changed from 512 MB to 2,048 MB.	Configuration Guide *3.4.2*, *3.4.9*, *13.3.2*, *13.3.9* Administration Guide *2.2.5(1)(a)*, *2.2.5(1)(b)* Troubleshooting *A.4(1)*, *A.4(2)*
A function was added to enable you to change the colors indicating unit statuses displayed in the windows and dialog boxes of the Web GUI.	Overview *6.1* System Design (Configuration) Guide *4.6.1(3)* Configuration Guide *3.4.2*, *3.4.8*, *13.3.2*, *13.3.8* Administration Guide *2.2.5(1)(a)*, *2.2.5(1)(b)* Troubleshooting *A.4(1)*, *A.4(2)* Operator's Guide *B.*
The map area in the Monitor dialog box and the Monitor screen of the Web GUI can now switch between displaying unit names and comments.	Operator's Guide *A.10*, *A.11*
The following functions were added to improve job throughput when multiple scheduler services are active:	System Design (Configuration) Guide *3.1.1(1)*, *3.1.1(5)(a)*, *3.4.2*, *3.4.2(1)*, *3.4.2(2)*

Changes	Location
• Function to reduce the number of ports that are used during job execution • Function to output trace logs for each scheduler service In addition to the changes to internal processing, the JP1/AJS3 performance processing that runs when multiple root jobnets start at the same time was improved. As a result, job throughput when a single scheduler service is active was also improved.	Configuration Guide *3.5.1(1)*, *6.1.1(2)*, *6.1.1(4)(b)*, *6.1.5*, *6.1.12*, *7.1.1*, *8.2.9(2)*, *8.2.9(4)(b)*, *13.4.4(1)*, *15.1.1(2)*, *15.1.1(4)(b)*, *15.1.5*, *15.1.13*, *16.1.1*, *17.2.9(2)*, *17.2.9(4)(b)*, *20.4.1*, *20.4.2(4)*, *20.4.2(116)*, *20.8.1*, *20.8.2(4)* Troubleshooting *1.2.3(1)*, *1.2.4(1)*, *1.2.4(2)* Command Reference *3. ajstrsetsz* Messages *KAVS0788-E, KAVU0244-E, KAVU2229-E, KAVU2231-E*
The maximum number of execution agents that can be registered on one manager host can now be increased to 2,048.	Overview *A.2* System Design (Configuration) Guide *2.1.1*, *2.5.1*, *B.1*, *B.5* Configuration Guide *6.2.28*, *15.2.25*, *20.3.1*, *20.3.2(16)* Command Reference *3. ajsagtadd* Messages *1.3.7(2)*, *KNAC1521-E*
To enable the comments on units to be viewed in JP1/IM windows, commenting on units was added as an extended attribute (specific information) of a JP1 event whose OBJECT_TYPE is JOBNET or JOB.	Configuration Guide *20.4.1*, *20.4.2(114)*, *20.4.2(115)* Administration Guide *A.2(3)*, *A.2(4)*, *A.2(5)*, *A.2(6)*, *A.2(7)*, *A.2(8)*, *A.2(9)*, *A.2(10)*, *A.2(11)*, *A.2(14)*, *A.2(15)*, *A.2(16)*, *A.2(17)*, *A.2(18)*, *A.2(19)*, *A.2(20)*, *A.2(21)*, *A.2(23)*, *A.2(24)*, *A.2(25)*, *A.2(26)*, *A.2(27)*, *A.2(28)*, *A.2(29)*, *A.2(30)*, *A.2(31)*, *A.2(32)*, *A.2(33)*, *A.2(34)*, *A.2(35)*, *A.2(36)*, *A.2(37)*, *A.2(44)*, *A.2(45)*, *A.2(46)*, *A.2(47)* Messages *1.3.2*, *1.4.1*, *KAVS0917-E*
Commands to specify settings of environment setting parameters were integrated into the jajs_config command.	Overview *10.5.1(3)(a)* System Design (Configuration) Guide *7.2.2* Configuration Guide *4.2*, *4.2.1*, *4.2.2*, *6.2*, *6.2.18(1)*, *6.2.21(1)*, *6.2.22(1)*, *6.2.24(1)*, *6.4*, *6.4.1(1)*, *6.4.1(3)*, *6.4.2(1)*, *6.4.3(1)*, *13.4.1(1)*, *14.2*, *14.2.1*, *14.2.2*, *15.2.20(1)*, *15.2.22(1)*, *15.4*, *15.4.1(1)*, *15.4.1(3)*, *20.7.2(5)*, *20.10.1*, *20.10.2(3)* Troubleshooting *1.2.4(1)*, *1.2.4(2)* Command Reference *2. jajs_config, 4. ajsqlsetup*
When the scheduler service is restarted, a job that meets specific conditions now transitions to *Wait for prev. to end* or to *Not executed + Ended* status (and not to *Unknown end status*). This enables you to determine, from the job status	Overview *A.2*

Changes	Location

after the restart of the scheduler service, whether a user program has started.	Administration Guide
	    6.2.1(3)(a), *6.4*, *A.1*
	Command Reference
	    3. ajsstart
	Messages
	    KAVS0266-I

Descriptions were added concerning JP1/AJS3 - Agent Minimal Edition, which limits the number of jobs that can be executed per day to 10.	System Design (Configuration) Guide
	    2.1.1, *2.1.2(1)*, *4.2.1*, *8.1.3*, *A.1(2)*, *A.2*, *A.4*, *A.7(1)*, *A.7(2)*, *A.7(3)*, *G.*
	Configuration Guide
	    20.5.1, *20.5.2(93)*, *20.5.2(94)*, *20.6.1*, *20.7.1*, *20.11.1*
	Administration Guide
	    7.9.3
	Troubleshooting
	    1.2.4(1), *1.2.4(2)*
	Command Reference
	    1.5.1, *1.5.9(2)*, *2. ajsatsetup*, *4. ajsqlsetup*
	Messages
	    1.3.4, *1.3.8*, *KAVS1931-E*, *KAVS4540-E*, *KAVS8100-E*, *KAVU3607-I*, *KAVU3608-E*, *KNAD1000-E*, *KNAD1704-Q*

Legend:

    Overview: *JP1/Automatic Job Management System 3 Overview*

    System Design (Configuration) Guide: *JP1/Automatic Job Management System 3 System Design (Configuration) Guide*

    System Design (Work Tasks) Guide: *JP1/Automatic Job Management System 3 System Design (Work Tasks) Guide*

    Configuration Guide: *JP1/Automatic Job Management System 3 Configuration Guide*

    Administration Guide: *JP1/Automatic Job Management System 3 Administration Guide*

    Troubleshooting: *JP1/Automatic Job Management System 3 Troubleshooting*

    Operator's Guide: *JP1/Automatic Job Management System 3 Operator's Guide*

    Command Reference: *JP1/Automatic Job Management System 3 Command Reference*

    Linkage Guide: *JP1/Automatic Job Management System 3 Linkage Guide*

    Messages: *JP1/Automatic Job Management System 3 Messages*

In addition to the above changes, minor editorial corrections were made.

Preface

This manual describes the linkage functionality of Job Management Partner 1/Automatic Job Management System 3 with other products (abbreviated hereafter to *JP1/AJS3*).

■ Intended readers

This manual is intended for:

- Those who wish to operate an automatic job execution system with JP1/AJS3 and those who design automatic job execution systems.
- Those who operate an automatic job execution system with JP1/AJS3.

■ Organization of this manual

This manual organized into the following chapters. The manual is a common reference for all supported operating systems. Any platform-dependent differences in functionality are noted in the manual.

1. Overview

Chapter 1 gives an overview of linking other products.

2. Linking Mail Systems

Chapter 2 describes how to link a mail system to send and receive mail.

3. Adding Custom Jobs

Chapter 3 describes how to add custom jobs to link other products.

4. Linking JP1/FTP

Chapter 4 describes how to link JP1/FTP to automatically transfer files.

5. Linking ERP Systems

Chapter 5 describes how to link ERP systems to automate ERP system processing.

6. Linking Mainframes Using JP1/OJE

Chapter 6 describes how to link JP1/OJE to execute mainframe processing.

7. Linking hp NonStop Server (Windows Only)

Chapter 7 describes how to link HP NonStop Server to execute jobs.

8. Linking JP1/Script

Chapter 8 describes how to execute a script file created with JP1/Script.

9. Setup for Linking JP1/NQSEXEC

Chapter 9 describes how to link JP1/NQSEXEC to enter jobs into JP1/NQSEXEC.

10. Monitoring Jobnets Using JP1/IM

Chapter 10 describes how to use JP1/IM to monitor the execution state of JP1/AJS3.

11. Automatic Distribution Using JP1/Software Distribution

> Chapter 11 describes how to use JP1/Software Distribution to distribute unit and calendar definition information.

12. Linking JP1/DH - AJE

> Chapter 12 describes how to link JP1/DH - AJE to send and receive data to and from a JP1/DH - Server.

13. Linking JP1/PFM

> Chapter 13 describes functionality that can be used, when JP1/AJS3 is linked with JP1/PFM, to examine the cause of a job delay or job failure that occurred because of a problem with system performance.

■ Organization of JP1/AJS3 manuals and choosing the right manuals

There are 11 JP1/AJS3 manuals. The following table summarizes their contents.

No.	Manual	Contents
1	*Getting Started* (3021-3-B11(E))	• Basic JP1/AJS3 operations
2	*Overview* (3021-3-B12(E))	• JP1/AJS3 features • Description of functions
3	*System Design (Configuration) Guide* (3021-3-B13(E))	• Information that must be considered when designing a system • Cautionary notes on designing a system
4	*System Design (Work Tasks) Guide* (3021-3-B14(E))	• Information that must be considered when constructing jobs and jobnets • Cautionary notes on designing jobs and jobnets
5	*Configuration Guide* (3021-3-B15(E))	• Installation and setup procedures • Environment setup procedure • Description of environment setting parameters • How to set up functions according to how the system is used
6	*Administration Guide* (3021-3-B16(E))	• Information required to operate a system • Know-how useful for JP1/AJS3 operation
7	*Troubleshooting* (3021-3-B17(E))	• How to troubleshoot errors • Data required when an error occurs
8	*Operator's Guide* (3021-3-B18(E))	• How to operate JP1/AJS3 - View • Description of windows and dialog boxes
9	*Command Reference* (3021-3-B19(E))	• Command syntax • Syntax and coding examples of information definition files • API details and syntax
10	*Linkage Guide* (3021-3-B20(E))	• Description of functions that can be used when linked with other products and the setup method
11	*Messages* (3021-3-B21(E))	• Messages output by JP1/AJS3

Getting Started refers to *JP1 Version 11 Job Management: Getting Started (Job Scheduler)*. "JP1 Version 11 JP1/ Automatic Job Management System 3" is omitted in other manual names.

Use the following illustration and table as a guide to determine the manuals you need to read.

Organization of JP1/AJS3 manuals

Purpose	Required reading	Read as necessary
To learn about the basic usage of JP1/AJS3	• *Getting Started* (3021-3-B11(E))	• *Operator's Guide* (3021-3-B18(E))
To learn about JP1/AJS3's functionalities	• *Overview* (3021-3-B12(E))	• *Linkage Guide* (3021-3-B20(E))
To configure a system (including installation and setup) that automatically runs jobs	• *System Design (Configuration) Guide* (3021-3-B13(E)) • *Configuration Guide* (3021-3-B15(E))	• *Linkage Guide* (3021-3-B20(E))
To design work tasks that will be automated (including job definitions and schedule definitions)	• *System Design (Work Tasks) Guide* (3021-3-B14(E))	• *Operator's Guide* (3021-3-B18(E))
To learn about monitoring and maintaining a running system	• *Administration Guide* (3021-3-B16(E))	• *Troubleshooting* (3021-3-B17(E)) • *Messages* (3021-3-B21(E))
To learn about what action you need to take for problems that occur during operation	• *Troubleshooting* (3021-3-B17(E))	• *Messages* (3021-3-B21(E))

Purpose	Required reading	Read as necessary
To learn about operating JP1/AJS3	• *Operator's Guide* (3021-3-B18(E))	• *Command Reference* (3021-3-B19(E))

■ Replacing the term JP1/AJS3 - Agent with JP1/AJS3 - Agent Minimal Edition in this manual

This manual uses the term *JP1/AJS3 - Agent* to mean both JP1/AJS3 - Agent and JP1/AJS3 - Agent Minimal Edition. If you use JP1/AJS3 - Agent Minimal Edition, replace the term *JP1/AJS3 - Agent* with the term *JP1/AJS3 - Agent Minimal Edition* while reading this manual. If, however, a difference between JP1/AJS3 - Agent Minimal Edition and JP1/AJS3 - Agent is described, both terms (*JP1/AJS3 - Agent Minimal Edition* and *JP1/AJS3 - Agent*) are used.

Contents

1

Overview

JP1/AJS3 can link other JP1 series products as well as many other products. This chapter describes an overview of linkage between JP1/AJS3 and other products.

1.1 JP1/AJS3 functions for linking other products

The table below provides an overview of programs linked with JP1/AJS3 and lists hardware and software required for the linkage.

Table 1–1: Overview of linked programs and setup required for the linkage

Linked program	Function	Hardware and software required	Chapter describing linkage
Mail system	Defines the transmission and reception of mail as jobs, and then executes them.	Mail server and mail client software	*Chapter 2*
JP1/FTP	Defines JP1/FTP processes as custom jobs, and then executes them.	JP1/FTP	*Chapter 4*
SAP R/3 system	Defines SAP R/3 system processes as custom jobs, and then executes them.	JP1/AJS3 for Enterprise Applications	*Chapter 5*
SAP BW system	Defines SAP BW system processes as custom jobs, and then executes them.	JP1/AJS3 for Enterprise Applications	*Chapter 5*
Mainframe (JP1/OJE)	Submits jobs to VOS3 or monitors jobs executed in mainframes.	JP1/OJE	*Chapter 6*
HP NonStop Server	Enters jobs into HP NonStop Server or executes jobs received from HP NonStop Server.	Job scheduler for MPP JP1 linkage option	*Chapter 7*
JP1/Script	Defines scripts created using JP1/Script as JP1/AJS3 jobs, and then executes them.	JP1/Script	*Chapter 8*
JP1/NQSEXEC	Submits jobs to JP1/NQSEXEC or monitors jobs executed by JP1/NQSEXEC.	JP1/NQSEXEC	*Chapter 9*
JP1/IM	Monitors the operation status of JP1/AJS3 using JP1/IM or calls JP1/AJS3 - View from JP1/IM - View to allow data to be defined or edited.	JP1/IM - Manager, and JP1/IM - View	*Chapter 10*
JP1/Software Distribution	Puts jobnets and other data created using JP1/AJS3 into a package, and then distributes the package.	JP1/Software Distribution Manager and JP1/Software Distribution Client	*Chapter 11*
JP1/DH - AJE	Sends and receives data to and from JP1/DH - Server.	JP1/DH - AJE, and JP1/DH - Server	*Chapter 12*
JP1/PFM	Starts JP1/PFM - Web Console so that the user can examine the cause of a job error, or display the performance information of the manager host as a report.	JP1/PFM	*Chapter 13*
HP NNM	Monitors the operation status of JP1/AJS3 using HP NNM.	In Windows: • HP NNM • SNMP service In UNIX: • HP NNM • Job Management Partner 1/ Consolidated Management 2/ Extensible SNMP Agent or HP Software Extensible SNMP Agent	*Appendix A*

2

Linking Mail Systems

This chapter describes how to link with mail systems and define the reception and transmission of email in jobnets.

2.1 Overview of linking mail systems

In JP1/AJS3, you can define jobs for sending emails. You can also define monitoring jobs that detect the reception of emails under certain conditions, as an event.

By linking with a mail system, you can:

- Execute a job when an email matching specific conditions is received.
  In this case, define an email reception monitoring job followed by the job you want to execute.
- Use part of the information in a received email in the succeeding job.
  In this case, in the email reception monitoring job and the succeeding job, define the information passing.
- Send email to the administrator if a job ends abnormally.
  In this case, define an email sending job following that job as a recovery job.

2.1.1 Overview of email reception

(1) Overview of email reception (in Windows)

In Windows, email reception monitoring jobs can only receive email via Outlook. Received messages are stored in the Inbox.

Email reception monitoring jobs reference and evaluate unread emails in the Inbox of Outlook until they find emails that meet the conditions defined for the job. For this reason, Outlook must be able to receive email from the mail server even when JP1/AJS3 is not running.

The following figure shows an overview of email reception in Windows:

Figure 2–1: Overview of email reception (in Windows)
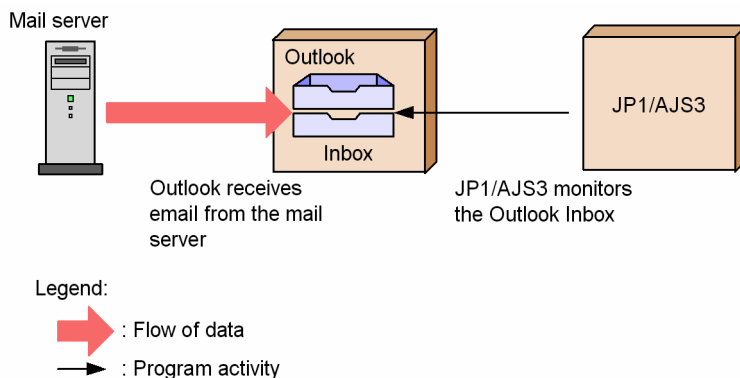
Note that if the Inbox of Outlook contains many unread emails that do not meet the defined conditions, the job might take a long time to determine applicable unread emails. You should therefore use the email system in a way that prevents many unread emails from remaining in the Inbox.

(2) Overview of email reception (in UNIX)

In UNIX, an email reception monitoring job receives email via sendmail. For this reason, sendmail must be able to receive email from the mail server even when JP1/AJS3 is not running. Received messages are stored in an internal email file.

The email reception monitoring job reviews the contents of the internal email file, and compares the messages in the file against the judgment conditions defined in the job.

The following figure shows an overview of email reception in UNIX:

Figure 2–2: Overview of email reception (in UNIX)
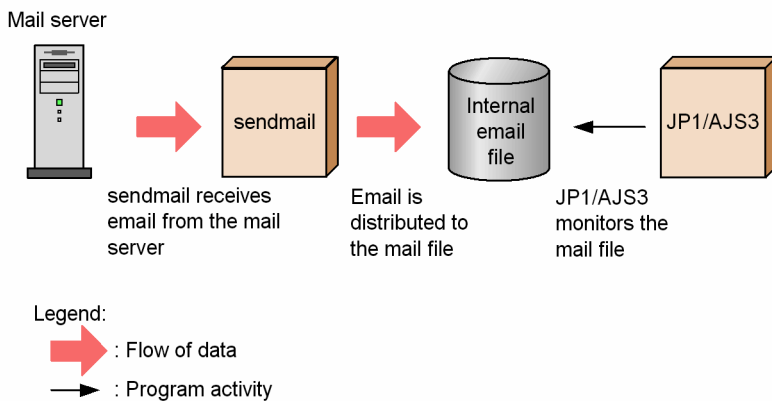
For details on the internal email file, see *2.1.2 Behavior when receiving email*.

2.1.2 Behavior when receiving email

(1) Behavior when receiving email (for Windows)

The following figure shows the behavior of a Windows system at email reception.

Figure 2–3: Behavior at email reception (for Windows)
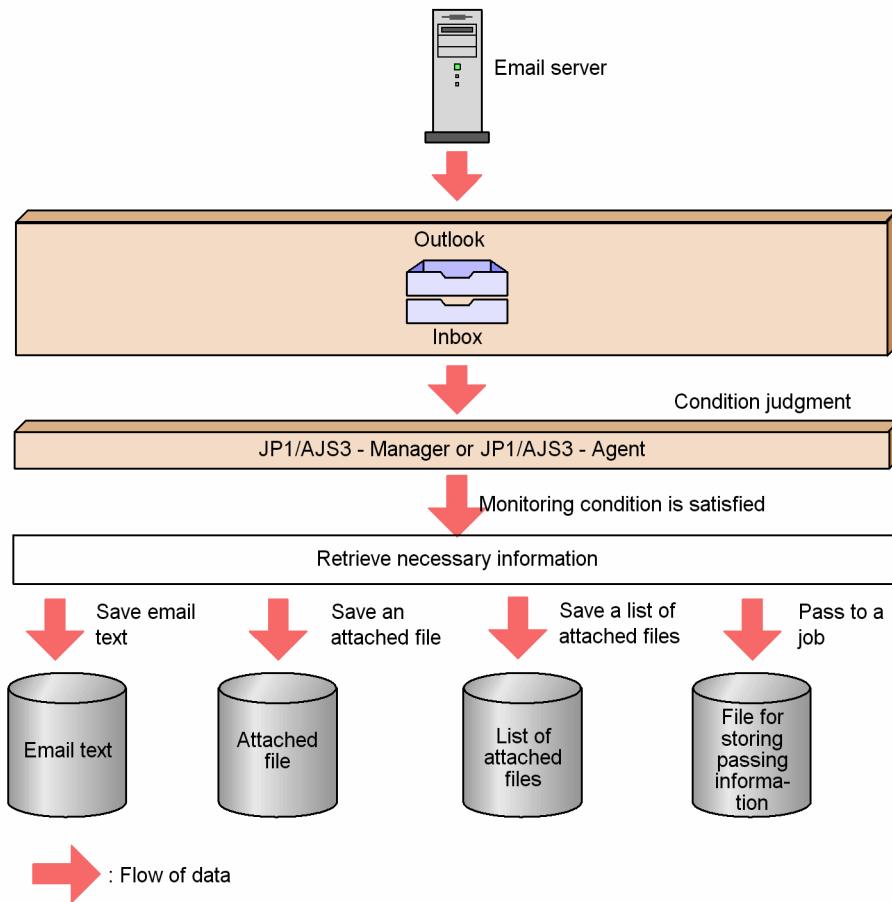
The details about the places for storing data in the above figure are as follows:

- Mail server

    This stores received email.

- Inbox

    This stores received email. Outlook manages this folder.

- Email text

    If you specify the name of a message text file in the Detailed Definition - [Receive Mail] - [Option after Receive] dialog box used to define an email reception monitoring job, the message texts for emails that satisfy the monitoring condition are stored in the specified message text file. If there is a file with the same name in the folder, it will be overwritten.

- Attached file

    If you specify the name of a folder for saving attached files in the Detailed Definition - [Receive Mail] - [Option after Receive] dialog box used to define an email reception monitoring job, the files attached to emails that satisfy the monitoring condition are stored in the specified file. The attached files are saved in the specified folder without their names being changed. If there is a file with the same name in the folder, it will be overwritten.

- List file for attached files

    If you specify the name of a list file in the Detailed Definition - [Receive Mail] - [Option after Receive] dialog box used to define an email reception monitoring job, a list of the files attached to emails that satisfy the monitoring condition is stored in the specified list file. If there is a file with the same name in the folder, it will be overwritten. For details on the format of the list, see *2.6.3 List file for email reception monitoring job (Windows only)*.

For details on the email text, attached files, and list file for attached files, and how to perform the **Option after receive** settings in the Detailed Definition - [Receive Mail] dialog box, see *12.4.19 Detailed Definition - [Receive Mail] dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*. See also *12.4.20 Detailed Definition - [Receive Mail] - [Option after Receive] dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

- File for storing passing information

  If you specify passing information in the dialog box that opens when the **Pass Info** button in the Detailed Definition - [Receive Mail] dialog box is used to define an email reception monitoring job, the information about emails that satisfy the monitoring condition is stored when received emails are to be passed to the succeeding job.

  The following information is stored in the `mail` folder in the folder specified in the `EvjobInfFile` environment setting parameter.

  - Email text

    Every time the email reception monitoring job in which `MLRCVBODY` is specified as passing information encounters email that satisfies the monitoring condition, a file is created (with an arbitrary name) and the email text is stored in the file.

  - Attached file

    Every time the email reception monitoring job in which `MLRCVATTACHFILE`*xx* (where *xx* is a value from `01` to `20`) is specified as passing information encounters email that satisfies the monitoring condition, a folder is created (with an arbitrary name) and the files attached to the email are stored in the folder (with the file name unchanged).

  - List file for attached files

    Every time the email reception monitoring job in which `MLRCVATTACHLIST` is specified as passing information encounters email that satisfies the monitoring condition, a file is created (with an arbitrary name) and details of the files attached to the email are stored in the file. For details on the format of the list file, see *2.6.3 List file for email reception monitoring job (Windows only)*.

  If you do not specify any folder in the `EvjobInfFile` environment setting parameter, passing information is stored in the folder defined as the default folder for `EvjobInfFile`.

  For details about the `EvjobInfFile` environment setting parameter, see *20.6.2(15) EvjobInfFile* in the *JP1/Automatic Job Management System 3 Configuration Guide*.

For details on the **Pass Info** button in the Detailed Definition - [Receive Mail] dialog box, see *12.4.19 Detailed Definition - [Receive Mail] dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

For details about the `MLRCVBODY`, `MLRCVATTACHFILE`, and `MLRCVATTACHLIST` passing information, see *B. Information Passed by Event Jobs* in the *JP1/Automatic Job Management System 3 System Design (Work Tasks) Guide*.

Cautionary notes

- After email is received, the files are created for storing the email text, the attached files, the list of attached files, and passing information. However, JP1/AJS3 does not automatically delete these files. These files might use a large amount of system disk space, so delete them when they become unnecessary.

- In the environment for mail system linkage, if the action after email reception is set to `Open`, the opened email will remain in **Inbox** of Outlook. This email might use a large amount of system disk space in the mail server or in the computer where mail system linkage is performed. Activate Outlook with the profile for the mail system linkage on a regular basis to delete the opened email remaining in **Inbox**.

  Note that before you delete email from **Inbox** of Outlook, you must stop the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service.

For details on the procedures for starting and stopping the JP1/AJS3 mail monitoring process and the JP1/AJS3 Mail service, see *2.3.6 Starting and ending the mail system linkage function*.

(2) Behavior when receiving email (for UNIX)

The following figure shows the behavior of a UNIX system at email reception.

Figure 2–4: Behavior at email reception (for UNIX)
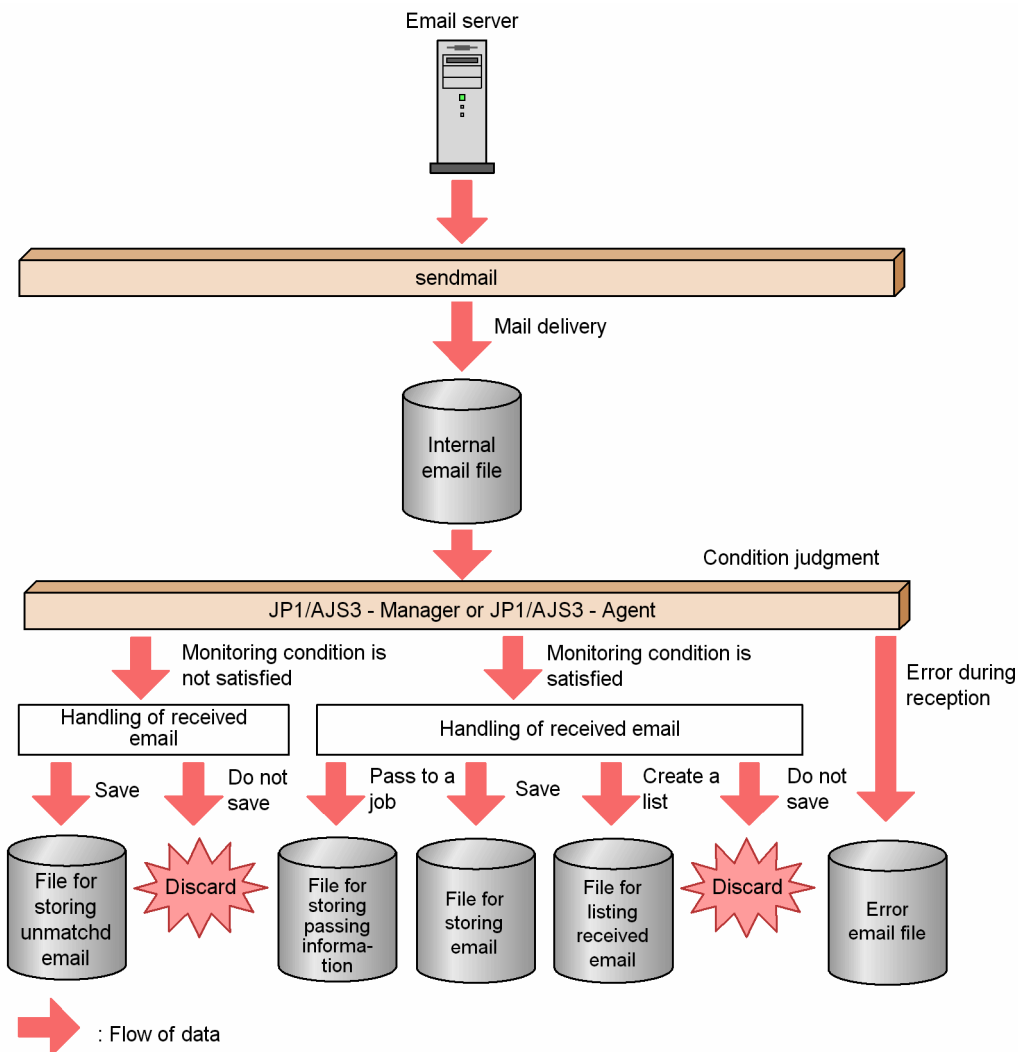
The details about the files for storing data in the above figure are as follows:

- Internal email file

  This stores received email. This file can be used by the JP1/AJS3 mail linkage function. Upon reception of email, the `jpomailrecv` command (email delivery setting command) executed by the sendmail appends the received email to the internal mail file.

  The name of the internal email file is created by adding the monitoring user name to `/var/opt/jp1ajs2/tmp/mailbox/`.

- File for storing passing information

  If you specify passing information in the dialog box that opens when the **Pass Info** button in the Detailed Definition - [Receive Mail] dialog box is used to define an email reception monitoring job, the information about emails that satisfy the monitoring condition is stored when received emails are to be passed to the succeeding job.

  When received email is passed to the succeeding job, if the email reception monitoring job in which `MLRCVMAILBODY` is specified as passing information encounters email that satisfies the monitoring condition, a file is created and the received email is stored in the file.

A file for storing passing information is assigned a name that begins with `MLDT`. This file is stored in the `mail` directory under the event job information passing directory specified by the `EvjobInfFile` environment setting parameter of event/action control. The default directory is `/var/opt/jp1ajs2/sys/infoagt/tmp/infodir/`.

For details about the **Pass Info** button in the Detailed Definition - [Receive Mail] dialog box, see *12.4.19 Detailed Definition - [Receive Mail] dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

For details about the `MLRCVMAILBODY` passing information, see *B. Information Passed by Event Jobs* in the *JP1/Automatic Job Management System 3 System Design (Work Tasks) Guide*.

- File for storing email

  Received email is appended to this file when the email reception monitoring job instructed to save received email encounters the email that satisfies the monitoring condition.

  The name of the email storage file is the value of the `MailFileName` environment setting parameter of event/action control.

- File for storing unmatched email

  This stores (to the end) the email that does not satisfy the monitoring condition of the email reception monitoring job.

  The name of the file for storing unmatched email is created by adding the monitoring user name to the directory specified for the `NotMatchMailDir` environment setting parameter of event/action control.

- File for listing received email

  The mail header is appended to this file when the email reception monitoring job specifying the name of the file for listing received email encounters the email that satisfies the monitoring condition.

  The name of the file for listing received email is specified for the email reception list of the email reception monitoring job.

- Error email file

  If mail reception monitoring fails while judging email, the email is appended to this file.

  The name of the error email file is `/var/opt/jp1ajs2/sys/infoagt/tmp/mail/errmail`.

Cautionary notes

- The email reception monitoring job creates files for storing passing information, email, unmatched email, received email listing, and error email. However, JP1/AJS3 does not automatically delete these files. These files might use a large amount of system disk space, so delete them when they become unnecessary.

- With the mail system linkage function of JP1/AJS3, email continues to accumulate in the internal email files created by the delivery function unless an email reception monitoring job is executed. The internal email files might use a large amount of system disk space, so periodically delete unnecessary internal email files.

  Note that before you delete internal email files, you must stop the mail reception monitoring process and set the mail delivery function so that email is not delivered to the internal mail file.

  For details on the mail delivery function, see *2.4.3 Setting up the mail delivery function*.

2.1.3 Overview of email sending

(1) Overview of email sending (in Windows)

In Windows, email sending jobs can send email either with or without using Outlook. For details on the differences between these two methods, see *4.3.4(1) Sending emails using the email sending job* in the *JP1/Automatic Job Management System 3 System Design (Configuration) Guide*.

(a) Overview of sending email without using Outlook (in Windows)

An email sending job that does not use Outlook sends data directly to the mail server.

The following figure shows an overview of sending email without using Outlook.

Figure 2–5: Overview of email sending (without using Outlook)
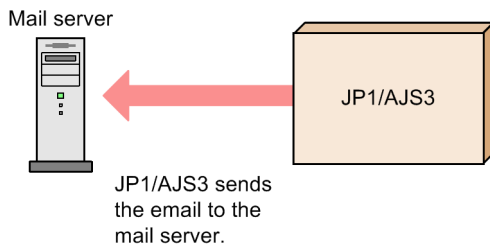
(b) Overview of sending email using Outlook (in Windows)

An email sending job that uses Outlook places the data in the **Outbox** folder, and Outlook actually sends the email.

After email is sent, it is stored in the **Sent Items** folder in Outlook. For this reason, Outlook must be able to send email to the mail server even when JP1/AJS3 is not running.

The following figure shows an overview of sending email using Outlook.

Figure 2–6: Overview of email sending (using Outlook)
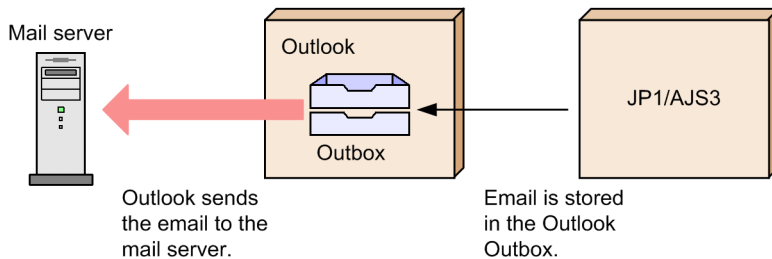
(2) Overview of email sending (in UNIX)

In UNIX, the email sending job sends email via sendmail.

The email sending job stores email data in a temporary file, and sendmail actually sends the email. For this reason, sendmail must be able to send email to the mail server even when JP1/AJS3 is not running.

The following figure shows an overview of email sending in UNIX.

Figure 2–7: Overview of email sending (in UNIX)

Mail server

sendmail

Temporary email file

JP1/AJS3

Sendmail sends email to the mail server.

Sendmail sees the temporary email file.

A temporary email file is created.

Legend:

: Data flow

: Program action
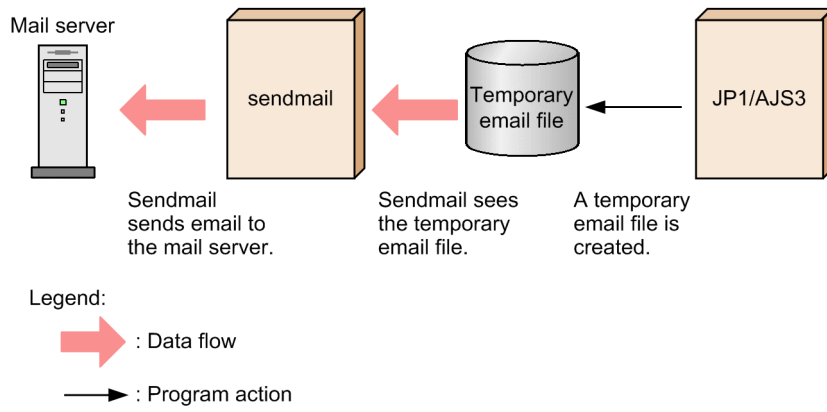
For details about sendmail, see the sendmail documentation.

2.2 Setup for linking mail systems (for a Windows host when not using Outlook)

This section describes the setup required on a Windows host when linking with a mail system that does not use Outlook.

2.2.1 Prerequisite programs for linking mail systems

The following describes the prerequisites for linked mail systems, and shows an example system configuration.

(1) Mail systems that support linkage

On a Windows host, JP1/AJS3 can link with mail systems that support the SMTP protocol. If the mail system uses POP before SMTP as the authentication method, it must also incorporate a mail server that supports POP3.

Set up the required mail server software on the host to be linked with the mail system. This software does not need to be installed on the same host as JP1/AJS3 - Manager or JP1/AJS3 - Agent.

(2) Example system configuration

The following figure shows an example of a system configuration for linking with mail systems.

Figure 2–8: Example of a system configuration for linking with mail systems
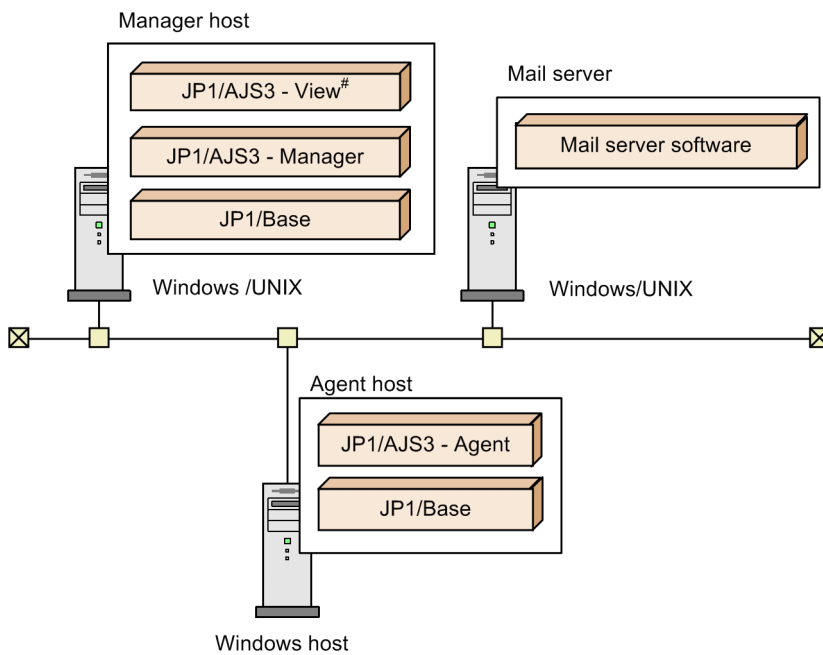
\# JP1/AJS3 - View is only available for Windows.

Cautionary note
  The job execution host must be running version 10-00 or later of JP1/AJS3 - Manager or JP1/AJS3 - Agent.

2.2.2 Setup for mail system linkage (when not using Outlook)

When linking with a mail system to send email without Outlook, perform the setup procedure described below on hosts that will execute email sending jobs.

If you intend to use Outlook to send email, or will be using email reception monitoring jobs to receive email, see *2.3 Setup for linking mail systems (for a Windows host when using Outlook)*.

Figure 2–9: Setup for linking mail systems
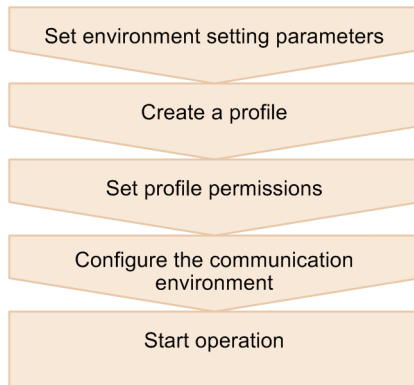
(1) Setting environment setting parameters

Execute the following command to set the environment setting parameters required for mail system linkage:

```
jajs_config -k [{JP1_DEFAULT|logical-host-name}\JP1AOMAGENT\mail_link]
"environment-setting-parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
["environment-setting-parameter-3"=definition-content-3]
["environment-setting-parameter-4"=definition-content-4]
["environment-setting-parameter-5"=definition-content-5]
["environment-setting-parameter-6"=definition-content-6]
["environment-setting-parameter-7"=definition-content-7]
["environment-setting-parameter-8"=definition-content-8]
```

You do not need to restart the JP1/AJS3 service after setting these parameters.

The table below describes each of the environment setting parameters required for environment system linkage.

Table 2–1: Environment setting parameters used for mail system linkage

No.	Definition key	Environment setting parameter	Defined information
1	[{JP1_DEFAULT|*logical-host-name*}\JP1AOMAGENT\mail_link]	"EmbeddedMailSender"=	Whether to run email sending jobs without Outlook
2		"ConnectTimeout"=	Connection timeout
3		"RecvTimeout"=	Timeout when waiting for a response
4		"RetryInterval"=	How long the system waits before trying again after an attempt to send an email fails
5		"RetryCount"=	How many times the system tries sending an email if previous attempts have failed

No.	Definition key	Environment setting parameter	Defined information
6	[{JP1_DEFAULT|*logical-host-name*}\JP1AOMAGENT\mail_link]	"EmbeddedMailTimeout"=	Timeout for email sending jobs
7		"LogSize_EmbeddedMail"=	Size of operations logs for sending email without using Outlook
8	[JP1_DEFAULT\JP1AOMAGENT\mail_link]	"SendCutOffExcessiveData"=	Whether to send an email whose data size exceeds a prescribed number of bytes

The following describes details of the environment setting parameter definitions:

"EmbeddedMailSender"="{Y|<u>N</u>}"

Specify whether to send emails without using Outlook.

If you specify Y in this parameter, JP1/AJS3 will send email without using Outlook regardless of the value specified in the ExecMode parameter.

If you specify N or omit this environment setting parameter, mail system linkage will operate using Outlook.

Specifiable values

Y

Send email without using Outlook.

N

Operate mail system linkage through Outlook.

Default value

N

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

When an email sending job is executed.

Cautionary note

Make sure that all email sending jobs have ended before you change the setting for this parameter.

"ConnectTimeout"=dword:*setting-value*

When sending email without using Outlook, specify how long before the connection to the mail server times out.

Specifiable values

000003E8 to 0036EE80 in hexadecimal (1,000 to 3,600,000 in decimal) (in milliseconds)

Default value

dword:00002710 (10,000 in decimal, which is 10 seconds)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

When an email sending job is executed.

Cautionary note

If you specify a small value for ConnectTimeout, a timeout might occur before the connection is completed, and a TCP/IP connection error might result. If the TCP/IP connection timeout period set in the OS is shorter than the period specified in this environment setting parameter, the setting in the OS overrides this environment setting parameter.

"RecvTimeout"=dword:_setting-value_

When sending email without using Outlook, specify how much time must pass before the system times out when waiting for a response from the mail server.

Specifiable values

000003E8 to 0036EE80 in hexadecimal (1,000 to 3,600,000 in decimal) (in milliseconds)

Default value

dword:00002710 (10,000 in decimal, which is 10 seconds)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

When an email sending job is executed.

"RetryInterval"=dword:_setting-value_

When sending email without using Outlook, specify how long (in seconds) to wait after a failed attempt to send an email before trying again.

Specifiable values

000003E8 to 0000EA60 in hexadecimal (1,000 to 60,000 in decimal) (in milliseconds)

Default value

dword:00001388 (5,000 in decimal, which is 5 seconds)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

When an email sending job is executed.

"RetryCount"=dword:_setting-value_

When sending email without using Outlook, specify how many times to try connecting to the mail server when previous attempts have failed.

Specifiable values

00000000 to 000005A0 in hexadecimal (0 to 1,440 in decimal) (number of times)

Default value

dword:00000000 (0 in decimal)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

When an email sending job is executed.

"EmbeddedMailTimeout"=dword:_setting-value_

When sending email without using Outlook, specify the total time after which an email sending job times out.

Specifiable values

00002710 to 0036EE80 in hexadecimal (10,000 to 3,600,000 in decimal) (in milliseconds)

Default value

dword:000927C0 (600,000 in decimal, which is 600 seconds)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

> When an email sending job is executed.

Cautionary note

> If the total size of the attachments for an email sending job exceeds 10 megabytes, specify a value in seconds of at least the attached file size (in megabyte) **x** 2.

`"LogSize_EmbeddedMail"=dword:`*log-size*

When sending email without using Outlook, specify the size of output log files.

Specifiable values

> `00080000` to `009C3C00` in hexadecimal (524,288 to 10,238,976 in decimal) (in bytes)

Default value

> `dword:00200000` (2,097,152 in decimal) (in bytes)

Recommended value

> Set a value appropriate for the operating environment.

When the setting takes effect

> When an email sending job is executed.

`"SendCutOffExcessiveData"="{Y|`<u>`N`</u>`}"`

When executing an email sending job that contains a macro variable in the message text or subject line, specify whether to send the email with excess data truncated in the following cases:

- The following data exceeds 512 bytes:
  - The message text
  - The character strings that replace the macro variables in the message text at job execution
- The following data exceeds 256 bytes:
  - The subject line
  - The character strings that replace the macro variables in the subject line at job execution

Specifiable values

> `Y`
>
> The email sending job sends the email with the excess data truncated.
>
> The message KAVT3207-W is output to the integrated trace log and the Execution Result Details dialog box.
>
> `N`
>
> The email sending job does not send the mail and its status changes to *Ended abnormally*.
>
> The message KAVT4255-E is output to the Execution Result Details dialog box.

Default value

> `N`

Recommended value

> Set a value appropriate for the operating environment.

When the setting takes effect

> When an email sending job is executed.

(2) Creating profiles

To create a profile, execute the `jpomailprof` command with the `-add` option and the necessary parameters (such as the source email address and the SMTP server name) specified in the command line. You can create a maximum of 16 profiles.

The following is an example of creating a profile with the name `profile1` for a mail server that does not require authentication.

```
jpomailprof -add -n profile1 -m mail@mail.com -s smtp.com
```

To display a list of profiles or check the contents of a profile, execute the `jpomailprof` command with the `-show` option specified.

For details about the `jpomailprof` command, see *jpomailprof (Windows only)* in *3. Commands Used for Normal Operations* in the manual *JP1/Automatic Job Management System 3 Command Reference*.

In a cluster environment, create profiles on the executing host only, while the shared disk is accessible. There is no need to create profiles on the standby host.

(3) Setting profile permissions

When you execute the `jpomailprof` command, JP1/AJS3 creates the following folder in which to store profiles and log files.

profile-storage-folder`\sys\prf`

In the command line above, replace *profile-storage-folder* with the value specified in the `WaitInfFileOutDir` environment setting parameter in the definition key `[{JP1_DEFAULT|`*logical-host-name*`}\JP1AOMAGENT]`. For details on the `WaitInfFileOutDir` parameter, see *20.6.2(14) WaitInfFileOutDir (for agent processes)* in the *JP1/ Automatic Job Management System 3 Configuration Guide*.

All users will initially have read, write, and delete permissions for the folder created by the `jpomailprof` command and its contents. If allowing all users to have read and write permissions is a problem in your environment, you can change the permissions for the folder and files provided that the following criteria are met.

Table 2–2: Permissions required for the profile storage folder

Folder or file	Permission required by	Required permissions
• *prf_path* folder • Files in the *prf_path* folder	User with Administrators permission	• Read • Write • Delete
• *prf_path**profile-name* folder • Folders and files in the *prf_path**profile-name* folder	• User with Administrators permission • OS user mapped to the JP1 user who executes email sending jobs that specify the profile with the same name as the *profile-name* folder.	• Read • Write • Delete

Legend:

   prf_path: The folder containing the profiles.

Cautionary note

   In a cluster environment, these permissions must be assigned to users on the standby host as well as the executing host.

(4) Setting up the communication environment

The following describes the setup required to send email without using Outlook.

(a) Name resolution

Configure the `hosts` file or DNS so that the name of the mail server can be resolved.

If you send email without using Outlook, JP1/AJS3 will not reference the `jp1hosts` or `jp1hosts2` information when performing name resolution.

If the host name resolves to multiple IP addresses, JP1/AJS3 will attempt to access each IP address in the order in which they were acquired until a connection is established.

(b) Firewall

Because email sending jobs communicate directly with the mail server, the firewall must be configured to allow communication between the execution host and the mail server.

As shown in the table below, the default port numbers and connection-target mail servers differ according to the used authentication method.

Table 2–3: Connection-target port numbers

No.	Authentication method	Port number	Target mail server
1	None	25/tcp	SMTP server
2	POP before SMTP	110/tcp	POP3 server
		25/tcp	SMTP server
3	SMTP-AUTH PLAIN or SMTP-AUTH LOGIN	587/tcp	SMTP server

For details on using JP1/AJS3 behind a firewall, see *2.3.2 Firewall and communication basics* in the *JP1/Automatic Job Management System 3 System Design (Configuration) Guide*.

2.2.3 Undoing the environment setup for mail system linkage

To undo the settings associated with the mail system linkage function:

1. Set the parameter that disables the mail system linkage function.
   Execute the following command:

```
jajs_config -k [{JP1_DEFAULT|logical-host-name}\JP1AOMAGENT\mail_link]
"EmbeddedMailSender"="N"
```

   You do not need to restart the JP1/AJS3 service after setting the `EmbeddedMailSender` environment setting parameter.

2.2.4 Cautionary notes on the mail system linkage function

This subsection gives some cautionary notes on the mail system linkage function.

(1) Backing up and restoring profiles

You can back up and restore profiles even while the JP1/AJS3 service is running. However, if you attempt to back up or restore a profile while an email sending job or the `jpomailprof` command is being executed, the backup or restoration process might end with an error, or the email sending job or `jpomailprof` command might terminate abnormally.

In a cluster environment, make sure that the shared disk is accessible while you back up or restore profiles.

After restoring a profile, set the folder and file permissions as necessary.

For details on backup and recovery in a JP1/AJS3 system, see *2. Backup and Recovery* in the *JP1/Automatic Job Management System 3 Administration Guide*. For details on setting permissions, see *2.2.2(3) Setting profile permissions*.

(2) Action to take after changing the environment for mail system linkage

The following describes the action to take when changes are made to the environment in which mail system linkage is operating.

- If the name of the SMTP server is changed:

  Change the SMTP server name in the profile.

- If the IP address of the SMTP server is changed:

  Change the IP address specified for the SMTP server name in the profile. This step is not necessary if you specified the SMTP server name in the `-s` option of the `jpomailprof` command.

- If the name of the POP3 server is changed:

  Change the POP3 server name in the profile.

- If the IP address of the POP3 server is changed:

  Change the IP address specified for the POP3 server name in the profile. This step is not necessary if you specified the POP3 server name in the `-r` option of the `jpomailprof` command.

- If the value of the `WaitInfFileOutDir` parameter in the definition key `[{JP1_DEFAULT|`*logical-host-name*`}\JP1AOMAGENT]` is changed:

  Create the profile again.

(3) Action to take after changing how emails are sent

If you change an email sending job that does not use Outlook into a job that uses Outlook, perform the setup needed for the job to send email using Outlook. If you give the new profile the same name as the profile the job had been using, you can do so without changing the job definition.

For details on the setup needed to send emails using Outlook, see *2.3 Setup for linking mail systems (for a Windows host when using Outlook)*.

2.3 Setup for linking mail systems (for a Windows host when using Outlook)

This section describes the setup required on a Windows host when linking with a mail system that uses Outlook.

2.3.1 Prerequisite programs for linking mail systems

This subsection describes the programs and setup prerequisites for the mail system linkage function that uses Outlook in Windows.

Outlook is a prerequisite program for mail system linkage function, and must be installed on the same host as JP1/AJS3 - Manager or JP1/AJS3 - Agent.

Outlook conforms to the MAPI standard developed by Microsoft, and for this reason Outlook-based mail system linkage function is implemented using MAPI.

(1) Mail systems that support linkage

On a Windows host, the mail system linkage function supports linkage with the following mail systems:

- Exchange Server
- SMTP/POP3

Set up the mail server software of your choice on the host where mail system linkage will operate. The software does not need to be installed on the same host as JP1/AJS3 - Manager or JP1/AJS3 - Agent.

Office 365 is not supported.

You can use the mail system linkage function from a service or from the desktop. You must select one or the other to use the mail system linkage function.

The following table shows the correspondence between supported mail systems and the mail system linkage function.

Table 2–4: Supported mail systems and options of the mail system linkage function

Linked mail system	Mail system linkage function	
	Desktop-based	Service-based
Exchange Server	Y	Y
SMTP/POP3[#]	Y	N

Legend:
    Y: Linkage is supported.
    N: Linkage is not supported.

\#
    Includes mail servers that support the SMTP/POP3 protocol (such as Lotus Notes Domino).

When you use the mail system linkage function from a service, the JP1/AJS3 Mail service must be running when you execute an email sending job or email reception monitoring job. When using the function from the desktop, the JP1/AJS3 email monitoring process must be running when you execute the job.

The option you select determines whether you need to log on to Windows to use the mail system linkage function. When you use the mail system linkage function with a service, you do not need to log on to Windows provided that the JP1/AJS3 Mail service is running. If you use the function on the desktop, you cannot start the JP1/AJS3 mail monitoring process without first logging on to Windows.

If the mail server is running Exchange Server, the mail system linkage function must be used from a service. When you use the function from the desktop, connect to the mail server using a standard Internet email profile based on the SMTP and POP3 protocols. For details on how to set profiles, see *2.3.3 Creating profiles*.

For details on how to specify whether mail linkage takes place from a service or the desktop, see *2.3.4 Setting up the environment for the mail system linkage*. For details on how to start the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service, see *2.3.6 Starting and ending the mail system linkage function*.

Support for mail system linkage depends on the operating system. The software prerequisites also differ between operating systems. The following table describes the support for mail system linkage by operating system, and the prerequisite programs for the mail system linkage function in each environment.

Table 2–5: Support and prerequisite programs for mail system linkage by operating system

OS	Prerequisite program				
	Outlook 2013 (64-bit)	Outlook 2013 (32-bit)	Outlook 2010 (64-bit)	Outlook 2010 (32-bit)	Outlook 2007
• Windows Server 2016 • Windows Server 2012 • Windows Server 2012 R2 • Windows Server 2008 R2	N	Y	N	Y	Y

Legend:

    Y: Supports mail system linkage.

    N: Does not support mail system linkage.

In the following operating systems, you can use the mail system linkage function by running Outlook 2013 (32-bit) or Outlook 2010 (32-bit) in a WOW64 environment:

- Windows Server 2016

- Windows Server 2012

- Windows Server 2012 R2

- Windows Server 2008 R2

The mail system linkage function cannot link to the Outlook 2013 (64-bit) or the Outlook 2010 (64-bit) in any operating system.

The versions of Outlook you can use with the mail system linkage function depends on the environment (Windows and JP1/AJS3 version) on the host that executes the email sending job or email reception monitoring job. When linking with a mail system, check which versions of Outlook are supported by reading the *Release Notes* provided with the version of JP1/AJS3 installed on the host that will execute the email sending job or email reception monitoring job.

(2) Example system configuration

The following figure shows an example of a system configuration for linking with mail systems.

Figure 2–10: Example of a system configuration for linking with mail systems
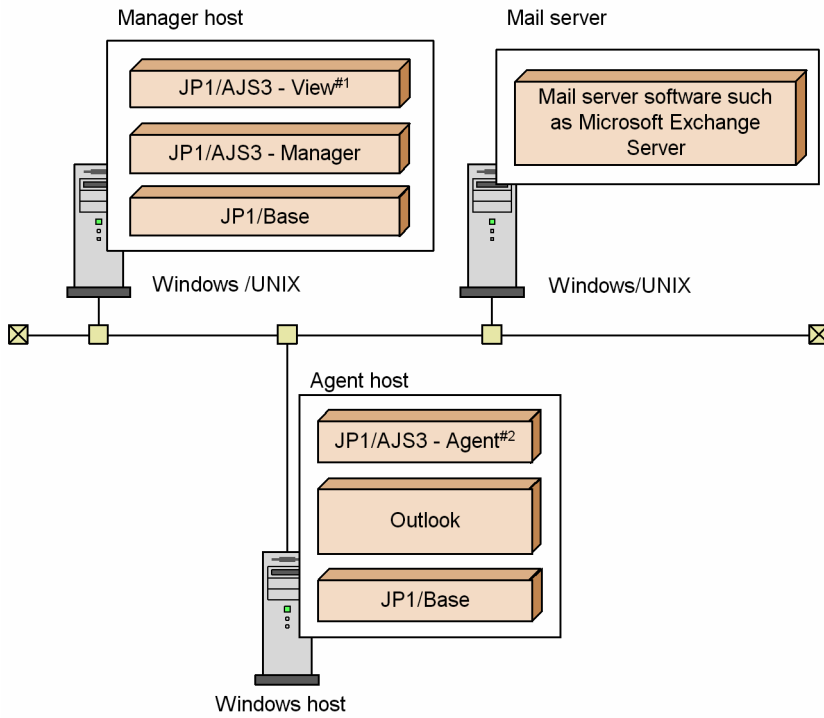
#1
JP1/AJS3 - View is only available for Windows.

#2
JP1/AJS3 - Agent on the agent host executes email sending jobs and email reception monitoring jobs requested from JP1/AJS3 - Manager on the manager host.

2.3.2 Setup for mail system linkage (when using Outlook)

When linking with a mail system, perform the setup procedure shown in the figure below on hosts that will execute email sending jobs or email reception monitoring jobs.

Figure 2–11: Setup procedure for linking mail systems

```
┌─────────────────────────────────────┐
│ Install Outlook on the host that will│
│ execute email sending jobs and email │
│ reception monitoring jobs.           │
└─────────────────────────────────────┘
           │
┌─────────────────────────────────────┐
│         Create profiles.            │
└─────────────────────────────────────┘
           │
┌─────────────────────────────────────┐
│ Make sure that you can use the       │
│ created profile to send and receive  │
│ email using Outlook.                 │
└─────────────────────────────────────┘
           │
┌─────────────────────────────────────┐
│    Set up JP1/Base and JP1/AJS3.    │
└─────────────────────────────────────┘
           │
┌─────────────────────────────────────┐
│ Set up the environment for linking   │
│ JP1/AJS3 with the mail systems.      │
└─────────────────────────────────────┘
           │
┌─────────────────────────────────────┐
│   Restart the JP1/AJS3 service.     │
└─────────────────────────────────────┘
           │
┌─────────────────────────────────────┐
│ Start the JP1/AJS3 Mail service#1 or │
│ the JP1/AJS3 mail monitoring         │
│ process#2, and begin using the mail  │
│ system linkage function.             │
└─────────────────────────────────────┘
```

#1
 When linked through a service

#2
 When linked from the desktop

2.3.3 Creating profiles

JP1/AJS3 logs in to linked mail systems via Outlook. For this reason, you need to create a profile in advance.

To create a profile, log on to Windows using either of the following accounts:

When using a service to link with the mail system
 The account set for (operated by) the JP1/AJS3 Mail service

When linking with the mail system from the desktop
 The account for logging into Windows

In addition, when creating a profile, specify a unique profile name. For details, see *2.3.4 Setting up the environment for the mail system linkage*.

(1) Creating a profile and performing checks after creating the profile

1. From the Windows **Start** menu, choose **Control Panel**. In the folder that opens, double-click the **Mail** icon. Alternatively, from the Windows **Start** menu, choose **Run**, enter `control "`*Microsoft-Office-installation-folder* `\mlcfg32.cpl"` in the dialog box that opens, and then click **OK**.

   The Mail dialog box appears.

   The Mail dialog box does not appear if a profile has already been created. In that case, open the Mail Setting - *profile-name* dialog box and then click **Profiles** to display the Mail dialog box.

2. In the Mail dialog box, click **Add** to display the Email Account dialog box. Follow the instructions in the dialog box to create a profile.

   In the screen for specifying the server type, select the mail system you want to use.

3. Make sure that you can start Outlook.

4. Set Outlook as the default email program for the system.

   For details on how to do so, see the Outlook Help.

   An attempt to execute the email sending job or email reception monitoring job before this setting has been specified fails, causing Outlook to display the following message in a dialog box: `Please run Microsoft Outlook and set it as the default mail client.`

5. Make sure that you can send and receive emails by using Outlook.

   Without starting JP1/AJS3, verify that both the email sending processing and the email reception processing in Outlook work correctly. When making the verification, make sure that the following conditions are the same as the conditions for the mail system linkage function used in JP1/AJS3:

   - Computer used

   - Profile used

   - Email recipient

   - Sender, subject, and body of the email

   - Account that Outlook uses to log on to the mail system

   Note that you must verify that both email sending and reception work correctly even if you execute only the email sending job or the email reception monitoring job.

   If Outlook is being used offline, open the **File** menu of Outlook, and then switch the Outlook mode from offline to online.

   When in offline mode, Outlook is not connected to any mail server. As a result, the emails sent by the email sending job might remain in the Outbox of Outlook or the running email reception monitoring job might be unable to detect emails that are being received.

6. Make sure that the following types of dialog box do not appear when you start Outlook or use Outlook to send and receive email:

   - Dialog boxes that prompt the user to enter a server name, user name, or password.

   - Dialog boxes that require some kind of action by the user such as clicking a button.

   Automatic operation that involves mail system linkage is not possible in an environment where such a dialog box is displayed. If this situation arises, review and correct the profile settings so that the dialog box is no longer displayed.

7. If the Outlook version you are using is Outlook 2007, confirm that the tool bar is displayed in the Outlook window when Outlook starts. In addition, confirm that the **Send/Receive** button is displayed on the tool bar.

   In Outlook 2007, if the tool bar is not displayed or the **Send/Receive** button is not displayed, mail system linkage will not operate normally.

   However, for the Outlook 2013 (32-bit) or the Outlook 2010 (32-bit), you do not need to check this because a tool bar is not displayed.

(2) Using the mail system linkage function with a different user account

Assume that you need to send email from another user's account while the administrator is absent. In order to allow different users to use the desktop-based mail system linkage function, create a profile having the same name and contents for each user account. This enables you to modify the sender of mail without modifying job definitions or the current profile.

Suppose, for example, a user named `mail master` usually sends mail using an email sending job. Usually, the `mail master` logs on to Windows to operate the JP1/AJS3 mail monitoring process. You can create a profile with the same name as the `mail master` for the `administrator` account, so that the `administrator` can take over when the `mail master` is absent. The `administrator` can then log on to Windows and read that profile to send mail

from the `administrator` account. However, we do not recommend you use this method in a system where email sending jobs and email reception monitoring jobs are used in the same environment, because an email that an email sending job sends from a different account will not match the sender specified in the conditions for the email reception monitoring job.

2.3.4 Setting up the environment for the mail system linkage

This subsection describes the environment setup procedure in JP1/AJS3 and items to be specified for linking a mail system on a Windows host.

(1) Procedure for environment setup

To set up the environment:

1. Register the mail system linkage function in Windows.

   For details on how to register the mail system linkage function, see *(2) Registering the mail system linkage function*.

2. Set the environment setting parameters required by the mail system linkage function.

   For details on setting these parameters, see *(3) Setting environment setting parameters for the mail system linkage function*.

   For details on the environment setting parameters that the mail system linkage function uses, see *(4) Environment setting parameters used by the mail system linkage function*.

3. Set up Windows automatic logon.

   If you are using desktop-based mail system linkage, set up Windows automatic logon as required. The user account specified in the Windows automatic logon settings will be used to execute the JP1/AJS3 mail monitoring process. At this stage, specify the user account that you used to create the profile. If you specify any other user account, the system cannot reference the profile when starting the JP1/AJS3 mail monitoring process, and cannot connect to the mail server. This prevents the JP1/AJS3 mail monitoring process from starting.

   For details on how to set up Windows automatic logon, see the documentation provided by Microsoft.

4. Restart the JP1/AJS3 service and the JP1/AJS3 mail monitoring process or JP1/AJS3 Mail service.

   After restarting the JP1/AJS3 service, restart the JP1/AJS3 mail monitoring process if implementing mail system linkage from the desktop, and the JP1/AJS3 Mail service if implementing mail system linkage with a service. The environment is set up with the defined information, and you can now use the mail system linkage function.

   Also restart the process or service described above not only when mail system linkage is initially set up, but also after you have changed the settings of the environment setting parameters for mail system linkage. Restarting the process or service enables you to use mail system linkage with the new parameter settings.

(2) Registering the mail system linkage function

The following describes how to register the mail system linkage function in Windows.

- When using the mail system linkage function from the desktop

  The following shows the procedure for using the mail system linkage function from the desktop. Note that each user who has created a profile used for mail system linkage must log on separately to perform the following procedure:

  1. Create a shortcut file for *JP1/AJS3-installation-folder*\bin\jpomldsk.exe.

  2. Rename the shortcut file `Mail Monitoring Process`.

  3. Store the shortcut file.

The storage folder for the shortcut file varies according to the OS.

For an OS other than Windows Server 2008:

Store the created shortcut file in the following folder:

`%USERPROFILE%\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\StartUp`

The default of the `%USERPROFILE%` value is *system-drive*`\Users\`*user-name*.

For Windows Server 2008:

From the Windows **Start** menu, choose **All Programs** or **Programs**, right-click **Startup**, choose **Open**, and then store the created shortcut file in the displayed folder.

If you might terminate and then restart the mail monitoring process while you are logged on, use the following procedure to make it possible to start the process by opening the Windows **Start** menu, and then selecting **Mail Monitoring Process**:

For an OS other than Windows Server 2008:

1. Open the Windows Start screen.

2. If the Start screen does not include a shortcut to the mail monitoring process, create a shortcut, and then pin the shortcut you created to the Start screen or task bar.

For Windows Server 2008:

1. From the Windows **Start** menu, right-click **All Programs**, and choose **Open**.

2. If the **Programs** folder in the folder that opens contains neither the `JP1_Automatic Job Management System 3 - Manager` folder nor the `JP1_Automatic Job Management System 3 - Agent` folder, perform the following operation:

    On the manager host:

    Manually create a folder named `JP1_Automatic Job Management System 3 - Manager`.

    On the agent host:

    Manually create a folder named `JP1_Automatic Job Management System 3 - Agent`.

3. In the folder, store the shortcut file you created.

Supplementary note

If you are no longer using the mail system linkage function on the desktop or if you have uninstalled JP1/AJS3, delete the folder and the shortcut file.

- When using the mail system linkage function from a service

Execute the following command to register the JP1/AJS3 Mail service:

```
sc create JP1_AJS2_MAIL binPath= "\"JP1/AJS3-installation-folder\bin
\jpomlsrv.exe\"" type= own start= demand error= normal obj= LocalSystem
DisplayName= "JP1/AJS3 Mail"
```

For example, if JP1/AJS3 is installed in `C:\Program Files (x86)\HITACHI\JP1AJS2`, execute the command as follows:

```
sc create JP1_AJS2_MAIL binPath= "\"C:\Program Files (x86)\HITACHI
\JP1AJS2\bin\jpomlsrv.exe\"" type= own start= demand error= normal obj=
LocalSystem DisplayName= "JP1/AJS3 Mail"
```

Because the JP1/AJS3 Mail service must be run from the account that you used to log on to Windows when you created the profile used by the mail system linkage function, ensure that this user account is set in the properties window of the JP1/AJS3 Mail service.

The `sc` command is provided by Microsoft. For details on this command, see the Microsoft documentation.

Also, when you execute the `sc` command, specify the settings (other than the JP1/AJS3 installation folder name) as shown in the above example. If you change the settings other than the JP1/AJS3 installation folder name, you might not be able to use the mail system linkage function.

(3) Setting environment setting parameters for the mail system linkage function

Execute the following command:

```
jajs_config -k definition-key-name "environment-setting-
parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
["environment-setting-parameter-3"=definition-content-3]
["environment-setting-parameter-4"=definition-content-4]
["environment-setting-parameter-5"=definition-content-5]
["environment-setting-parameter-6"=definition-content-6]
["environment-setting-parameter-7"=definition-content-7]
["environment-setting-parameter-8"=definition-content-8]
["environment-setting-parameter-9"=definition-content-9]
["environment-setting-parameter-10"=definition-content-10]
["environment-setting-parameter-11"=definition-content-11]
["environment-setting-parameter-12"=definition-content-12]
```

For details, see *(4) Environment setting parameters used by the mail system linkage function*.

(4) Environment setting parameters used by the mail system linkage function

The table below describes the environment setting parameters for the mail system linkage function that are related to event and action control. For details on the environment setting parameters that relate to event/action control in general, see *20.6 Setting up the event/action control environment* in the *JP1/Automatic Job Management System 3 Configuration Guide*.

Parameters not described in the manual are intended for maintenance purposes. Do not change these values.

Table 2–6: Environment setting parameters used for mail system linkage

No.	Definition key	Environment setting parameter	Defined information
1	[JP1_DEFAULT \JP1AOMAGENT \mail_link]	"ExecMode"=	Whether to use the mail system linkage function
2		"ProfileName1"=	The name of the profile used to log in to the mail system
3		"ProfileName2"=	
4		"ProfileName3"=	
5		"ProfileName4"=	
6		"WINMAILCLIENT"=	Specify an Outlook client compatible with the linked mail system.
7		"AfterReceiveMail"=	Handling applied to received messages that match the monitoring conditions
8		"NextAddress"=	The type of information set as the MLRCVADDRESS passing information of the email reception monitoring job

No.	Definition key	Environment setting parameter	Defined information
9	[JP1_DEFAULT \JP1AOMAGENT \mail_link]	"ReceiveIntervalC"=	Interval at which email reception is monitored
10		"ImmediateSendRecv"=	Whether to send and receive email immediately
11		"SendCutOffExcessiveDat a"=	Whether to send email if the data size exceeds the predefined number of bytes
12		"WrapTextWithOutlookOpt ion"=	Whether to wrap message text according to the Outlook options

The following describes details of the environment setting parameter definitions:

ExecMode

Specify whether to enable or disable the mail system linkage function. The default is N.

Format

```
"ExecMode"="{S|D|N}"
```

Specifiable values

S

Use the mail system linkage function with a service.

D

Use the mail system linkage function from the desktop.

N

Do not use the mail system linkage function.

Default value

N

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service is started.

ProfileName1

Specify the name of the profile to use to log in to the mail system.

You can specify a maximum of four profiles using the parameters ProfileName1 to ProfileName4.

Specify a profile name that is different from the environment setting parameters ProfileName2 to 4. If profile names are not unique, you might not be able to use the mail system linkage function.

Format

```
"ProfileName1"="profile-name"
```

Specifiable values

A character string of no more than 256 bytes

Multi-byte characters are specifiable.

Default value

Blank

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service is started.

ProfileName2

Specify a profile name that is different from the environment setting parameters `ProfileName1`, and 3 to 4. If profile names are not unique, you might not be able to use the mail system linkage function.

Format

`"ProfileName2"="`*profile-name*`"`

ProfileName3

Specify a profile name that is different from the environment setting parameters `ProfileName1` to 2, and 4. If profile names are not unique, you might not be able to use the mail system linkage function.

Format

`"ProfileName3"="`*profile-name*`"`

ProfileName4

Specify a profile name that is different from the environment setting parameters `ProfileName1` to 3. If profile names are not unique, you might not be able to use the mail system linkage function.

Format

`"ProfileName4"="`*profile-name*`"`

WINMAILCLIENT

When using the mail system linkage function from the desktop, specify an Outlook client compatible with the linked mail system.

For details on the versions of Outlook that each mail system supports, see *2.3.1(1) Mail systems that support linkage*.

The version of Outlook has no effect on the service-based mail system linkage function. For this reason, you do not need to set this parameter when using the mail system linkage function with a service.

Format

`"WINMAILCLIENT"=dword:{1|2|3}`

Specifiable values

1

Specify `1` to use Outlook 2007.

2

Specify `2` to use the 32-bit edition of Outlook 2010.

3

Specify `3` to use the 32-bit edition of Outlook 2013.

Default value

1

If JP1/AJS3 is installed as a new installation, `1` is the initial value. If JP1/AJS3 is installed as an overwrite installation, the previously set value is retained.

Recommended value

Specify `1`, `2`, or `3` according to the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process is started.

AfterReceiveMail

Determine how to treat received mail that matches the monitoring conditions after the email reception monitoring job has terminated.

Format

```
"AfterReceiveMail"="{O|D}"
```

Specifiable values

```
O
```

Mail that matches the monitoring conditions is marked as read.

```
D
```

Mail that matches the monitoring conditions is deleted.

Default value

```
O
```

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process is started.

NextAddress

Select the type of information to be set in the passing information MLRCVADDRESS of the email reception monitoring job.

- MLRCVADDRESS is information representing the sender specified in the email reception monitoring job.

- This setting affects all email reception monitoring jobs that run on the host where the setting has been made.

For details about MLRCVADDRESS, see *B. Information Passed by Event Jobs* in the *JP1/Automatic Job Management System 3 System Design (Work Tasks) Guide*.

Format

```
"NextAddress"="{Address|Nickname}"
```

Specifiable values

```
Address
```

Sets the mail address as passing information.

If the Internet Mail profile is used, the succeeding email sending job can use the mail address as the destination.

```
Nickname
```

Sets the display name (nickname) as passing information.

If Exchange Server is specified in the profile as the connection destination, the succeeding email sending job can use the nickname as the destination.

If the connection destination specified in the profile is not Exchange Server, the succeeding email sending job inherits a null value.

Default value

```
Address
```

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service is started.

ReceiveIntervalC

Specify the time interval for checking whether email has been received, as a hexadecimal value. Specify a value from 1 to 5A0 (in minutes).

Format

`"ReceiveIntervalC"=dword:`*time-interval*

Specifiable values

`1` to `5A0` in hexadecimal (1 to 1,440 in decimal) (in minutes)

Default value

`A` (10 in decimal) (in minutes)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service is started.

ImmediateSendRecv

Specify whether to send and receive mail immediately when using the mail system linkage function on the desktop.

Format

`"ImmediateSendRecv"="{Y|N}"`

Specifiable values

`Y`

When email sending and email reception monitoring jobs are running as JP1/AJS3 jobs, the **Send/Receive** button of Outlook can be used from JP1/AJS3 to immediately send and receive emails.

`N`

When email sending and email reception monitoring jobs are running as JP1/AJS3 jobs, Outlook is started from JP1/AJS3 and sending and receiving emails becomes the responsibility of Outlook.

Outlook sends and receives emails at the send and receive intervals defined as options in Outlook.

For details about the Outlook option settings, see the Help in Outlook.

After the jobs end, Outlook remains active and the Outlook icon remains on the taskbar.

Note that if Outlook is already running when a job starts, Outlook is not started a second time when the job starts.

Default value

`Y`

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process is started.

For details about this parameter, see *2.3.5 Setup for operation while Outlook is running*.

SendCutOffExcessiveData

Specify whether to truncate mail data when the email sending job sends mail for which macro variables are defined in the body and subject line in the following cases:

- When the following data length exceeds 512 bytes:

  The length of the text in the body + the length of the character strings that replace the macro variables in the body during job execution

- When the following data length exceeds 256 bytes:

  The length of the text in the subject line + the length of the character strings that replace the macro variables in the subject line during job execution

Format

```
"SendCutOffExcessiveData"="{Y|N}"
```

Specifiable values

Y

The email sending job sends the mail minus the excess data.

The KAVT3207-W message, which reports that data has been truncated, is output to the integrated trace log and Execution Result Details dialog box.

N

The email sending job does not send the mail and its status changes to Ended abnormally.

The KAVT4255 message, which reports an invalid data length, is output to Execution Result Details dialog box.

Default value

N

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service is started.

WrapTextWithOutlookOption

Specify whether to wrap text as defined in the Outlook options when you use mail system linkage from the desktop and connect to the mail server using standard Internet email protocols (SMTP/POP3).

Format

```
"WrapTextWithOutlookOption"="{Y|N}"
```

Specifiable values

Y

The message text of an email sending job is wrapped after the number of characters specified in the **Automatically wrap text at** field in the Internet Format dialog box, accessed from the Mail Format page of the Outlook options.

N

The message text of an email sending job is wrapped after 72 bytes.

Default value

N

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service is started, or the next time the JP1/AJS3 mail monitoring process is started.

Cautionary notes

- Text wrapping is applied to incoming email.

- In the following circumstances, text wrapping is not applied regardless of the value specified in this parameter:

  - You use the mail system linkage function from a service

- You connect to a mail server running Exchange Server

2.3.5 Setup for operation while Outlook is running

If the mail system linkage function is used on the desktop, the email sending job or email reception monitoring job program starts Outlook and uses the **Send/Receive** button to immediately send or receive emails.

If Outlook starts according to specification while an email sending or email reception monitoring job is running, the program for the job might be unable to operate Outlook. In this case, the job status might change to *Ended abnormally*, or some other unexpected problem might occur. If you need to start Outlook while an email sending or email reception monitoring job is running, specify the environment setting parameter below so that the job will not immediately send or receive emails.

The following environment setting parameter determines whether email is sent and received immediately:

Definition key

```
[JP1_DEFAULT\JP1AOMAGENT\mail_link]
```

Environment setting parameter

```
"ImmediateSendRecv"="{Y|N}"
```

Specifies whether to immediately send and receive email.

The default is Y.

Y

When email sending and email reception monitoring jobs are running as JP1/AJS3 jobs, the **Send/Receive** button of Outlook can be used from JP1/AJS3 to immediately send and receive emails.

N

When email sending and email reception monitoring jobs are running as JP1/AJS3 jobs, Outlook is started from JP1/AJS3 and sending and receiving emails becomes the responsibility of Outlook.

Outlook sends and receives emails at the send and receive intervals defined as options in Outlook.

For details on setting the Outlook options, see Outlook Help.

After the jobs end, Outlook remains active and the Outlook icon remains on the taskbar.

Note that if Outlook is already running when a job starts, Outlook is not started a second time when the job starts.

Setting procedure:

To set the environment setting parameter:

1. Execute the following command:

```
jajs_config -k [JP1_DEFAULT\JP1AOMAGENT\mail_link]
"ImmediateSendRecv"="N"
```

or

```
jajs_config -k [JP1_DEFAULT\JP1AOMAGENT\mail_link]
"ImmediateSendRecv"="Y"
```

2.3.6 Starting and ending the mail system linkage function

This subsection describes the procedures for starting up and ending the mail system linkage function. The subsection consists of two parts. One part is dedicated to use of the function on the desktop, and the other part, to use of the function with a service.

(1) Procedures for starting and ending the mail system linkage function used on the desktop

To use the mail system linkage function on the desktop, you must start the JP1/AJS3 mail monitoring process.

If a shortcut file for the JP1/AJS3 mail monitoring process is registered in the startup group in Windows, the JP1/AJS3 mail monitoring process starts automatically when you log on to Windows.

If you need to start the JP1/AJS3 mail monitoring process after you have manually stopped it, click or double-click one of the following shortcuts to the JP1/AJS3 mail monitoring process:

- The shortcut file registered in the startup group of Windows
- The shortcut file registered in **JP1_Automatic Job Management System 3 - Manager** or **JP1_Automatic Job Management System 3 - Agent**, which appears when you open the Windows **Start** menu and then choose **All Programs**

For details about how to register the shortcut file for the JP1/AJS3 mail monitoring process in the startup group and on the Windows **Start** menu, see *When using the mail system linkage function from the desktop* in *2.3.4(2) Registering the mail system linkage function*.

To stop the JP1/AJS3 mail monitoring process manually, select one of the following three methods:

- Right-click the JP1/AJS3 mail monitoring process icon displayed in the task tray, then choose **Close JP1/AJS2 mail monitoring process** from the menu displayed.
- Make users who are logged on to Windows log out, or
- Stop all JP1/AJS3 services on the system.

If the JP1/AJS3 mail monitoring process is not running when you execute an email sending job or email reception monitoring job, the job status changes to *Ended abnormally*. In this case, the system cannot send the email defined in an email sending job, or monitor for messages that match the monitoring conditions in an email reception monitoring job.

Note that the JP1/AJS3 mail monitoring process is terminated together with a JP1/AJS3 service if it is the one and only JP1/AJS3 service in the system. Also note that the JP1/AJS3 mail monitoring process is terminated together with the last JP1/AJS3 service to be stopped if there are two or more JP1/AJS3 services in the system.

Cautionary note
> If you use the mail system linkage function on the desktop, do not start the JP1/AJS3 Mail service.

(2) Procedures for starting and ending the mail system linkage function used with a service

If you use the mail system linkage function with a service, you must start the JP1/AJS3 Mail service. You must also register the JP1/AJS3 Mail service that will be started in the system. For details about how to register the service in the system, see *When using the mail system linkage function from a service* in *2.3.4(2) Registering the mail system linkage function*.

In the properties of the JP1/AJS3 Mail service registered in the system, the startup type is set to **Manual** and the account is set to **System**.

Because the JP1/AJS3 Mail service must be run from the account that you used to log on to Windows when you created the profile used by the mail system linkage function, ensure that this user account is set in the properties window of the JP1/AJS3 Mail service. Also, if necessary, change the startup type from **Manual** to **Auto**.

In addition, the JP1/AJS3 Mail service is not terminated together with the JP1/AJS3 service. When you manually stop the JP1/AJS3 service, you need to stop the JP1/AJS3 Mail service manually. Do one of the following to stop manually:

- From **Service** in the Control Panel, select **JP1/AJS3 Mail service**, then click the **Stop** button, or

- Execute the `net stop JP1_AJS2_Mail` command.

If the JP1/AJS3 Mail service is not running when you execute an email sending job or email reception monitoring job, the job status changes to *Ended abnormally*. In this case, the system cannot send the email defined in an email sending job, or monitor for messages that match the monitoring conditions in an email reception monitoring job.

If you need the JP1/AJS3 Mail service to terminate together with the JP1/AJS3 service, you can set up service dependency relationships or use the activation management function of JP1/Base.

Cautionary note
If you use the mail system linkage function with a service, do not start the JP1/AJS3 mail monitoring process.

2.3.7 Undoing the environment setup for mail system linkage

To undo the settings associated with the mail system linkage function:

1. Stop the JP1/AJS3 service.

2. End the mail system linkage function.
   For details on how to end the mail system linkage function, see *2.3.6 Starting and ending the mail system linkage function*.

3. Set the parameter that disables the mail system linkage function.
   Execute the following command:

   ```
   jajs_config -k [JP1_DEFAULT\JP1AOMAGENT\mail_link] "ExecMode"="N"
   ```

4. De-register the mail system linkage function from Windows.
   - When using the mail system linkage function from the desktop:
     Delete the shortcut file you created in *2.3.4(2) Registering the mail system linkage function*. Deleting the shortcut file disables starting of the mail monitoring process when you log on to Windows.
     The folders in which the shortcut file is stored depends on the OS.
     For an OS other than Windows Server 2008:
     If you have pinned the shortcut file for the mail monitoring process to the Window Start screen and taskbar of Windows, unpin it. Also delete the shortcut file you created for the mail monitoring process.
     If you have enabled Windows automatic logon, disable it if necessary. For details about how to disable Windows automatic logon, see the documentation provided by Microsoft.
     For Windows Server 2008:
     If you have enabled starting of the mail monitoring process by opening the Windows **Start** menu, clicking **All Programs** and then choosing **Mail Monitoring Process**, manually delete the `JP1_Automatic Job Management System 3 - Manager` or `JP1_Automatic Job Management System 3 - Agent` folder, including the shortcut file it contains.
     If you enabled the Windows automatic logon function, disable it if necessary. For details on how to disable this function, see the documentation provided by Microsoft.
   - When using the mail system linkage function with a service:

Execute the following command:

`sc delete JP1_AJS2_MAIL`

This command deletes the JP1/AJS3 Mail service.

The `sc` command is provided by Microsoft. For details on this command, see the Microsoft documentation.

5. Restart the JP1/AJS3 service as required.

2.3.8 Cautionary notes on the mail system linkage function

This subsection gives some cautionary notes on the mail system linkage function.

(1) Using the Windows automatic logon function

- Holding down the **Shift** key during startup of Windows stops the starting of the Windows automatic logon function and displays the dialog box for logging on to Windows. If another user uses this dialog box to log on to Windows, the automatic Windows logon function might fail when Windows starts next time.

- Do not let any other user to log on to Windows when you are using the Windows automatic logon function. If you logged on as another user, make sure that the Windows automatic logon settings are not changed before using the Windows automatic logon function the next time. For details on how to check the Windows automatic logon settings, see the documentation provided by Microsoft.

(2) Linking a mail system other than Exchange Server using a service

- Although the mail system linkage service is registered using the name `JP1/AJS2 Mail`, type `JP1_AJS2_Mail` when you use the service name in a command such as `net start`.

- To link a SMTP/POP3 mail system, configure Exchange Server and a gateway and use them as a mail server.
  Note that you can use addresses included in the global address list (the name of an entity such as a mailbox managed by Exchange Server) and user addresses in other mail systems that are created and saved in personal address books. For details on linking mail systems from the desktop, see *2.3 Setup for linking mail systems (for a Windows host when using Outlook)*.

(3) Mail system linkage function and cluster operation

- When used from the desktop:
  JP1/AJS3 mail monitoring process does not support the cluster operation.

- When used with a service:
  JP1/AJS3 Mail service does not support more than one logical host. Use the JP1/AJS3 Mail service on one of the logical hosts.

In a cluster environment, if you register the mail system linkage function as a resource in the cluster system and are using passing information, specify a folder on the shared disk as the destination for the passing information file. You specify this folder in the `EvjobInfFile` environment setting parameter.

(4) Action to take after changing the environment set up for mail system linkage

If you change settings for any environment setting parameter used for the mail system linkage function, restart the JP1/AJS3 service.

If you are using the mail system linkage function on the desktop, also restart the JP1/AJS3 mail monitoring process. If you are using the mail system linkage function with a service, also restart the JP1/AJS3 Mail service.

(5) Deleting a file created after mail reception

JP1/AJS3 does not automatically delete body text, attached files, list file for attached files, or passing information files. These files are created after mail reception. Delete these files manually once they have become unnecessary, because they reduce the amount of available disk space.

For details on the location of these files, see *2.1.2(1) Behavior when receiving email (for Windows)*.

(6) Switching between desktop and service-based mail system linkage

- The JP1/AJS3 mail monitoring process does not terminate automatically when you switch the mail system linkage function from use on the desktop to use with a service, or disable the mail system linkage function. In these circumstances, terminate the JP1/AJS3 mail monitoring process manually.

- The JP1/AJS3 Mail service is created when you switch the mail system linkage function from use on the desktop to use with a service. Because the JP1/AJS3 Mail service must be run from the account that you used to log on to Windows when you created the profile used by the mail system linkage function, ensure that this user account is set in the properties window of the JP1/AJS3 Mail service.

(7) When a profile is configured to use personal folders

When a profile specified in the definition of an email sending or email reception monitoring job is configured to use a personal folder, an error might occur if the corresponding personal folder file is being used by another job program. This corresponding folder has extension .pst. The error occurs when the email sending or email reception monitoring job program accesses Outlook to send an email or monitor email reception. If this error occurs, the job status changes to *Ended abnormally*. For this reason, ensure that none of the following is taking place when you use an email sending job or email reception monitoring job:

- Another application process or mail account is viewing, updating, or deleting the personal folder.
- The profile or mail account is being configured.
- The personal folder file is open for editing in another program such as Notepad.
- On a desktop on which the mail system linkage function is used, Outlook is controlled by the email sending job or email reception monitoring job that remotely accesses the desktop from another desktop.

If an error occurs, make sure that none of these operations is taking place with respect to the personal folder file.

Then, re-execute the error email sending job or email reception monitoring job.

(8) Procedure for calculating the mail monitoring interval

For the email reception monitoring job, specify a monitoring interval that is shorter than the result of the following calculations. The default is 10 minutes.

1. In Outlook, measure how long it takes to complete transmission or reception of a single email message.
   Measure this time using the profile that is actually used for the mail system linkage. Round the calculated time to the number of seconds and set this as the processing time for one email.

2. Calculate the monitoring processing time.
   The expression is shown below.

Monitoring processing time = (maximum number of email reception monitoring jobs monitored concurrently on the host) **x** *processing time for one e-mail*

3. Calculate the send processing time.

   The expression is shown below.

   Sending processing time = (maximum number of email sending jobs executed while monitoring an email reception monitoring jobs on the host) **x** *processing time for one email*

4. Add the monitoring processing time and the send processing time determined in step 2 and step 3, and round the seconds to minutes.

5. Add one minute to the value determined in step 4 and set it as the mail monitoring interval (lower limit). However, we recommend that you set a value greater than the lower limit in actual operation.

(9) Notes on using Outlook

Before using Outlook, set it as the system's default email program. For details on how to do so, see Outlook Help. Unless Outlook is the default mail client, mail cannot be sent or received at execution of an email sending job or email reception monitoring job. A dialog box appears, prompting you to run Microsoft Outlook and set it as the default mail client.

(10) Outlook behavior and notes

The following describes Outlook behavior when the email sending job and email reception monitoring job are executed, and provides notes on Outlook that apply to when these jobs are executed.

- The mouse pointer might change to an hourglass that indicates that the application is performing processing.

- The active window might become inactive.

- The progress of the email sending job or email reception monitoring job is displayed.

- If you do not want to display the progress window, from Outlook menu bar, choose **Tools**, **Send/Receive**, **Show Progress**, and then select **Don't show this dialog box**.

- An Outlook button appears in the task bar.

- Do not use this icon to terminate Outlook during execution of the email sending job or email reception monitoring job.

- The Outlook window appears momentarily, at the start and end of the email sending job or email reception monitoring job.

- If virus-checking software is active, the logo of the software might appear.

- If the size of an email that Outlook is receiving is too large, email reception might be unable to finish. If email reception fails, set and apply the following environment variable in the user environment or system environment, as described below, and then re-execute the email reception monitoring job.

   Environment variable name:
   ```
   JP1AJS2_REC2
   ```

   Description:

   Set a value from 5 to 1,800 (in seconds).

   When you execute an email reception monitoring job, the email receiving time for the job is extended by the time set in this environment variable. If you specify a value outside the 5 to 1,800 range, the email receiving time is not extended.

   Regardless of whether the receiving time is extended, when the size of an email is 500 kilobytes, the required receiving time is about six seconds. When the size of an email is 1 megabyte, the required receiving time is about 12 seconds. Use these times as guidelines when setting the environment variable.

Note that the actual receiving time changes depending on the environment. Measure the email receiving time beforehand by using Outlook, and leave a sufficient margin when setting the environment variable.

- If it takes a long time for Outlook to receive email, the email reception monitoring job might be unable to detect the email being received. If the job cannot detect the email, the job will detect the email at the next execution cycle of email reception monitoring.

- Email reception monitoring job and unread emails in the Inbox of Outlook

  An email reception monitoring job references and evaluates unread emails in the Inbox of Outlook until it finds emails that meet the conditions defined for the job. Therefore, if the Inbox of Outlook contains many unread emails that do not meet the defined conditions, the job might take a long time to determine the unread emails. To avoid this problem, use the email system in a way that prevents many unread emails from remaining in the Inbox.

- If you manually activate Outlook, while the email sending job or email reception monitoring job is sending or receiving email through activation of Outlook, then the Outlook window that you activated manually might be minimized into a task bar button. To use the instance of Outlook that you activated manually, in the task bar, right-click the **Outlook** button to display a menu, and then choose **Resize** or **Maximize**.

(11) Settings for mail client software

If you use the mail system linkage function on the desktop, make sure that the value set for the `WINMAILCLIENT` environment setting parameter is `1` or `2`. If the value of this environment parameter is not `1` or `2`, the mail system linkage function operates incorrectly as described below:

- Emails defined in email sending jobs are not sent and remain in the Outbox despite the job ending normally.

- The system cannot access the Inbox, and thus cannot detect received emails that satisfy the conditions defined in an email reception monitoring job.

If you use the mail system linkage function in a service, you do not need to set this parameter. For details about the `WINMAILCLIENT` environment setting parameter, see *2.3.4 Setting up the environment for the mail system linkage*.

(12) Note on using Remote Desktop

Do not run the JP1/AJS3 mail monitoring process on Remote Desktop, because the mail system linkage might not operate correctly.

If you use Remote Desktop to log on remotely, remove the JP1/AJS3 mail monitoring process icon from the startup items so that the process will not start automatically. Note that if the icon is removed from the startup items, the process also does not start when you log in to the system console. Therefore, before using mail system linkage, make sure that the JP1/AJS3 mail monitoring process can be started on the system console, and start the process manually.

To manually start the mail monitoring process, use the following operation:

For an OS other than Windows Server 2008:

Click the icon for the JP1/AJS3 mail monitoring process that is pinned to the Windows Start screen or taskbar of Windows.

For Windows Server 2008:

From the Windows **Start** menu, choose **All Programs**, **JP1_Automatic Job Management System 3 - Manager** or **JP1_Automatic Job Management System 3 - Agent**, and then click the icon for the JP1/AJS3 mail monitoring process. If you want to use mail system linkage on Remote Desktop, use it with a service instead of from the desktop. For details on the mail systems that can be linked from a service, see *2.3.1 Prerequisite programs for linking mail systems*.

(13) If the environment settings cannot be read

If the settings cannot be read for the environment setting parameters to be used for the mail system linkage function, the JP1/AJS3 mail monitoring process and the JP1/AJS3 Mail service will start as usual. However, when an email sending job or email reception monitoring job is executed, the message `KAVT3409-E The environment definition could not be read.` is output to the integrated trace log and the job status changes to *Ended abnormally*. As a result, the system cannot send the email defined in an email sending job, or monitor for messages that match the monitoring conditions in an email reception monitoring job.

In this case, check whether message KAVT3409-E was output to the integrated trace log, and review the settings for the environment setting parameters used for the mail system linkage function. For details, see *4. Messages beginning with KAVT (Messages about the event/action control)* in the manual *JP1/Automatic Job Management System 3 Messages*. After changing the settings for the environment setting parameters used for the mail system linkage function, you must restart the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service, as well as the JP1/AJS3 service.

(14) Notes on Outlook licenses and certificate expiration

If you start an unlicensed copy of Outlook more than a predetermined number of times, or attempt to run Outlook with an expired certificate, Outlook will not start.

If you execute an email sending job or email reception monitoring job in this state, the job status changes to *Ended abnormally*, and the system is unable to send email or detect received email.

- Licenses

  You can start an unlicensed copy of Outlook a limited number of times, beyond which the program will no longer start. Because the number of times you can start a particular instance of Outlook differs depending on its specifications, do not execute an email sending job or email reception monitoring job if JP1/AJS3 is linked to an unlicensed copy of Outlook.

- Certificates

  If you use a certificate to send and receive email, Outlook will not start if the certificate has expired. Check the expiration date of the certificate. Because different certificates have different expiration dates, check with the authority that issued the certificate.

  For details on how to use certificates to send and receive email in Outlook, see Outlook Help.

(15) Email encryption and digital signature

Mail encryption and digital signatures are not supported for email sending jobs and email reception monitoring jobs.

When you use the mail system linkage function, do not encrypt the mail or add a digital signature to it.

(16) Action to take after changing how emails are sent

If you change an email sending job that uses Outlook into a job that does not use Outlook, perform the setup needed for the job to send email without Outlook. For details on the setup needed to send emails without using Outlook, see *2.2 Setup for linking mail systems (for a Windows host when not using Outlook)*.

Some differences between an email sending job that uses Outlook and one that does not use Outlook might require you to change job definitions. For the differences between an email sending job that uses Outlook and one that does not use Outlook, see *4.3.4 Environment settings for action jobs* in the *JP1/Automatic Job Management System 3 System Design (Configuration) Guide*.

If the differences do not affect job operations, you do not need to change any job definitions. Instead, use the name of the existing profile as the name of the profile that will be created.

(17) Troubleshooting

For details on how to troubleshoot problems associated with mail system linkage, see *2.9 Troubleshooting problems related to mail system linkage (for Windows only)* in the manual *JP1/Automatic Job Management System 3 Troubleshooting*.

2.4 Setup for linking mail systems (for a UNIX host)

For UNIX hosts to link with mail systems, the sendmail mail software is required. On the host on which the email sending job and email reception monitoring job are to be executed, use sendmail to set up an SMTP mail server so that the host can send and receive emails by itself.

You must also set up the host so that it can send and receive emails (mail that complies with RFC822) delivered from the SMTP mail server.

The following figure shows an example of a system configuration that uses mail system linkage.

Figure 2–12: Example of a system configuration using mail system linkage
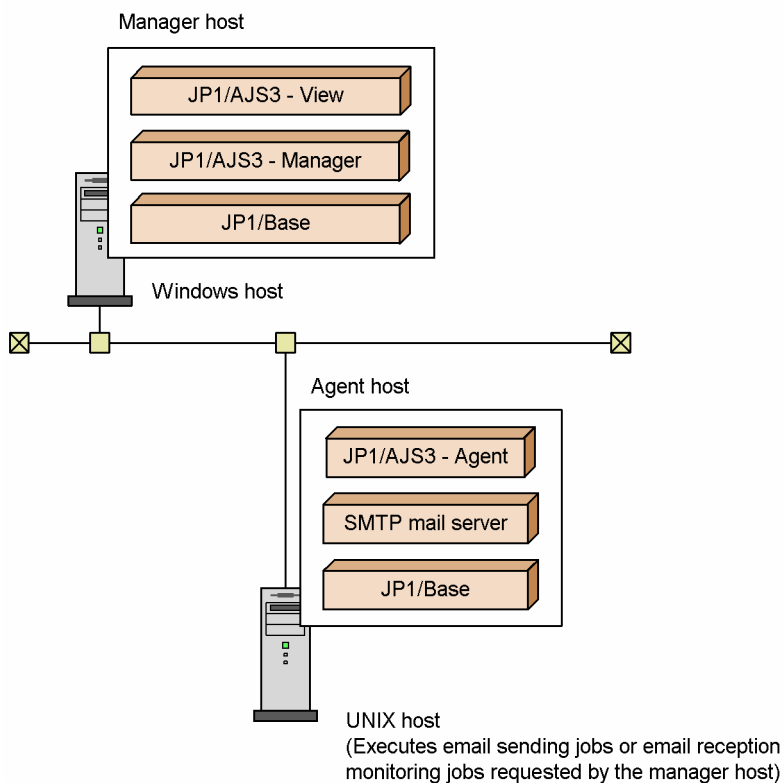
The following figure shows the agent host setup procedures for linking mail systems. Note that you need not set up the manager host for the mail system linkage.

Figure 2–13: Agent host setup procedures for linking mail systems

Set up the mail server.

Register mail users.

Set up JP1/Base and JP1/AJS3 - Agent[#].

Set up the environment to execute email reception monitoring job by JP1/AJS3 - Agent[#].

After restarting, put the link in operation.
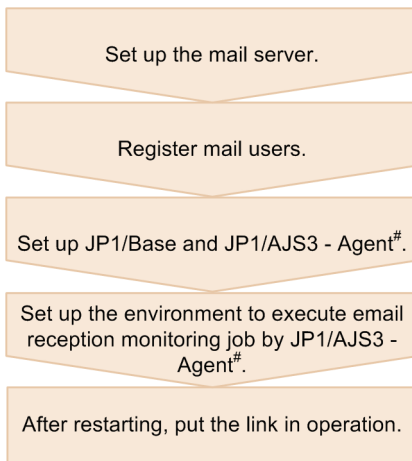
\# JP1/AJS3 - Manager can be used as an agent host.

If you execute the email sending job, verify that email can normally be sent after the mail server has been set up. When you do this verification, execute the following `sendmail` command without starting JP1/AJS3:

```
/usr/lib/sendmail -i -t < file-name
```

In *file-name*, specify the name of a text file that is in the following format:

The entry format depends on the version of sendmail used to send emails.

For a version earlier than 8.14.0:

```
To:Δrecipient
Subject:Δsubject
(Linefeed)
mail-body
. (A line containing only a period indicates the end of data.)
```

Legend:

Δ: Space

The recipient specification must follow the keyword `To:`, `Cc:`, or `Bcc:`. The first letter of each keyword must be upper case and the other letters must be lower case. A space must be placed between the keyword (`To:`, `Cc:`, or `Bcc:`) and *recipient*.

The subject line specification must follow the keyword `Subject:`. The first letter of the keyword must be upper case and the other letters must be lower case. A space must be placed between `Subject:` and *subject*.

For version 8.14.0 or later:

```
To:recipient
Subject:subject
(Linefeed)
mail-body
. (A line containing only a period indicates the end of data.)
```

The recipient specification must follow the keyword `To:`, `Cc:`, or `Bcc:`. The first letter of each keyword must be upper case and the other letters must be lower case.

The subject line specification must follow the keyword `Subject:`. The first letter of the keyword must be upper case and the other letters must be lower case.

Unlike the sendmail from versions earlier than 8.14.0, sendmail version 8.14.0 or later does not require you to enter a single-byte space before *recipient* and *subject*.

When you execute the `sendmail` command shown above, make sure the OS user account is the same as the user account used when the email sending job is executed.

The following provides detailed information that is required after the mail server has been set up.

2.4.1 Email reception monitoring job and mail users

On the mail server, you must register the mail users that will be monitored by an email reception monitoring job. Register these mail users as JP1/AJS3-specific mail users on the mail server.

2.4.2 Setting up the environment for an email reception monitoring job

This subsection describes the environment setup procedure in JP1/AJS3 and items to be specified for using an email reception monitoring job on a UNIX host.

Note that if you use the email sending job on a UNIX host, the job can be used regardless of the settings of environment setting parameters described below.

(1) Procedure for setting up the environment

To set up the environment:

1. Use the environment setting parameters for event/action control to set up the environment for an email reception monitoring job.
   For details on how to do so, see *(2) Procedure for setting up event/action control*.

2. Set up the mail delivery function.
   For further details regarding setting up the mail delivery function, see *2.4.3 Setting up the mail delivery function*.

3. Set up a mail filter application (code conversion tool), as required.
   To enable reception monitoring of emails that use multi-byte characters and MIME-encoded emails, you need to set up separately the mail filter application that will be used for linking with the mail system. For details on a mail filter application, see *2.5 Mail filtering application specifications*.

4. After executing the command, restart JP1/AJS3.
   The email reception monitoring job becomes usable with the specified settings.

(2) Procedure for setting up event/action control

To change the definition of the environment setting parameters:

1. Execute the following command to set the environment setting parameters that define the environment for email reception monitoring jobs.

```
jajs_config -k definition-key-name "environment-setting-
parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
["environment-setting-parameter-3"=definition-content-3]
```

```
["environment-setting-parameter-4"=definition-content-4]
["environment-setting-parameter-5"=definition-content-5]
["environment-setting-parameter-6"=definition-content-6]
["environment-setting-parameter-7"=definition-content-7]
```

For details on the environment setting parameters required to define the environment for email reception monitoring jobs, see *(3) Environment setting parameters used for email reception monitoring jobs*.

In the default environment, email reception monitoring jobs are disabled. To enable the use of email reception monitoring jobs, specify `U` for the `ExecMode` environment setting parameter.

(3) Environment setting parameters used for email reception monitoring jobs

The table below lists the event/action control environment setting parameters associated with email reception monitoring jobs. For details on the environment setting parameters that relate to event/action control in general, see *20.6 Setting up the event/action control environment* in the *JP1/Automatic Job Management System 3 Configuration Guide*.

Parameters not described in the manual are for maintenance. Do not change these values.

Table 2–7: Environment setting parameters related to an email reception monitoring job

Definition key	Environment setting parameter	Defined information
`[{JP1_DEFAULT|`*logical-host-name*`}` `\JP1AOMAGENT\mail_link]`[#]	`"ReceiveIntervalC"=`	Interval at which mail reception is monitored
	`"UserName"=`	User name
	`"MailFileDir"=`	Mail file directory name
	`"MailFileName"=`	Mail storage file name
	`"NotMatchMailDir"=`	Directory in which the file for storing unmatched email is stored
	`"ReceivedMailFormat"=`	Mail format for a combination of mail systems
`[JP1_DEFAULT\JP1AOMAGENT\mail_link]`	`"ExecMode"=`	Whether to use the mail system linkage function

\#

    Item selection in the `{JP1_DEFAULT|`*logical-host-name*`}` part depends on whether the host is a physical host or a logical host. If the host is a physical host, specify `JP1_DEFAULT`. If the host is a logical host, specify *logical-host-name*.

    For details about the specification on a logical host, see *10.6.1(4) Cautionary notes on the execution environment for event jobs* in the *JP1/Automatic Job Management System 3 Administration Guide*.

The following describes details of the environment setting parameter definitions:

`"ReceiveIntervalC"=dword:`*time-interval*

    Specify the interval at which email reception is monitored.

    Specifiable values

        `1` to `1,440` (in minutes)

Default value

10 (in minutes)

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service starts

"UserName"="*user-name*"

Specify the name of a user for which you want to monitor the reception of email.

Note that email which is subject to reception monitoring is stored in a file that has the same name as the user name specified in this parameter. The directory in which the file is stored is specified by using the MailFileDir environment setting parameter.

Specifiable values

A character string of no more than 256 bytes

Default value

Blank

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service starts

"MailFileDir"="*mail-file-directory-name*"

Specify the name of the mail file directory storing email for the user specified with the UserName environment setting parameter. In JP1/AJS3, email is received using the mail delivery function. Therefore, always specify /var/opt/jp1ajs2/tmp/mailbox. If you do not specify the mail file directory name, /var/opt/jp1ajs2/tmp/mailbox is assumed. For further details regarding setting up the mail delivery function, see *2.4.3 Setting up the mail delivery function*.

Specifiable values

A character string of no more than 180 bytes

Default value

/var/opt/jp1ajs2/tmp/mailbox

Recommended value

/var/opt/jp1ajs2/tmp/mailbox

When the setting takes effect

The next time the JP1/AJS3 service starts

"MailFileName"="*mail-storage-file-name*"

Specify the full path name of the file storing the email that satisfies the monitoring condition.

Specify a file different from the mail file with the user name specified for the UserName environment setting parameter for storage in the directory specified by using the MailFileDir environment setting parameter.

Specifiable values

A character string of no more than 255 bytes

Default value

Blank

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service starts

`"NotMatchMailDir"="`*directory-in-which-file-for-storing-unmatched-email-is-stored*`"`

Specify the full path name of the directory that contains the file storing email that does not satisfy the monitoring condition.

- Specify a different directory from the directory specified for the `MailFileDir` environment setting parameter.

- If you do not specify a directory name, the system deletes any email that does not satisfy the monitoring condition.

Specifiable values

A character string of no more than 180 bytes

Default value

Blank

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service starts

`"ReceivedMailFormat"=dword:{0|1}`

Specify the data format of the mail header of the emails to be received.

The data format you specify is determined by the combination of mail system versions that will be linked.

Specifiable values

`0`

This data format includes the single-byte space that is automatically inserted into the mail header data of the emails to be received.

Example:`Subject:`Δ`TITLE` (Δ indicates a single-byte space.)

Specify `0` if the sendmail version for one or both of the sending and receiving hosts is earlier than 8.14.0.

`1`

This data format does not include the single-byte space that is automatically inserted into the mail header data of the emails to be received.

Example:`Subject:TITLE`

Specify `1` if the sendmail version on both the sending and receiving hosts is 8.14.0 or later.

Default value

`0`

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service starts

Supplementary note

The following table describes the version combinations of sendmail on the sending and receiving hosts and the value to be specified for each combination.

Table 2–8: The combinations of mail systems and the values to be specified in the ReceivedMailFormat environment setting parameter

Version of sendmail on the host receiving email	Version of sendmail on host sending email (Sending by an email sending job in JP1/AJS3 or by sendmail alone)	
	Earlier than 8.14.0	8.14.0 or later
Earlier than 8.14.0	0	0
8.14.0 or later	0	1

Cautionary notes

- If you specify 0 in the ReceiveMailFormat environment setting parameter for the combination in the above table when 1 must be specified, the email reception monitoring job will not be able to detect any emails meeting the monitoring conditions defined for the job even if received.

  If you specify 1 in the ReceivedMailFormat environment setting parameter for a combination when 0 must be specified, the MLRCVSUBJECT macro variable stores the subject data of an email detected by the email reception monitoring job where a single-byte space has been inserted at the beginning.

  Because of this, specify a value that matches the combination of mail systems you are using.

- If the version of sendmail on the receiving host is 8.14.0 or later, set up the host so that it receives only the emails sent the sendmail whose version is earlier than 8.14.0, or so that it receives only the emails sent by the sendmail whose version is 8.14.0 or later.

  Also, in the ReceivedMailFormat environment setting parameter, specify a value that matches the format of the emails to be sent.

- If emails are to be sent by using, for example, the telnet command, and not by using either an email sending job or sendmail, the format of the mail header to be sent is as follows:

  - Header format corresponding to the data format used if the sendmail version is earlier than 8.14.0:

  A single-byte space is inserted between the field name and the field data.

  Example:"Subject:ΔTITLE" (Δ indicates a single-byte space.)

  - Header format corresponding to the data format used if the sendmail version is 8.14.0 or later:

  A single-byte space is not inserted between the field name and the field data.

  Example:"Subject:TITLE"

"ExecMode"="{U|N}"

Specify whether to use an email reception monitoring job.

Specifiable values

U

An email reception monitoring job is used.

N

An email reception monitoring job is not used.

Default value

N

Recommended value

Set a value appropriate for the operating environment.

When the setting takes effect

The next time the JP1/AJS3 service starts

2.4.3 Setting up the mail delivery function

Before you can execute the email reception monitoring job, you must set up the mail delivery function. When the SMTP mail server receives emails, this function forwards them to mail files that JP1/AJS3 uses for receiving emails. The email reception monitoring job references the emails saved in those mail files, instead of the ones on the SMTP mail server. This is because direct access to the SMTP mail server might produce inconsistent results depending on when the emails are received.

The name of the mail file directory specified for reception is always `/var/opt/jp1ajs2/tmp/mailbox`. Be sure to specify `/var/opt/jp1ajs2/tmp/mailbox` as the mail file directory name in setting up the email reception monitoring job.

When setting up the mail delivery function, modify the alias file in the SMTP mail server so that you can receive mail from mail users to be monitored for mail reception.

To set up the mail delivery function:

1. In the alias file in the SMTP mail server, define the mail users to be monitored and enter the `jpomailrecv` command for enabling the users to send and receive mail.
   Example: Specify `mailuser` for the mail user to be monitored and set the retry timeout to 10 minutes.
   `mailuser: "|/opt/jp1ajs2/bin/jpomailrecv -u mailuser -t 10"`
   For details about the `jpomailrecv` command, see *jpomailrecv (UNIX only)* in *2. Commands Used during Setup* in the manual *JP1/Automatic Job Management System 3 Command Reference*.
   The alias file is usually named `aliases`. For further details regarding the alias file, see the SMTP mail system documentation.

2. Execute the `newaliases` command or `sendmail -bi` command for the SMTP mail system.
   The alias file you edited becomes effective.

Cautionary note on typing the alias file
   When you type the `jpomailrecv` command in the alias file, use up to 250 bytes excluding pipes. If the command you want to enter is longer than 250 bytes, create a script file, type the command in it, then code the name of the script file in the alias file.

2.4.4 Starting and ending the mail system linkage function

This subsection describes how to start and end the mail system linkage function. Starting and ending procedures are described separately according to whether the operation uses an email sending job or an email reception monitoring job.

(1) Starting and ending the mail system linkage function if an email sending job is used

After starting the JP1/AJS3 service, you can use an email sending job regardless of the environment setting parameter settings for the mail system linkage function.

After stopping the JP1/AJS3 service, you will no longer be able to use the email sending job.

(2) Starting and ending the mail system linkage function if an email reception monitoring job is used

After starting the JP1/AJS3 service, you can use an email reception monitoring job if `U` is set in the `ExecMode` environment setting parameter for the mail system linkage function.

To switch the operating status of the email reception monitoring job from enabled to disabled, set `N` in the `ExecMode` environment setting parameter for the mail system linkage function, and then restart the JP1/AJS3 service.

After stopping the JP1/AJS3 service, you will no longer be able to use the email sending job.

For details on the `ExecMode` parameter, see *2.4.2 Setting up the environment for an email reception monitoring job*.

2.4.5 Cautionary notes on the mail system linkage function

This subsection gives some cautionary notes on the mail system linkage function.

Cautionary notes on using the mail system linkage function on a UNIX host

- A mail file where mail is stored when an error occurs is created for each package activated by the service. The mail file is usually created in `/var/opt/jp1ajs2/sys/infoagt/tmp/mail/errmail`.

- During email reception monitoring, emails that meet the monitoring conditions of multiple email reception monitoring jobs are stored in the email storage file specified in the environment settings file. The emails are stored if saving emails is specified for at least one of the email reception monitoring jobs.

- JP1/AJS3 does not automatically delete the passing information storage file, mail storage file, mismatching mail storage file, received-mail list file, or error mail file created by the email reception monitoring job. Delete these files manually once they have become unnecessary, because they reduce the amount of available disk space.

- Email reception monitoring is executed after an email reception monitoring job starts. No emails are monitored until at least one email reception monitoring job starts.

- Although the mail system linkage function monitors mail files at the specified interval, if the mail file contains multiple emails, it picks up the emails one by one. It takes about one second to handle each email.

- Linefeed codes in the body of received email are treated as follows:

  If a character string matches a character string specified as a monitoring condition but is split by a linefeed code, the condition is judged as not satisfied.

  Example:

  Expected string: `ABC`

  String in the body of received email: `A`<linefeed>`BC`

  If a linefeed code appears before or after a character string that matches a character string specified as a monitoring condition, the condition is judged as satisfied:

  Example

  Expected string: `ABC`

  String in the body of received email: `ABC`<linefeed>

- If you specify multi-byte characters (Japanese) or single-byte katakana characters in the subject line or message text in the definition of an email sending job, characters will be unreadable and the email will not be sent successfully. Therefore, do not specify multi-byte characters (Japanese) or single-byte katakana characters in the subject line or message text. Note, however, that if you specify a message text file containing the text of an email converted to JIS encoding, the file can be sent successfully.

- The sendmail function might use a program that restricts the operation of mail delivery functions that are set up later than the sendmail function. That program might prevent the JP1/AJS3 mail delivery function from running normally. In such a case, see the documentation for the program that restricts mail delivery functions and set up the program so that the JP1/AJS3 mail delivery function can run normally. For details about the mail delivery function, see *2.4.3 Setting up the mail delivery function*.

  Example:

  Emails cannot be delivered because the `jpomailrecv` command, which is a part of the mail delivery function, cannot be started from a sendmail alias because of the smrsh limitation on sendmail.

  <Action to be taken>

  Create a symbolic link to the `jpomailrecv` command.

  Example of creating a symbolic link with the `ln` command:

  ```
  ln -s /opt/jp1ajs2/bin/jpomailrecv /etc/smrsh/jpomailrecv
  ```

  Note that the location for creating the symbolic link might vary according to the system environment. Note also that the smrsh limitation described above is only an example. For details about the sendmail limitations, see the sendmail Help and other sendmail documentation.

  For details about the `ln` command, see the documentation for the OS.

  For details about aliases, see the SMTP mail system documentation.

  For details about the `jpomailrecv` command, see *jpomailrecv (UNIX only)* in *2. Commands Used during Setup* in the manual *JP1/Automatic Job Management System 3 Command Reference*.

- Attached files cannot be specified for an email sending job.

  To run an email sending job on a UNIX host, you must specify **UNIX** for **Platform** in the definition of the email sending job. When **UNIX** is specified for **Platform**, you will not be able to specify any attached files for the email sending job.

  If **PC** (Windows) is specified for **Platform** in the definition of the email sending job, you can specify attached files for the email sending job. However, if the email sending job with attached files specified is run on a UNIX host, the job ends abnormally because the specified platform type is invalid.

2.5 Mail filtering application specifications

The UNIX version of the JP1/AJS3 mail system linkage function supports email in the RFC822 format only. JP1/AJS3 can, however, handle the following email if you install an appropriate mail filter application:

- Email using Kanji or other multi-byte characters

- Email containing MIME or other encoded text

A mail filter application converts the above email to a character code system supported by the recipient host (language environment in which JP1/AJS3 is running).

The following figure gives an overview of how a mail filter application converts email.

Figure 2–14: Overview of mail conversion using a mail filter application
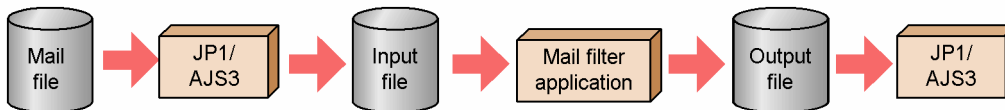
Email converted by the mail filter application is only used for mail reception by the mail system linkage function. When storing the received mail, the system stores the version before it is converted by the mail filter application.

Prepare a mail filter application when setting up mail system linkage.

The subsections below describe the specifications of a mail filter application. You can create any mail filter application as long as it satisfies the input/output and return value requirements described below.

2.5.1 Mail Filter Application Specifications

This subsection describes the specifications of a mail filter application.

(1) Files used by the mail filter application

The following table lists the files the mail filter application uses:

Table 2–9: Files used by the mail filter application

No.	File name	Description
1	/opt/jp1ajs2/usrtools/converter	Name of the mail filter application.
2	/opt/jp1ajs2/usrtools/converterin	Input file. This file stores a single email message JP1/AJS3 extracts from the email. JP1/AJS3 stores email in this file before starting the mail filter application.
3	/opt/jp1ajs2/usrtools/converterout	Output file. This file stores the email converted by the mail filter application. Once the mail filter application terminates normally, JP1/AJS3 extracts the email from this file and determines whether it satisfies the monitoring condition.

Specify the file name listed in No. 1 of the table as the name of the mail filter application. Specify the name listed in No. 2 of the table for the input file for the mail filter application. Specify the name listed in No. 3 of the table for the file to which the converted email is output.

If you specify a logical host name, the file names are assumed as follows:

Example: If the specified logical host name is `HOSTNAME1`

- Mail filter application name: `/opt/jp1ajs2/usrtools/converter`*HOSTNAME1*
- Input file name: `/opt/jp1ajs2/usrtools/converterin`*HOSTNAME1*
- Output file name: `/opt/jp1ajs2/usrtools/converterout`*HOSTNAME1*

Note: Do not include a space between `/opt/jp1ajs2/usrtools/converter` and the logical host name, between `/opt/jp1ajs2/usrtools/converterin` and the logical host name, or between `/opt/jp1ajs2/usrtools/converterout` and the logical host name.

(2) Return values from the mail filter application

The mail filter application must pass one of the return values below to JP1/AJS3 upon the completion of conversion.

JP1/AJS3 behaves differently depending on the passed return value. The following table shows return values from the mail filter application and corresponding JP1/AJS3 action:

Table 2–10: Return values and corresponding JP1/AJS3 action

Return value	Meaning	JP1/AJS3 action
0	Ended normally	Extracts the email from the file output by the mail filter application and determines whether it satisfies the monitoring condition. Uses the mail filter application to convert the next email.
Non-0	Ended abnormally	Outputs a message and disables the mail system linkage function. Stores the email in the error email file. Does not convert the next mail until JP1/AJS3 is restarted.

How the mail filter application passes a return value depends on the language in which it is created. Use either of the following:

- For the shell language: `exit` command
- For the C language: `exit()` system call

2.5.2 Specifications related to character set conversion

This subsection describes specifications regarding how the mail filter application converts email containing Kanji or other multi-byte characters so that the JP1/AJS3 mail system linkage function can use the email.

If you want the mail system linkage function to handle email that contains Kanji or other multi-byte characters, it is necessary to convert its character set. Otherwise, the character set used in the email does not match that for the language with which JP1/AJS3 is running, thus failing to satisfy the condition for the email reception monitoring job. Create a mail filter application that converts the character set according to the language settings of the computer on which JP1/AJS3 is running.

JP1/AJS3 provides a sample shell script that converts a character set. To create a mail filter application, you can use and modify this sample. For details on the sample shell script, see *2.5.4 Sample shell script for a mail filter application*.

2.5.3 Specifications related to decoding MIME or other encoded email

This subsection describes specifications regarding how the mail filter application converts email encoded in MIME or other formats so that the JP1/AJS3 mail system linkage function can use the email.

When the mail system receives MIME or other encoded email, it must detect encoding and decode the email accordingly.

Create a mail filter application that can decode encoded email. The mail filter application must also be able to convert the character code of the email text if the text uses a different character code than that of the language with which JP1/AJS3 is running.

2.5.4 Sample shell script for a mail filter application

JP1/AJS3 provides a sample shell script for a mail filter application that converts a character code. This shell script converts only the character code of the received email text; it does not decode MIME or other encoding.

The name of the file is `/opt/jp1ajs2/tools/converter`.

The character code conversion by this sample shell script varies according to the OS as follows:

- When the OS is Solaris and Linux: JIS to EUC
- When the OS is other than Solaris and Linux: JIS to Shift-JIS

Note that Solaris 11 does not support the sample shell script. If the OS is Solaris 11 and a mail filter application will be used, create a shell script that matches the character encoding used for the emails to be received and the character encoding being used by JP1/AJS3.

2.5.5 Setting up a mail filter application

The following shows the procedure for setting up a mail filter application.

To set up a mail filter application:

1. Prepare a mail filter application.
   Prepare an appropriate program or shell script that complies with the mail filter application specifications, described above. Name the file `converter`.

2. Create the `/opt/jp1ajs2/usrtools` directory.

3. Assign a read/write permission to the directory created in step 2.

4. Place the mail filter application in the directory created in step 2.

5. Assign an execution permission to the mail filter application.

2.6 Defining email reception monitoring job

An email reception monitoring job monitors the Inbox of the email client software, and detects when email that matches the monitoring conditions is received. Before executing such a job, you must define what kind of received email you want to satisfy the conditions.

The conditions you can set for an email reception monitoring job are the sender, the subject, and the body text. If a received email matches the conditions you define, the job ends normally. You must define at least one of these three items.

Only the unread emails in the Inbox of the email client software can be monitored to find out whether they satisfy the conditions. The system does not compare opened emails against the monitoring conditions.

This section describes how to define an email reception monitoring job.

2.6.1 Defining an email reception monitoring job

To receive email, define the mail reception using either of the following methods:

- In the Jobnet Editor window of JP1/AJS3 - View, define the email Receive Mail job.
- Define the necessary information in the unit definition file and execute the `ajsdefine` command.

As the details (or parameters) of email reception, specify the following items:

- Platform
- Profile name (for Windows)
- List of senders, list of subjects, list of message texts

In addition, you can specify the list file for attached files (in Windows) or the list of received email (in UNIX) as required.

(1) Judging whether received email satisfies the monitoring conditions

A list of senders, a list of subjects, and a list of message texts can be used as monitoring conditions for received email. You must set at least one of these three conditions. The system assumes that an event occurred when a message satisfies all the conditions you set. If any of the conditions is not satisfied, the system assumes that an event has not occurred.

The three monitoring conditions are described below.

- List of senders

  Judgment is based on whether the sender of a received email matches a sender you specified.

  This condition is satisfied if the email address of the sender matches an email address in the list of senders.

  If a sender's email address or an email address set as a condition includes a single-byte space, the space is ignored for judgment purposes.

- List of subjects

  Judgment is based on whether the subject line of a received email contains the specified character string.

  This condition is satisfied if the subject line of the email contains a character string specified in the list of subjects. If you specify more than one character string in the list of subjects, an email message satisfies the condition if its subject line contains any one of those character strings.

If the subject of an email or a character string specified in the list of subjects includes a single-byte space, the space is ignored for judgment purposes.

- List of message texts

  Judgment is based on whether the body of a received email contains the specified character string.

  This condition is satisfied if the body of the email contains a character string specified in the list of message texts. If you specify more than one character string in the list of message texts, an email message satisfies the condition if its body contains any one of those character strings.

  If the body of an email or a character string specified in the list of message texts includes a single-byte space, the space is ignored for judgment purposes.

Cautionary notes

- In UNIX, of files attached to an email in MIME format, only text files can be judged according to the list of message texts condition.

- Depending on the configuration of the mail system, information might be added to the sender's email address when email is received. For example, information might be added if the mail server is connected via a gateway.

- With the email reception monitoring job, the sender's email address satisfies the condition only when the whole address matches. The format of the email address set in received email as the sender address depends on what protocol the sender uses to connect to the mail server (for example, connecting with an SMTP server or Exchange Server). The sender address format might also change according to the mail system specifications or settings. After the mail system has been set up, try sending and receiving email so that you can check the sender address format actually set in the received email.

  The procedure for checking the sender address format is as follows:

  1. Define an email reception monitoring job and an email sending job.

     In the definition of the email reception monitoring job, specify a monitoring condition for the subject line or body, and specify `MLRCVADDRESS` (sender of received email) as the passing information.

     In addition, define an email sending job that will be executed after the email reception monitoring job has judged that the condition is satisfied, and that will receive `MLRCVADDRESS` and set it for the subject line or the body.

  2. Execute the email reception monitoring job.

  3. Send email.

     Make sure that you send arbitrary email that satisfies the monitoring condition specified in step 1.

  4. Check the data that has been passed.

     In the subject line or the body of the email sent by the email sending job, executed after the monitoring condition in the email reception monitoring job is satisfied, check the data that has been passed via `MLRCVADDRESS`.

  For details about `MLRCVADDRESS`, see *B. Information Passed by Event Jobs* in the manual *JP1/Automatic Job Management System 3 System Design (Work Tasks) Guide*.

- In Windows, a host can execute a maximum of 60 email reception monitoring jobs. An error occurs at execution of the 61st and subsequent jobs. The same restriction applies when more than one scheduler service is active.

2.6.2 Format of received email

All the received email is in text format. If rich text mail is sent, it is treated as plain text email when it is received. You cannot add character modification and font specification as reception conditions.

2.6.3 List file for email reception monitoring job (Windows only)

When an email reception monitoring job detects the reception of an email with attached files, you can have the system create a file that lists the attached files.

To create a list file, you need to specify the name of the list file, as well as the folder where the attached files are to be saved.

To specify this information, use one of the following methods:

- When defining the email reception monitoring job from the Jobnet Editor window of JP1/AJS3 - View

  1. In the Detailed Definition - [Receive Mail] dialog box, select the **PC** option for the **Platform** setting, and then click the **Set** button under **Option after receive**.
     The Detailed Definition - [Receive Mail] - [Option after Receive] dialog box appears.

  2. In the Detailed Definition - [Receive Mail] - [Option after Receive] dialog box, enter the relevant settings in the **Folder for saving attached file** and **List file** fields.

  For details on the definitions you can set, see *12.4.19 Detailed Definition - [Receive Mail] dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*. See also *12.4.20 Detailed Definition - [Receive Mail] - [Option after Receive] dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

- When defining the email reception monitoring job using the `ajsdefine` command

  When writing the definition information for the job in the unit definition file, specify `PC` as the platform. Also specify the folder for saving attached files and the list file name.

  For details on how to define these parameters, see *ajsdefine* in *3. Commands Used for Normal Operations* in the manual *JP1/Automatic Job Management System 3 Command Reference*, *5.1.1 Format of unit definition files* in the manual *JP1/Automatic Job Management System 3 Command Reference*. See also *5.2.11 Email reception monitoring job definition* in the manual *JP1/Automatic Job Management System 3 Command Reference*.

When the email reception monitoring job detects that an email has been received, information about the sender, when the email was received, the number of attached files, and details of each file is output to the list file for attached files.

The information output to the list file falls into two categories:

- File information
  Information about a file attached to the received email.
  The full path of the attached file (including the folder where the file is saved) is output to the list file.

- OLE object information
  Information relating to an object embedded in the email message by the mail client software that sent the message (for example a Microsoft Outlook item).
  Windows cannot handle these objects as system files. For this reason, OLE objects are not saved to the folder for saving attached files. Instead, the message `The attached file cannot be saved since it is an OLE object` is output to the list file.

The following table shows the format of list files.

Table 2–11: Format of list files

Place	Format	Output content
1st line	`From:` *sender*	The sender of the email.
2nd line	`Date:` *date*	The date and time when the email was received.

Place	Format	Output content
3rd line	`Files:` *number-of-attached-files*	The number of files (files and OLE objects) attached to the email.
4th and later lines	Information about individual attachments	Information about each attached file. Each line of information represents a different file. • Files: The full path of the file • OLE objects: The character string `The attached file cannot be saved since it is an OLE object.`

If you specify a list file name but not folder for saving attached files when defining an email reception monitoring job, `0` appears for `Files` (the number of files) in the list file. In this case, information about individual attachments is not output.

If the specified list file already exists, the system overwrites the existing file with the new information.

The following figure shows an example of the information output to a list file:

Figure 2–15: Example of output to list file

Example format

```
From:Sales
Date:20XX/08/01 12:34
Files:3
C:\USER\DEFAULT\customer-A\estimate.doc
The attached file cannot be saved since it is an OLE object.
C:\USER\DEFAULT\customer\order.xls
```

In this example, the list file presents the following information about the received email:

- The email sender was `Sales`.
- The email was received at 12:34 on 1 August 20*XX*.
- The email has three attachments (`estimate.doc`, an OLE object, and `order.xls`). The attached files, with the exception of the OLE object, were saved to the folder `C:\USER\DEFAULT\customer-A`.

2.6.4 Reception list file (UNIX only)

When a UNIX host receives email, it can extract the contents of the received email and create a file that records the extracts in a list format.

The following table shows the format of a reception list file.

Table 2–12: Format of a reception list file

Place	Format	Contents
1st line	`SENDER:` *sender*	*sender* is replaced by the name of the actual email sender.
2nd line	`DATE:` *date*	*date* is replaced by the actual date when the email is received.
3rd line	`SUBJECT:` *subject*	*subject* is replaced by the title of the email.

An example format of a reception list file is as follows.

Figure 2–16: Example format of a reception list file

Example format

```
SENDER:Sales
DATE:20XX/08/01 12:34
SUBJECT:Test
```

2.6.5 Cautionary note on defining an email reception monitoring job

When specifying a body text file, attached file storage folder, or list file in an email reception monitoring job, specify a file or folder stored on a local drive. You cannot specify a file or folder on a network drive (a file or folder specified in the *computer-name**folder*\\ format or stored on a drive assigned as a network drive).

2.7　Defining email sending job

You can define the type of email to be sent when an email sending job is executed.

2.7.1　Defining email sending job

To send email, define an email sending job using either of the following two methods:

- In the Jobnet Editor window of JP1/AJS3 - View, define the email sending job.
- Define the necessary information in the unit definition file and execute the `ajsdefine` command.

As the details (or parameters) of the email sending job, specify the following items:

- Platform
- Recipient
- Profile name (for Windows)

Specify the subject and text when necessary.

2.7.2　Format of email to be sent

You can send email in text format. Write a message in the mail text or send the text file with a message. If you define both text and text file, the contents of text file take precedence.

Windows can also send attached files.

2.7.3　List of attached files to be sent (Windows only)

When you send attached files, you can create a list of attached files and automatically attach the files in the list to the mail.

Users create the list of attached files in plain text format. The following table shows the format of a list of attached files.

Table 2–13:　Format of a list of attached files

Place	Format	Contents
1st line	`Files:` *number-of-files*	For *number-of-files*, write the number of attached files in the second and later lines. If the number of written files exceeds *number-of-files*, the excessive files are ignored. If the number of written files is smaller than *number-of-files*, all the files are valid.
2nd and later lines	Full path name of a file	The full path name of an attached file is written in each line.

An example of a list of attached files is shown below.

Figure 2–17: Example of list of attached files

Example format

```
Files:3
C:\USERS\DEFAULT\common\charge-list.xls
C:\USERS\DEFAULT\common\product-explanation.doc
C:\USERS\DEFAULT\customer-A\transaction-history.xls
```

When both the attached file and the attached file list are defined, the contents of the attached file list take precedence and the files in the list are sent.

Cautionary notes

- You can specify a maximum of 20 files in an attached file list.
- Note the following when sending email without using Outlook:
  - The maximum size of attached files depends on the maximum size specified in the mail server settings.
  - We recommend that the total size of file attachments does not exceed 10 megabytes for any single email.
  - If you specify attached files exceeding 10 megabytes, specify a value in the `EmbeddedMailTimeout` parameter (in seconds) of at least the attached file size in megabyte **x** 2. For details on the `EmbeddedMailTimeout` parameter, see *2.2.2(1) Setting environment setting parameters*.

2.7.4 Cautionary notes on sending email (for a Windows host when not using Outlook)

Note the following when sending email on a Windows host without using Outlook:

Keeping sent items

    The mail system linkage function does not retain a local copy of email sent without using Outlook.

Format of recipients in email sending jobs

    Recipients of emails sent by email sending jobs must be specified by a standard Internet email address.

How JP1/AJS3 behaves when a domain name is specified incorrectly in an email with multiple recipients

    When an email contains a recipient with a domain name (the portion after the @ sign) specified incorrectly, the job enters *Ended abnormally* status and the email is not sent to the recipients whose addresses are specified correctly. Take care to avoid errors when specifying email recipients.

Timeout periods when sending emails

    When sending an email via an email sending job, each of the following steps has its own timeout period:

- Waiting for a connection to the mail server
- Waiting for a response from the mail server
- Waiting for the process (`telsmail.exe`) to finish

    These periods can be set by environment setting parameters in the definition key [{JP1_DEFAULT|*logical-host-name*}\JP1AOMAGENT\mail_link].

    The following table lists the environment setting parameters that define these timeout periods.

Table 2–14: Environment setting parameters that define timeout periods when sending email without using Outlook

No.	Type of timeout	Environment parameter that defines timeout period	Default
1	Waiting for a connection to the mail server	`ConnectTimeout`	10 seconds
2	Waiting for a response from the mail server	`RecvTimeout`	10 seconds
3	Waiting for the process (`telsmail.exe`) to finish	`EmbeddedMailTimeout`	600 seconds

2.7.5 Cautionary notes on sending email (for a Windows host when using Outlook)

Note the following when sending email on a Windows host using Outlook:

Deleting sent email

The email sent by the email sending job remains in **Sent Items** of Outlook. This email data might use a large amount of system disk space on the mail server or on the computer where email is sent. Activate Outlook with the profile for the mail system linkage on a regular basis to delete the email remaining in **Sent Items**.

Note that before you delete email from **Sent Items** of Outlook, you must stop the JP1/AJS3 mail monitoring process or the JP1/AJS3 Mail service.

Formats that can be specified as recipients in the email sending job

The following table shows the formats that can be used to specify recipients.

Note that the profile specified for the email sending job must be configured according to the mail system that will be used.

Table 2–15: Formats that can be specified as recipients in the email sending job

Profile type	Format
Exchange Server[#]	• Display name • Alias • Internet mail address
Internet Mail (SMTP/POP3)	Internet mail address

#

Email sending jobs cannot send email to addresses in X.400 format.

The following is an example of an X.400-format address:

`c=JP;p=MailServer;o=Exchange;g=Taro;s=Hitachi;`

Using single-byte katakana characters in email sending jobs

Do not use single-byte katakana characters in the address, subject line, and message text in an email sending job. Depending on the linked mail system, single-byte katakana characters in the sent email might be converted to multi-byte katakana characters, preventing the contents of the job definition from being applied.

2.7.6 Cautionary note on defining an email sending job

When specifying a body text file, attached file, or attached file list in an email sending job, create a file on a local drive. You cannot use a file on a network drive (a file specified in the *\\computer-name\folder* format or stored on a drive assigned as a network drive).

3

Adding Custom Jobs

This chapter describes how to add custom jobs.

3.1 Overview of custom jobs

A custom job is a type of job that is defined with the processes to be executed in programs other than JP1/AJS3.

You can define custom jobs in a jobnet in the same way you can define PC jobs and Unix jobs. To use a custom job, you must register the custom job with the Windows version of JP1/AJS3 - View. The registered custom job appears in the icon list in the Jobnet Editor window. You can define the job by dragging and dropping it in the same way as other jobs.

JP1/AJS3 supports two types of custom jobs: default custom jobs and custom PC/Unix jobs. The following subsections describe default custom jobs, custom PC jobs, and custom Unix jobs. Cautionary notes on custom jobs are also provided.

3.1.1 Default custom jobs

JP1/AJS3 provides default custom jobs as standard to link Windows versions of JP1 series products. If you want to link UNIX versions of JP1 series products, register a job as a custom Unix job.

(1) List of default custom jobs

The following table lists default custom jobs.

Table 3–1: List of default custom jobs

Default custom job name	Function
JP1FTP	This job works with JP1/FTP to transfer files.
JP1AMR3	This job works with JP1/AJS3 for Enterprise Applications to execute the background jobs of the R/3 system.
JP1AMR3BW	This job works with JP1/AJS3 for Enterprise Applications to execute the info packages of the BW system.
ADSHPC, ADSHUX, ADSHAPPEXEC	This job works with JP1/Advanced Shell to execute the script file of JP1/Advanced Shell.
DHAJEW	This job works with JP1/DH - AJE to send and receive data to and from JP1/DH - Server.

(2) Preparation for executing a default custom job

The preparation for executing a default custom job includes installing programs and registering the default custom job. Read the following for details.

- To use a default custom job, you need to install the following two programs:
  - Executable program for executing the default custom job
    You need to install the program to be linked in the host containing JP1/AJS3 - Manager or JP1/AJS3 - Agent that executes the default custom job.
  - Definition program for defining the default custom job , which is provided by the program to be linked
    If you install the program to be linked in a host different from JP1/AJS3 - View, you need to copy the definition program of the default custom job to the host where JP1/AJS3 - View exists.[#]
    #: The availability of a definition program of a default custom job depends on the support status of the linked product. For details, see the manual or *Release Notes* for the linked product.

  The following figure shows the system configuration when using a default custom job.

Figure 3–1: System configuration when using a default custom job
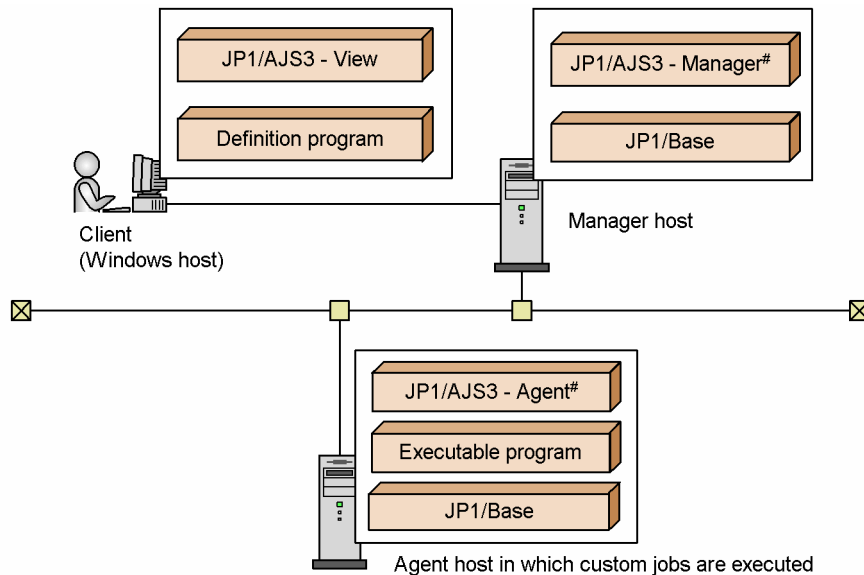
- You need to register the target default custom job.

  To display the icons of standard custom jobs in the Jobnet Editor window and Jobnet Monitor window, you need to register the standard custom jobs in each host where JP1/AJS3 - View is installed.

  When JP1/AJS3 - View has just been installed, the **Custom Jobs** tab, which displays an icon list, does not appear in the Jobnet Editor window of JP1/AJS3 - View. To add a default custom job icon in the **Custom Jobs** page or display it in the map area in the Jobnet Editor window or the Jobnet Monitor window, you need to register the target default custom job in each host where JP1/AJS3 - View is installed. For details, see *3.2 Registering default custom jobs*.

Icons for the following default custom jobs are provided with JP1/AJS3.

- For Windows
  JP1FTP, JP1AMR3, JP1AMR3BW, and DHAJEW
- For UNIX
  JP1FTP, JP1AMR3, and JP1AMR3BW

To obtain the icon for any other job, copy it from the linked program.

3.1.2 Custom PC jobs and custom Unix jobs

You can register a frequently used PC job or Unix job, associating any icon with it. Such jobs are called custom PC jobs or custom Unix jobs.

If you want to link UNIX versions of JP1 series products, use a custom Unix job.

(1) Preparation for executing a custom PC job or a custom Unix job

The preparation for executing a custom PC job or a custom Unix job is registering the target custom PC job or custom Unix job. Read the following for how to register a custom PC job or a custom Unix job.

- You need to prepare a GIF file for an icon.

  Prepare a GIF file that represents an icon used to display the custom PC job or custom Unix job in the Jobnet Editor and Jobnet Monitor windows. For details on the format of the GIF file, see *3.3.1 Preparing the gif file for icons*.

- You need to register the target custom PC job or custom Unix job.

  To display the icon of a custom PC or custom Unix job in the Jobnet Editor window or Jobnet Monitor window, you need to register the custom PC or custom Unix job in each host where JP1/AJS3 - View is installed.

  When JP1/AJS3 - View has just been installed, the **Custom Jobs** tab, which displays an icon list, does not appear in the Jobnet Editor window of JP1/AJS3 - View. To add a custom PC job icon or a custom Unix job icon in the **Custom Jobs** page or display it in the map area in the Jobnet Editor window or the Jobnet Monitor window, you need to register the target custom PC job or custom Unix job in each host where JP1/AJS3 - View is installed. For details, see *3.3 Registering custom PC jobs or custom Unix jobs*.

A custom PC job or custom Unix job does not require the installation of an executable program or definition program.

3.2 Registering default custom jobs

To use JP1/AJS3 - View to define default custom jobs for a jobnet, you must register them.

The following shows the procedure for registering a default custom job. Information you specify when registering a job depends on the product you link. For more information, see the documentation for the product to be linked.

To register a custom job:

1. From the **Start** menu of Windows, choose **Programs**, **JP1_Automatic Job Management System 3 - View**, and then **Register Custom Jobs**.
   The Register Custom Job dialog box appears.

2. To register a new custom job, click the **Add** button. To modify an existing custom job, select the custom job you want to modify and then click the **Change** button.
   The Set Properties of Custom Job dialog box appears.

3. In this dialog box, specify the custom job name, the executable program, and other necessary items.
   For details about the items displayed in the Set Properties of Custom Job dialog box and the items you specify in the Set Properties of Custom Job dialog box, see *12.13.2 Set Properties of Custom Job dialog box* in the *JP1/ Automatic Job Management System 3 Operator's Guide*.

4. Click the **OK** button.
   The Set Properties of Custom Job dialog box closes.

5. In the Register Custom Job dialog box, click the **Close** button.
   The Register Custom Job dialog box closes.

6. In the Jobnet Editor window, click the **Custom Jobs** tab to ensure that the icon of the custom job is added.

The method of defining the custom job into a jobnet is the same as PC jobs and Unix jobs.

3.3 Registering custom PC jobs or custom Unix jobs

To use JP1/AJS3 - View to default define custom jobs into a jobnet, you must register them.

To link UNIX versions of JP1 series products, register a job as a custom Unix job. For details of information you specify when linking the UNIX version of a JP1 series product, see the documentation for the product.

Prepare a GIF file for an icon before registering a job.

To register a custom job:

1. From the **Start** menu of Windows, choose **Programs**, **JP1_Automatic Job Management System 3 - View**, and then **Register Custom Jobs**.
   The Register Custom Job dialog box appears.

2. To register a new custom job, click the **Add** button. To modify an existing custom job, select the custom job you want to modify and then click the **Change** button.
   The Set Properties of Custom Job dialog box appears.

3. In this dialog box, specify the custom job name, the executable program, and other necessary items.
   For details about the items displayed in the Set Properties of Custom Job dialog box and the items you specify in the Set Properties of Custom Job dialog box, see *12.13.2 Set Properties of Custom Job dialog box* in the *JP1/ Automatic Job Management System 3 Operator's Guide*.

4. Click the **OK** button.
   The Set Properties of Custom Job dialog box closes.

5. In the Register Custom Job dialog box, click the **Close** button.
   The Register Custom Job dialog box closes.

6. Store a created or selected icon GIF file in the *JP1/AJS3 - View-installation-folder*\image\custom.
   The format of the gif file name differs depending on the job type.

   For a custom PC job, which will be executed on a Windows host, the icon file name must have the following format:
   > CUSTOM_PC_USER_*any-name*.gif

   For a custom Unix job, which will be executed on a UNIX host, the icon file name must have the following format:
   > CUSTOM_UX_USER_*any-name*.gif

   The USER_*any-name* portion must match the class name. For details about class names, see *12.13.2 Set Properties of Custom Job dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

7. In the Jobnet Editor window, click the **Custom Jobs** tab to ensure that the icon of the custom job is added.

The method of defining the custom job into a jobnet is the same as PC jobs and Unix jobs.

3.3.1 Preparing the gif file for icons

This section describes the gif file for icons, which is required to register custom PC jobs and custom Unix jobs.

Software to use
> Use a graphics editor that can handle graphics in gif format.

Icon size

The maximum size of an icon is 32x32 pixels. However, if you create icons with the maximum size of 32x32 pixels, there is no room between the icons in the icon list in the Jobnet Editor window. Therefore, we recommend that you create icons in 30x30-pixel or a smaller area with a margin of at least one pixel placed around the area.

Colors

- The colors indicating the statuses (for example, red for abnormal termination and green for normal termination) are generated by applying an appropriate filter to a base color (RGB values of 255, 102, 255) in the program. Therefore, if you want to indicate the status in a portion of an icon, you must set the base color for the portion.

- For the portions you want to make transparent, use a transparent color.

- Depending on the display settings and the pallet you are using, JP1/AJS3 - View may be unable to correctly display the colors set with the graphics editor. Ensure that the colors you set are displayed correctly in JP1/AJS3 - View.

Supplementary note

For details about drawing (such as setting the RGB values and setting transparent colors), see the documentation for the graphics editor you are using.

3.4 Cautionary notes on custom jobs

Note the following when using custom jobs.

- The Windows version of JP1/AJS3 - View uses jobnet icons to display the custom jobs that are only registered in other JP1/AJS3 - Views. Such an icon can be changed to a question mark (?). For details, see *11.3.11 Displaying unregistered custom jobs with the jobnet icon* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

- After you edit a registered custom job in the Register Custom Job dialog box, check whether the custom job you edited is not defined in the Jobnet Editor window. If the custom job is already defined, delete the custom job and then define it again.

- If a custom job has not been registered correctly, the custom job icon is not displayed. Make sure that the custom job has been registered correctly.

4

Linking JP1/FTP

JP1/FTP is a program that transfers files using the FTP protocol. By linking JP1/FTP, you can automate the transfer of files. This chapter describes how to define a job that uses JP1/FTP as a JP1/AJS3 job.

4.1 Overview of linking JP1/FTP

Linking JP1/FTP enables you to define file transfer as a job in a jobnet. This lets it automate the transfer of files using JP1/AJS3.

To transfer files as a job of a jobnet, you define a JP1/FTP custom job, provided by JP1/AJS3, in a jobnet and execute it.

To run this custom job, JP1/FTP is required both on the host on which you execute it (the host that transmits files) and the host that receives the files.

4.2 Setup for linking JP1/FTP

To define and execute JP1/FTP custom jobs, you must install JP1/FTP on the host where you execute the custom jobs. In addition, to define custom jobs using JP1/AJS3 - View, you have to copy the definition program for JP1/AJS3, which JP1/FTP provides, to the JP1/AJS3 - View host.

The following figure shows an example of a system configuration for linking JP1/FTP.

Figure 4–1: Example of a system configuration for linking JP1/FTP
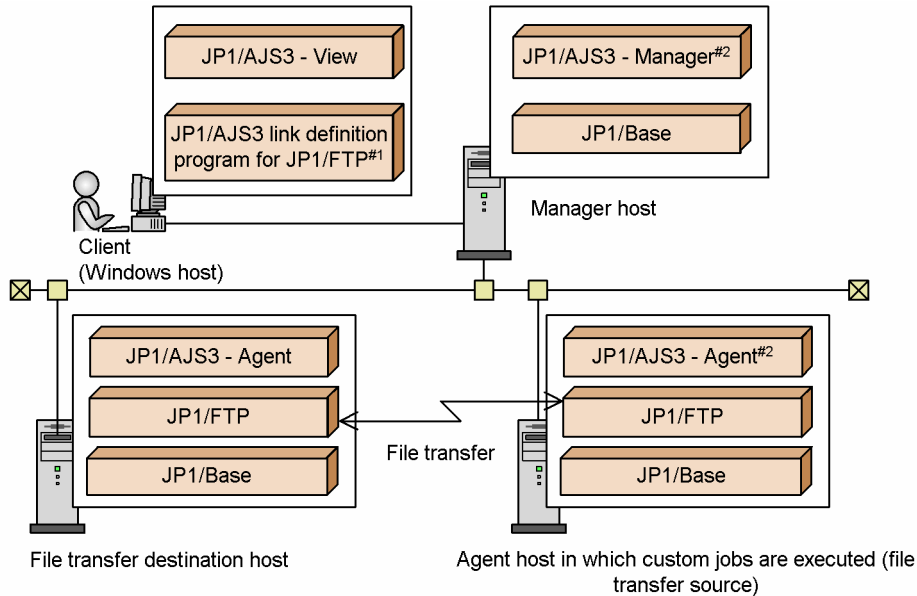
#1 You can install and use JP1/FTP instead of the definition program.
#2 Usually, JP1/FTP custom jobs are executed in the agent host.
    Executing JP1/FTP custom jobs in the manager host requires that JP1/FTP be installed in it.

Commands for operating units while using the automatic startup program registration function of JP1/FTP for UNIX require you to start the JP1/FTP daemon by specifying the following environment variables.

- `JP1FTS_AUTO_UID_OPTION=TRUE`

- `JP1FTS_AUTO_STDIO=`*standard-I/O-file-name* and *standard-error-output-file-name*

The following example shows how to enter these variables:

```
# JP1FTS_AUTO_UID_OPTION=TRUE
# JP1FTS_AUTO_STDIO=/dev/null
# export JP1FTS_AUTO_UID_OPTION JP1FTS_AUTO_STDIO
# jftsd
```

The figure below shows the setup procedure for linking JP1/FTP.

Figure 4–2: Setup procedure for linking JP1/FTP

(1) Procedure for the Manager host
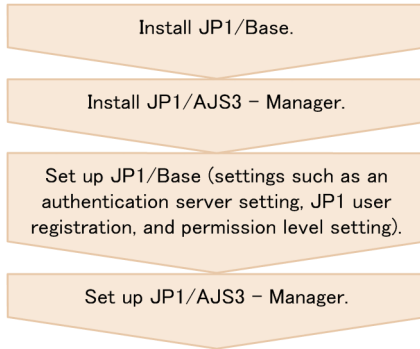
| Install JP1/Base. |

| Install JP1/AJS3 − Manager. |

| Set up JP1/Base (settings such as an authentication server setting, JP1 user registration, and permission level setting). |

| Set up JP1/AJS3 − Manager. |

(2) Procedure for the Agent host (in which custom jobs are executed)

| Install JP1/Base. |

| Install JP1/AJS3 − Agent. |

| Set up JP1/Base (settings such as user mappings). |

| Set up JP1/AJS3 − Agent. |

| Install JP1/FTP, then perform setup. |

(3) Procedure for the Client

| Install JP1/AJS3 − View. |

| Copy the JP1/AJS3 link definition program for JP1/FTP or install JP1/FTP. |

| Register the custom job icons with JP1/AJS3 − View. |

| Put the link in operation. |
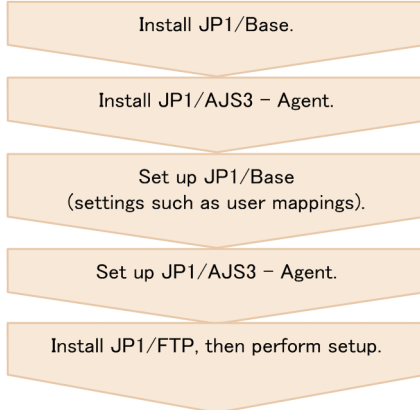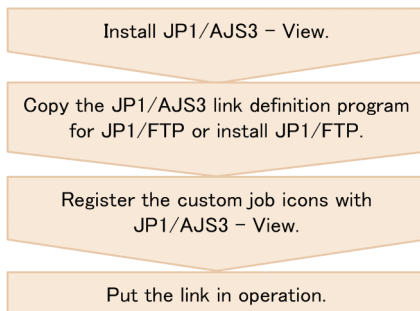
For details on how to register custom job icons, see *3.2 Registering default custom jobs*.

4.3 Transferring files using JP1/FTP

This section describes procedures for defining a custom job for JP1/FTP in a jobnet.

To define a custom job for JP1/FTP in a jobnet:

1. Open the jobnet to be edited in the Jobnet Editor window.
   Open the jobnet and then select the **Exclusive edit** check box.

2. Drag the icon of the custom job for JP1/FTP from the icon list and drop it into the map area.
   Dropping the icon causes the Define Details - [Custom Job] dialog box to appear.

3. Define the unit name and other attributes.

4. Click the **Details** button.
   The dialog box for specifying the transmission card appears.

5. Define details for the job to be executed and click the **OK** button.

6. Click the **OK** button in the Define Details - [Custom Job] dialog box.

5

Linking ERP Systems

JP1/AJS3 can link ERP systems, such as SAP R/3. By linking ERP systems, you can define ERP processing as JP1/AJS3 jobs. This chapter describes how to define ERP processing as JP1/AJS3 jobs while linked with the ERP system.

5.1 Overview of linking ERP systems

JP1/AJS3 can be used to automate the processing of SAP R/3 or similar ERP systems. Using the JP1/AJS3 calendar function or job scheduling function, you can finely schedule and operate ERP system tasks.

Define tasks for the ERP system as ERP system custom jobs in a jobnet. By linking the custom jobs with other jobs, you can execute ERP tasks upon the occurrence of a specified event or automatically execute a recovery unit if an ERP task fails.

JP1/AJS3 can link the following ERP systems:

- SAP R/3 system
- SAP BW system

To link JP1/AJS3 with a SAP R/3 system or SAP BW system, you need JP1/AJS3 for Enterprise Applications. Install JP1/AJS3 for Enterprise Applications on the same host where JP1/AJS3 - Agent or JP1/AJS3 - Manager is installed to execute custom jobs. JP1/AJS3 for Enterprise Applications is renamed from the JP1/Application Manager for R/3(R) in JP1 Version 6.

5.2 Setup for linking a SAP R/3 system or SAP BW system

To define and execute a custom job for a SAP R/3 or SAP BW system, you need JP1/AJS3 for Enterprise Applications on the host where you define and execute the custom job. In addition, to define a custom job using JP1/AJS3 - View, you have to copy the definition program for JP1/AJS3, which is provided by JP1/AJS3 for Enterprise Applications, to the JP1/AJS3 - View host.

The following figure shows an example of a system configuration for linking a SAP R/3 system.

Figure 5–1: Example of a system configuration for linking a SAP R/3 system
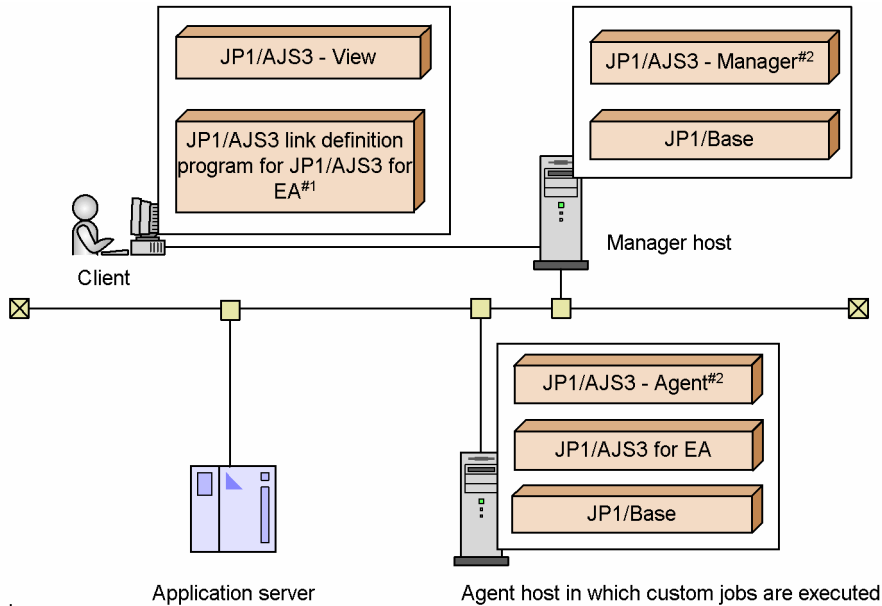
Legend:
JP1/AJS3 for EA: JP1/AJS3 for Enterprise Applications

#1 You can install and use JP1/AJS3 for EA instead of the definition program.
#2 Usually, custom jobs are executed in the agent host.
Executing custom jobs in the manager host requires that JP1/AJS3 for EA be installed in it.

The figure below shows the setup procedure for linking a SAP R/3 system.

Figure 5–2: Setup procedure for linking a SAP R/3 system

(1) Procedure for the Manager host

Install JP1/Base.

Install JP1/AJS3 - Manager.

Set up JP1/Base (settings such as an authentication server setting, JP1 user registration, and permission level setting).

Set up JP1/AJS3 - Manager.

(2) Procedure for the Agent host (in which custom jobs are executed)

Install JP1/Base.

Install JP1/AJS3 - Agent.

Set up JP1/Base
(settings such as user mappings).

Set up JP1/AJS3 - Agent.

Install JP1/AJS3 for EA, then perform setup.

(3) Procedure for the Client

Install JP1/AJS3 - View.

Copy the JP1/AJS3 link definition program for JP1/AJS3 for EA or install JP1/AJS3 for EA.

Register the custom job icons with JP1/AJS3 - View.

Put the link in operation.

Legend:
JP1/AJS3 for EA : JP1/AJS3 for Enterprise Applications

For details on how to register custom job icons, see *3.2 Registering default custom jobs*.

5.3 Defining ERP linkage jobs

This section describes procedures for defining a custom job for ERP in a jobnet.

To define a custom job for ERP in a jobnet:

1. Open the jobnet to be edited in the Jobnet Editor window.
   Open the jobnet and then select the **Exclusive edit** check box.

2. Drag the custom job icon from the icon list and drop it in the map area.
   The icon varies with the ERP system to be linked.
   Dropping the icon causes the Define Details - [Custom Job] dialog box to appear.

3. Define the unit name and other attributes.

4. Click the **Details** button.
   A dialog box appears to set up details for the job. The displayed dialog box varies with the program to be linked.
   For details of information you set up, see the *JP1/Automatic Job Management System 3 for Enterprise Applications Description, User's Guide and Reference*.

5. Define details for the job to be executed and click the **OK** button.

6. Click the **OK** button in the Define Details - [Custom Job] dialog box.

6

Linking Mainframes Using JP1/OJE

This chapter describes how to use JP1/OJE to execute jobs and jobnets on mainframes.

6.1 Overview of linking mainframes using JP1/OJE

You can use JP1/OJE to enter jobs into mainframes (such as VOS3) or receive and execute jobs from mainframes. When you enter jobs from JP1/AJS3 to JP1/OJE, JP1/OJE automatically queues the jobs and executes them. You can check the execution result of the job using JP1/AJS3.

You can use JP1/OJE to link VOS3, AS/400, and other manufacturers' mainframes, including MVS and OSIV/MSP.

The following describes how to execute mainframe jobs from JP1/AJS3:

- QUEUE jobs and submit jobs

  You can use QUEUE jobs and submit jobs to link VOS3, AS/400, MVS, and OSIV/MSP.

  - QUEUE jobs

    You can define the job to be executed and the queue for execution in a QUEUE job so that the jobnet can enter the job into the queue controlled by JP1/OJE.

  - Submit jobs

    You can use a job execution command (having a name starting with jpq) to directly register the job in the queue.

6.2 Setup for executing QUEUE jobs or submit jobs

This section describes the setup for linking JP1/OJE to execute QUEUE jobs or submit jobs.

The following figure shows an example of a system configuration for linking JP1/OJE.

Figure 6–1: Example of a system configuration for linking JP1/OJE to execute QUEUE jobs or submit jobs
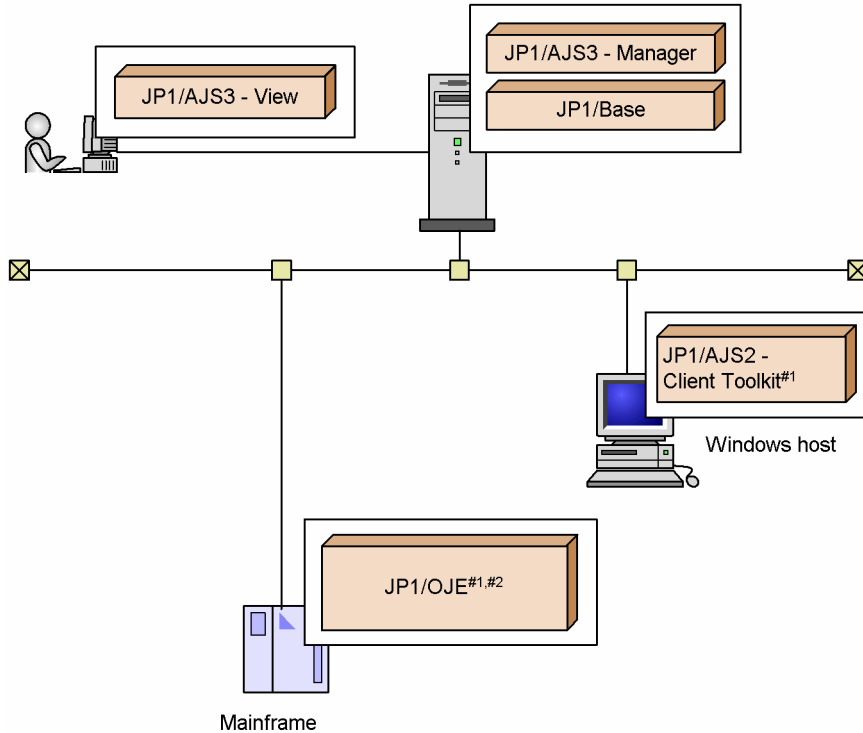
#1 JP1/AJS2 - Client Toolkit can only link JP1/OJE for VOS3.
#2 Linking AS/400 requires JP1/OJE for Midrange Computer.

In this example, JP1/AJS3 - Manager linked with JP1/OJE. JP1/AJS3 - Manager can use a QUEUE job or a submit job using a job execution command to issue a job execution request to JP1/OJE.

JP1/AJS3 - Manager can also receive an execution request issued by JP1/OJE.

The figure below shows the setup procedure for linking JP1/OJE.

Figure 6–2: Setup procedure for linking JP1/OJE
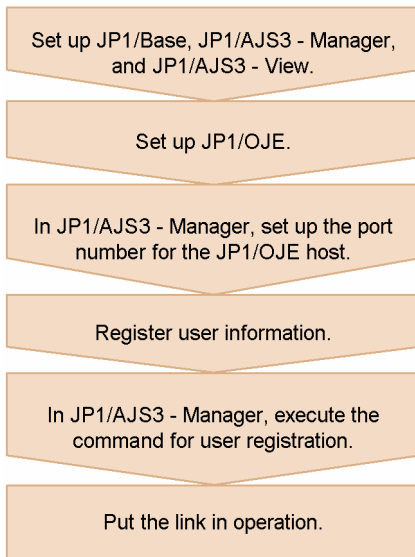
For details about the setup for JP1/OJE, see its manual.

The following subsections describe how to specify the port number and register the user information that are required for linking with JP1/AJS3.

6.2.1 Specifying the port number

Specify the port number for the `jp1ajs2qman` service of JP1/AJS3 - Manager according to the port number used for the linkage with JP1/OJE. The default for the `jp1ajs2qman` service is `20241/tcp`.

To specify the port number, change the `services` file.

6.2.2 Registering user information

You must register the user who issues a job execution request to JP1/OJE and the user who issues a job execution request from JP1/OJE.

The user to be registered varies with how a job is to be executed. (You can execute a job by any of the following three methods: defining a QUEUE job in a jobnet and requesting execution, requesting execution using a submit job, or requesting execution from JP1/OJE to JP1/AJS3). The following describes the registration procedure for each execution method.

(1) Defining QUEUE jobs to request job executions

When jobs are executed by defining QUEUE jobs in a jobnet, the users requesting jobs are JP1 users.

To manage jobs for JP1/OJE, register in advance the mainframe user information for JP1 users in JP1/AJS3 - Manager to which JP1/AJS3 - View logs in.

The following shows the user information you must specify on each host to request execution using QUEUE jobs.

JP1/AJS3 - Manager host

- Register a JP1 user

- Register VOS3 user information

JP1/OJE host

None (mainframe user information applied)

(2) Using submit jobs to request job executions

When jobs are executed by using submit jobs (jobs for which execution is requested using job execution commands beginning with `jpq`), the users requesting jobs are OS users who run the programs that issue these commands.

To manage jobs for JP1/OJE, register the mainframe user information beforehand for the OS users with the host from which executions are requested.

Be sure to type the OS user names accurately with regard to uppercase and lowercase letters. When you request job executions to JP1/AJS3 - Manager, we recommend that you specify the OS user names with all lowercase letters.

The following shows the user information you must specify on each host to request execution using submit jobs.

JP1/AJS3 - Manager host

Register VOS3 user information

JP1/OJE host

None (mainframe user information applied)

(3) Requesting job executions from JP1/OJE to JP1/AJS3

Register users who request job execution as JP1 users with the authentication server in JP1/AJS3 - Manager to which those users request execution. For details about how to register JP1 users, see *3.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* for a Windows host, or *13.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* for a UNIX host.

6.2.3 Registering VOS3 user information with JP1/AJS3 (JP1/OJE for VOS3 only)

By using the JP1/AJS3 - Manager from which job handling requests are issued, register the VOS3 user information to convert the JP1 users or OS users to mainframe users or mainframe user groups.

To register user information, execute the `jpqreguser` command in JP1/AJS3 - Manager. For details about the `jpqreguser` command, see *jpqreguser* in *2. Commands Used during Setup* in the manual *JP1/Automatic Job Management System 3 Command Reference*.

6.3 Executing QUEUE jobs or submit jobs

This section describes procedures for executing QUEUE jobs or submit jobs.

To execute QUEUE jobs or submit jobs:

- Executing a QUEUE job

  1. Open the jobnet to be edited in the Jobnet Editor window.
     Open the jobnet and then select the **Exclusive edit** check box.

  2. Drag the QUEUE job icon from the icon list and drop it in the map area.
     Dropping the icon causes the Define Details - [Queue Job] dialog box to appear.

  3. Define the queue name, job name, and other attributes.
     The name of the file to be executed must not be omitted.

  4. Click the **OK** button.

- Executing a submit job

  Specify the job to be executed and the queue to be used, and then execute the `jpqjobsub` command. For details about the `jpqjobsub` command, see *jpqjobsub* in *4. Commands Used for Special Operation* in the manual *JP1/ Automatic Job Management System 3 Command Reference*.

7

Linking hp NonStop Server (Windows Only)

This chapter describes how to link hp NonStop Server to enter jobs into hp NonStop Server.

7.1 Overview of linking hp NonStop Server

You can link HP NonStop Server to enter jobs into HP NonStop Server or execute jobs received from HP NonStop Server. You can check the execution result of the job using JP1/AJS3.

To enter jobs from JP1/AJS3 to HP NonStop Server, queue the jobs as QUEUE jobs.

You must install the Job scheduler for the MPP JP1 linkage option for HP NonStop Server.

7.2 Setup for linking hp NonStop Server

This section describes the setup for linking HP NonStop Server to execute jobs.

The following figure shows an example of a system configuration for linking HP NonStop Server.

Figure 7–1: Example of a system configuration for linking HP NonStop Server
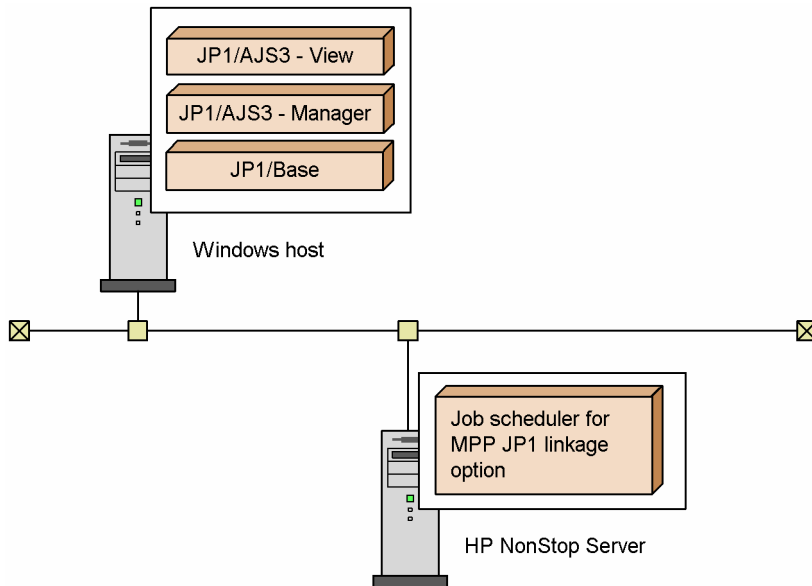
In this example, JP1/AJS3 - Manager is linked with HP NonStop Server.

The figure below shows the setup procedure for linking HP NonStop Server.

Figure 7–2: Setup procedure for linking HP NonStop Server
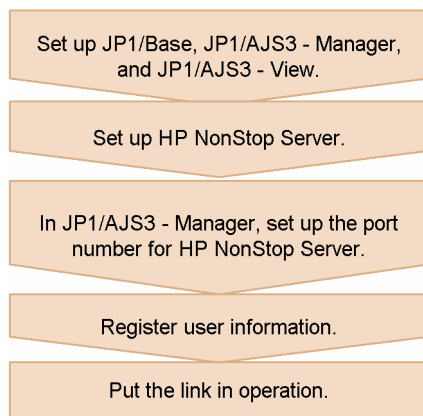
For details about the setup for HP NonStop Server, see the documentation supplied with the HP NonStop Server system.

7.2.1 Specifying the port number

Specify the port number for the `jp1ajs2qman` service of JP1/AJS3 - Manager according to the port number used for the linkage with HP NonStop Server. The default for the `jp1ajs2qman` service is `20241/tcp`.

To specify the port number, change the `services` file.

7.2.2 Registering user information

When issuing a job execution request to HP NonStop Server, you do not need to register the user requesting the job with HP NonStop Server. That is because the user name does not have a meaning during job execution in HP NonStop Server.

When issuing a job execution request from HP NonStop Server to JP1/AJS3, register users who request job execution as JP1 users in the authentication server of JP1/AJS3 - Manager that will receive the job execution request. For details about how to register JP1 users, see *3.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* for a Windows host, or *13.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* for a UNIX host.

7.3 Entering jobs into hp NonStop Server

Use QUEUE jobs to enter jobs into HP NonStop Server. This section describes the procedure for using a QUEUE job to enter a job into HP NonStop Server.

To enter a job into HP NonStop Server:

1. Open the jobnet to be edited in the Jobnet Editor window.
   Open the jobnet and then select the **Exclusive edit** check box.

2. Drag the QUEUE job icon from the icon list and drop it in the map area.
   Dropping the icon causes the Define Details - [Queue Job] dialog box to appear.

3. Define the queue name, job name, and other attributes.

4. Click the **OK** button.

8

Linking JP1/Script

JP1/AJS3 can execute script files you created with JP1/Script. This chapter describes how to define JP1/Script script files as JP1/AJS3 jobs.

8.1 Overview of linking JP1/Script

JP1/AJS3 can define and execute scripts created with JP1/Script version 06-00 or later as jobs.

When you link JP1/Script, you can display the graphical user interface (GUI) from JP1/AJS3 jobs. Usually, a JP1/AJS3 job cannot execute a program that displays the GUI and waits for input. You can, however, start a program using the GUI from a JP1/Script script file so that the GUI operates in the same way as when it is started on the desktop. If you display the GUI from a JP1/AJS3 job without using JP1/Script, the operation is not guaranteed.

Linking JP1/Script may also make jobs that do not use the GUI operable, such as a print job that depends on the logon space.

For details about creating script files, see the manual *JP1/Script Description and Reference*, for Windows Systems.

8.2 Setup for linking JP1/Script

The following figure shows an example of a system configuration for linking JP1/Script.

Figure 8–1: Example of a system configuration for linking JP1/Script
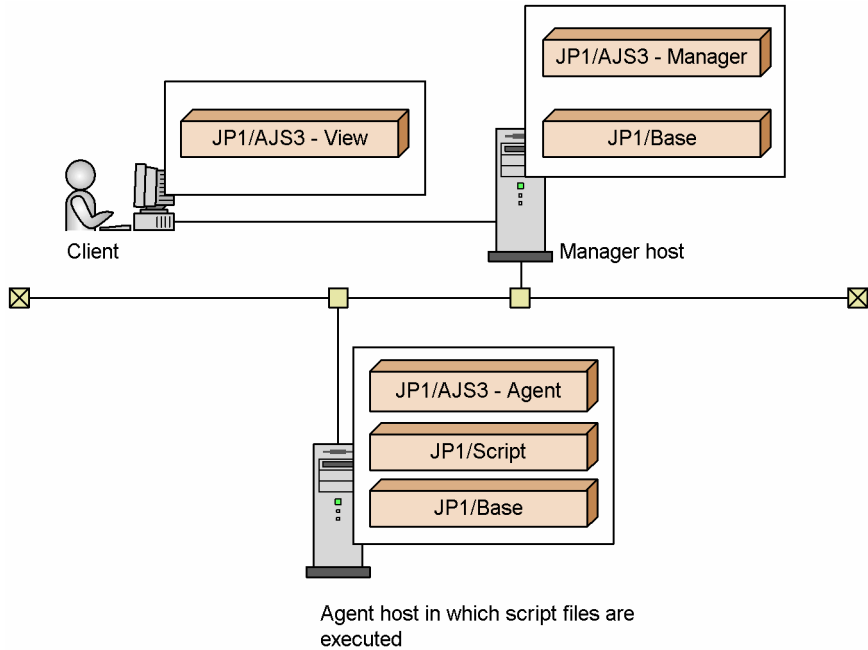
The manager host can define a job for requesting the agent host to execute a script file created by the agent host. This script file is executed when the specified execution time is reached.

For a host to execute a script file, JP1/Script must be installed in the host in advance.

The figure below shows the setup procedure for linking JP1/Script.

Figure 8–2: Setup procedure for linking JP1/Script

(1) Procedure for the Manager host

Install JP1/Base.

Install JP1/AJS3 - Manager.

Set up JP1/Base (settings such as an authentication server setting, JP1 user registration, and permission level setting).

Set up JP1/AJS3 - Manager.
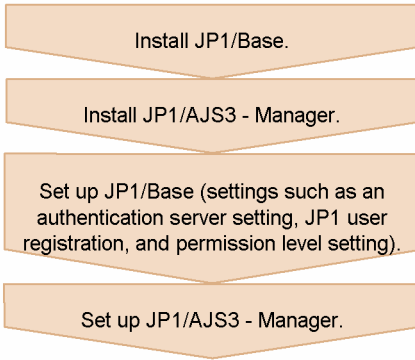
(2) Procedure for the Agent host (in which script files are executed)

Install JP1/Base.

Install JP1/AJS3 - Agent[#].
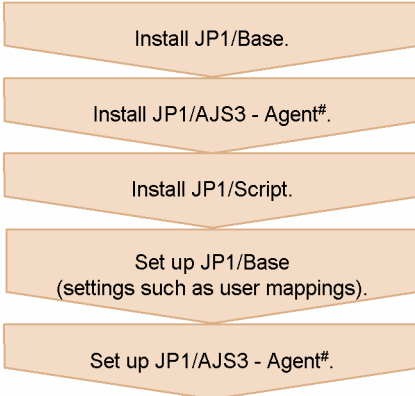
Install JP1/Script.

Either JP1/AJS3 - Agent[#] or JP1/Script can be installed first.

Set up JP1/Base
(settings such as user mappings).

Set up JP1/AJS3 - Agent[#].

(3) Procedure for the Client

Install JP1/AJS3 - View.

Put the link in operation.
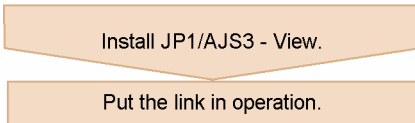
\#   When executing JP1/Script jobs on the Manager host, set up the Manager host in the same way as with the Agent host.

You do not need to set up JP1/Script. JP1/AJS3 does not require a special setup for linking JP1/Script.

8.3 Executing script files

To execute a JP1/Script script file as a job, specify the script file created with JP1/Script in the executable file for a PC job or QUEUE job (PC).

The following shows the procedure for defining a JP1/Script script file as a job in a jobnet.

To define a JP1/Script script file as a job in a jobnet:

1. Open the jobnet to be edited in the Jobnet Editor window.
   Open the jobnet and then select the **Exclusive edit** check box.

2. Drag the PC or QUEUE job icon from the icon list and drop it in the map area.
   Dropping the icon causes the Define Details dialog box for the dropped job to appear.

3. Specify a JP1/Script script file as the executable file.

4. Click the **OK** button in the Define Details - [PC Job] or Define Details - [Queue Job] dialog box.

9

Setup for Linking JP1/NQSEXEC

This chapter describes the setup for linking JP1/NQSEXEC to execute jobs

9.1 Overview of linking JP1/NQSEXEC

By linking JP1/NQSEXEC, you can enter jobs into JP1/NQSEXEC and execute the jobs that you receive from JP1/NQSEXEC. When you enter jobs from JP1/AJS3 to JP1/NQSEXEC, JP1/NQSEXEC automatically queues the jobs and executes them. You can check the execution result of the job using JP1/AJS3.

To enter jobs from JP1/AJS3 to a JP1/NQSEXEC queue, use either of the following methods:

- QUEUE jobs

  You can define the job to be executed and the queue for execution in a QUEUE job so that the jobnet can enter the job into the queue controlled by JP1/NQSEXEC.

- Submit jobs

  You can use a job execution command (having a name starting with jpq) to directly register the job in the queue.

9.2 Setup for linking JP1/NQSEXEC

This section describes the setup for linking JP1/NQSEXEC to execute jobs.

The following figure shows an example of a system configuration for linking with JP1/NQSEXEC.

Figure 9–1: Example of a system configuration for linking with JP1/NQSEXEC
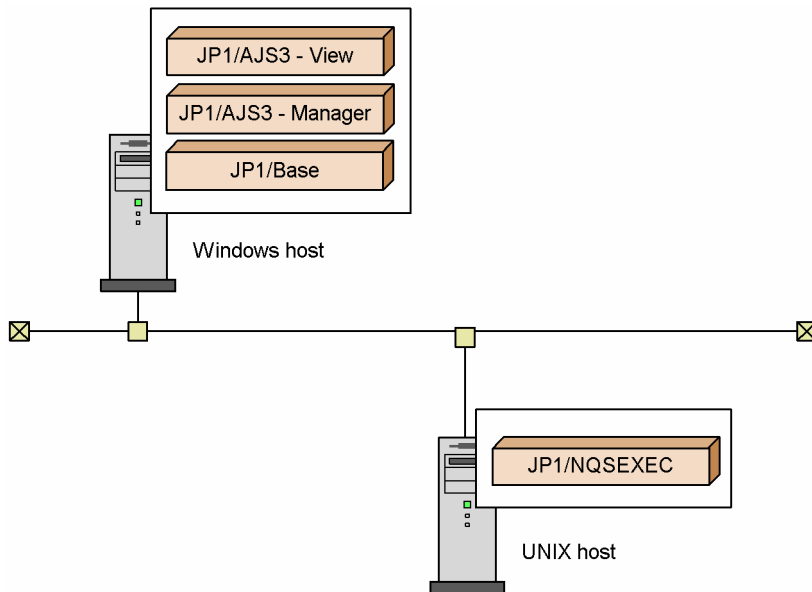
In this example, JP1/AJS3 - Manager is linked with JP1/NQSEXEC. JP1/AJS3 - Manager can use a QUEUE job, job execution command to issue a job execution request to JP1/NQSEXEC.

JP1/AJS3 - Manager can also receive an execution request issued by JP1/NQSEXEC.

The following figure shows the setup procedures for linking JP1/NQSEXEC.

Figure 9–2: Setup procedures for linking JP1/NQSEXEC
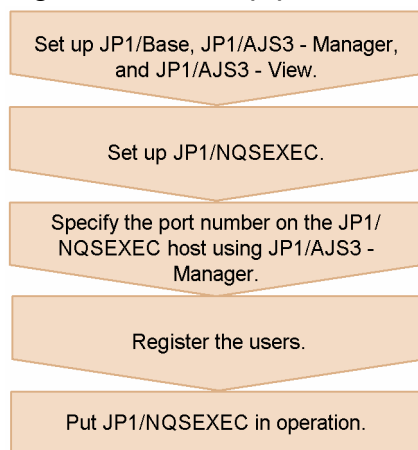
For details on setting up JP1/NQSEXEC, see the *Job Management Partner 1/NQSEXEC System Administrator's Guide*.

The following subsections describe how to specify the port number and register the user information that are required for linking with JP1/AJS3.

9.2.1 Specifying the port number

Specify the port number for the `jp1ajs2qman` service of JP1/AJS3 - Manager according to the port number used for the link with JP1/NQSEXEC. The default for the `jp1ajs2qman` service is `20241/tcp`.

To specify the port number, change the `services` file.

9.2.2 Registering users

Register users who request JP1/NQSEXEC to execute jobs and users who are requested by JP1/NQSEXEC to execute jobs.

Which users will be registered depends on how jobs will be executed (i.e., by defining QUEUE jobs in jobnets to request job executions, by using job execution commands to request job executions, or by setting JP1/NQSEXEC to request job executions). The following describes the procedure for each registration method.

(1) Defining the QUEUE job to request job executions

When jobs are executed by defining QUEUE jobs in a jobnet, the users who requested the jobs become the JP1 users.

To manage jobs for JP1/NQSEXEC, register in advance the names of the JP1 users with the JP1/NQSEXEC host.

The following figure shows the user information required for a job execution by defining a QUEUE job.

JP1/AJS3 - Manager host
    Register a JP1 user.

JP1/NQSEXEC host
    Register the JP1 user who requests the job.

(2) Using job execution commands to request job executions

When jobs are executed by using job execution commands (beginning with `jpq`), the users requesting jobs are OS users who run the programs that issue these commands.

To manage jobs for JP1/NQSEXEC, register the OS users who execute the commands with the JP1/NQSEXEC host beforehand.

Be sure to type the OS user names accurately with regard to uppercase and lowercase letters. When you request job executions to JP1/AJS3 - Manager, you should specify the OS user names with all lowercase letters.

The following figure shows the user information required to request job executions using job execution commands.

JP1/AJS3 - Manager host
    None (OS user information applied)

JP1/NQSEXEC host
    Register the OS user who requests the job.

(3) Setting JP1/NQSEXEC to request job executions

Register users who request job execution as JP1 users with the authentication server in JP1/AJS3 - Manager on the side where those users requested execution. For details about how to register JP1 users, see *3.1.1 Setting up JP1/Base* in the

JP1/Automatic Job Management System 3 Configuration Guide for a Windows host, or *13.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* for a UNIX host.

9.2.3 Cautionary note on linking JP1/NQSEXEC

Do not set `4294` or greater for a machine ID in the JP1/NQSEXEC settings. If you do, a logical conflict occurs and JP1/NQSEXEC cannot be linked correctly.

9.3 Entering jobs into JP1/NQSEXEC

This section describes the procedure for using a QUEUE job or submit job to enter a job into JP1/NQSEXEC.

To execute QUEUE jobs or submit jobs:

Executing a QUEUE job

1. Open the jobnet to be edited in the Jobnet Editor window.
   Open the jobnet and then select the **Exclusive edit** check box.

2. Drag the QUEUE job icon from the icon list and drop it in the map area.
   Dropping the icon causes the Define Details - [Queue Job] dialog box to appear.

3. Define the queue name, job name, and other attributes.

4. Click the **OK** button.

Executing a submit job
   Specify the job to be executed and the queue to be used, and then execute the `jpqjobsub` command.

10

Monitoring Jobnets Using JP1/IM

This chapter describes how to link JP1/IM to allow JP1/IM - View to monitor the execution status of JP1/AJS3. For details on JP1/IM, see the *JP1/Integrated Management - Manager Overview and System Design Guide*.

10.1 Overview of monitoring jobnets using JP1/IM

You can use JP1/IM to monitor the execution status, including failures, of JP1/AJS3 and jobnets for JP1/AJS3. JP1/IM is a product for the integrated monitoring of JP1 series products and other related programs. You can link JP1/IM with JP1/AJS3 to monitor JP1/AJS3 and other JP1 series products on the same window.

JP1/IM performs monitoring using JP1 events issued by JP1/AJS3.

One method is available for JP1/IM to monitor JP1/AJS3. The following describes how to monitor JP1/AJS3.

- Monitor using JP1 events

10.1.1 Monitoring JP1/AJS3 by using JP1/ IM

This subsection describes how to use JP1/IM to monitor JP1/AJS3.

(1) Monitoring using JP1 events

The JP1 events issued by JP1/AJS3 or other JP1 products are listed in the JP1/IM - View Event Console window. You can modify the display conditions for the Event Console window so that only the JP1 events you are interested in will appear in the list.

If a particular condition in JP1/AJS3 triggers a JP1 event, the event is passed through JP1/Base to JP1/IM - Manager and displayed in the JP1/IM - View Event Console window. You can select a listed JP1 event to display the JP1/AJS3 screen to identify the cause of the event.

For details about the events JP1/AJS3 issues, see *A. JP1 Events Issued by JP1/AJS3* in the *JP1/Automatic Job Management System 3 Administration Guide*.

This example describes how JP1/IM is used to monitor messages, output to the Hitachi integrated trace log and syslog, about errors that occurred on the JP1/AJS3 manager host and agent host.

A description of the numbered steps in the figure, from detection of an error to troubleshooting, follows.

Figure 10–1: Example of error detection using JP1/IM
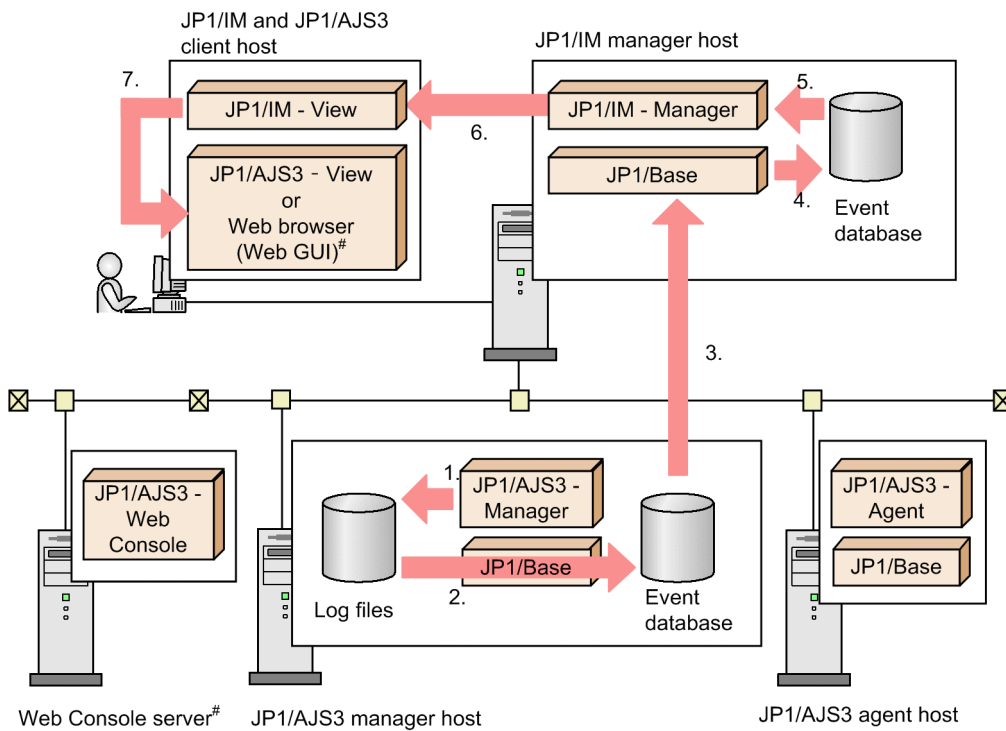
This procedure is unnecessary if Web GUI is not used.

1. An event such as an error occurred in JP1/AJS3 and a message was output to a log, such as the Hitachi integrated trace log.

2. JP1/Base, which uses log trapping (for Error- and Warning-level messages) to monitor the Hitachi integrated trace log and syslog, detected the message, and registers a JP1 event in the event DB.

3. The registered JP1 event is forwarded to the manager host that runs JP1/IM.

4. The received JP1 event is registered in the event DB.

5. JP1/IM acquires the JP1 event from the event DB.

6. The acquired JP1 event is displayed in JP1/IM - View, which notifies the user that a failure occurred on an agent host.

7. If user action, such as re-executing a unit, is required, the user starts JP1/AJS3 - View or Web GUI.

> **❗ Important**
>
> When you use JP1/IM, a large number of JP1 events might be output from the JP1/AJS3 manager host and agent host. If an excessive number of JP1 events are output, for example, consider using the filtering of events from JP1/Base to JP1/IM to stop forwarding the JP1 events issued by JP1/AJS3 itself.

(2) Other features supported by JP1/IM

In addition to the features described above, JP1/IM supports the following features:

- Calling the JP1/AJS3 - View or Web GUI

  While you are monitoring JP1/AJS3 from the JP1/IM - View window, you can call JP1/AJS3 - View or Web GUI to redefine jobnets, or to check or temporarily change the execution schedule.

  - From Tool Launcher window of JP1/IM - View, you can display the JP1/AJS3 - View window.

- By specifying a particular JP1 event and clicking the **Monitor** button in the Event Console window of JP1/IM - View, you can open a screen that displays the unit related to the specified JP1 event.

  Either of the following screens is displayed:

  - Jobnet Monitor window of JP1/AJS3 - View

  - Monitor screen of Web GUI

- In the **Guide** area in the Event Details window of JP1/IM - View, you can display a hyperlink for opening the Monitor screen of Web GUI. Clicking the hyperlink displays the Monitor dialog box for the unit related to an issued JP1 event.

• Calling Web GUI from an email sent by an automated action

The URL of the Monitor screen of Web GUI can be included in an email that is sent by an automated action of JP1/IM. If you receive an email automatically sent when a failure occurred, you can use the URL to directly open the Monitor screen for the unit for which the failure occurred.

• Monitoring events and files output by JP1/AJS3

JP1/AJS3 itself cannot monitor events and files it outputs. Therefore, use JP1/IM to monitor events and files output by JP1/AJS3 and execute jobs automatically.

10.2 Setup for linking JP1/IM

The following figure shows an example of a system configuration for linking with JP1/IM.

Figure 10–2: Example of a system configuration for linking with JP1/IM
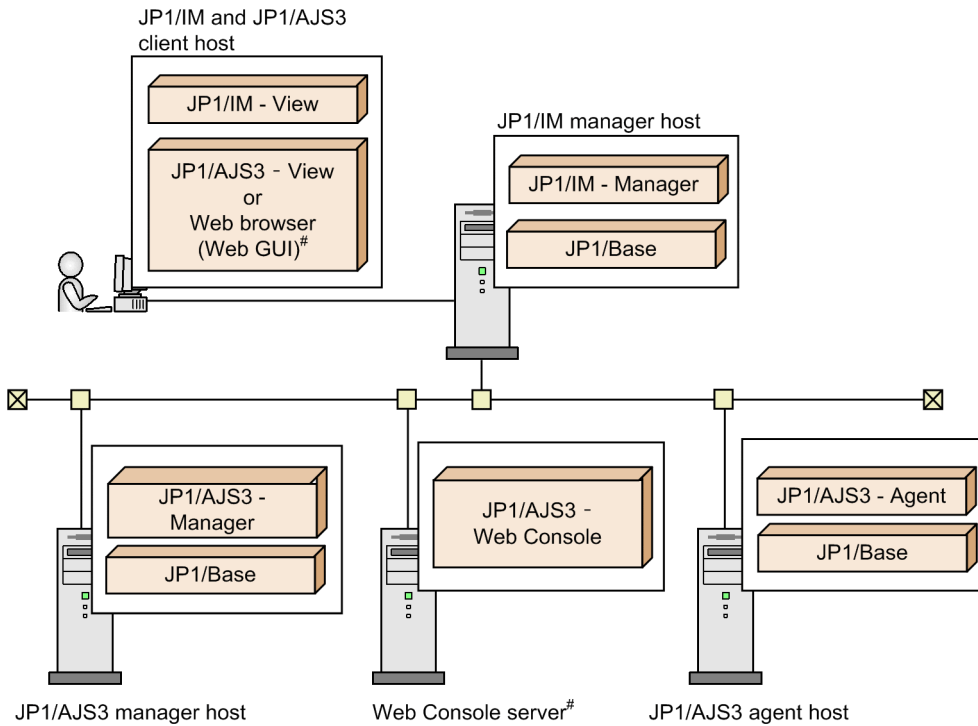
This procedure is unnecessary if Web GUI is not used.

To monitor the JP1/AJS3 status with an icon, JP1/IM - Manager is required.

In this example, events issued by JP1/AJS3 - Manager and JP1/AJS3 - Agent are passed through JP1/Base to JP1/IM - Manager. When JP1/IM - View logs in to JP1/IM - Manager, you can display the JP1 events collected in the manager in JP1/IM - View.

To call JP1/AJS3 - View from JP1/IM - View, install JP1/AJS3 - View and JP1/IM - View on the same host.

The following figure shows the setup procedures for linking JP1/IM - Console.

Figure 10–3: Setup procedures for linking JP1/IM

(1) Procedure for the JP1/IM manager host

Install JP1/Base.

Install JP1/IM - Manager.

Set up JP1/Base (settings such as an authentication server setting, JP1 user registration, and permission level setting).

(2) Procedure for the JP1/AJS3 manager host

Install JP1/Base.

Install JP1/AJS3 - Manager.

Set up JP1/Base (settings such as user mappings).

Set up JP1/AJS3 - Manager.

Execute the ajs_adapter_setup command.
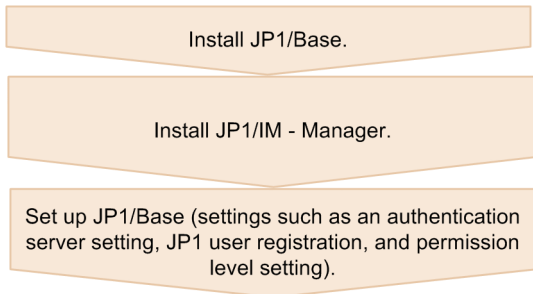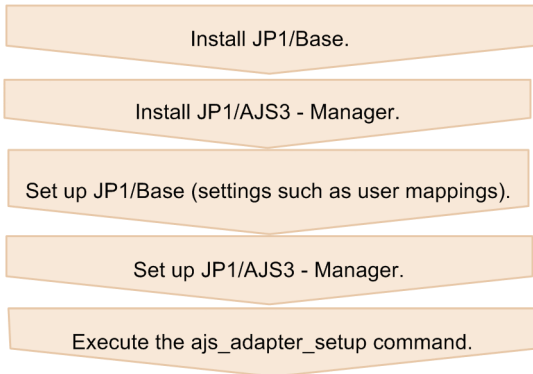
(3) Procedure for the JP1/AJS3 agent host

Install JP1/Base.

Install JP1/AJS3 - Agent.

Set up JP1/Base (settings such as user mappings).

Set up JP1/AJS3 - Agent.
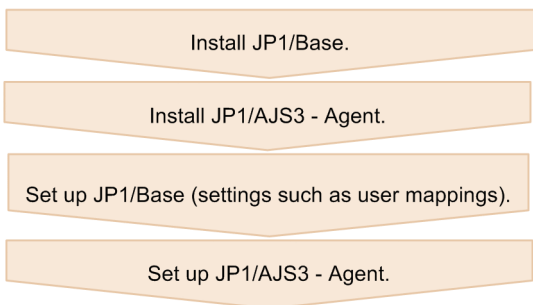
(4) Procedure for the Web Console server[1]

Install JP1/AJS3 - Web Console.

Start operation.
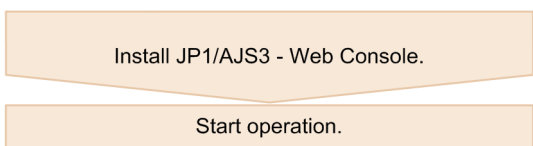
(5) Procedure for the JP1/IM and JP1/AJS3 client host

Install JP1/IM - View.

Install JP1/AJS3 - View.[2]

Start operation.
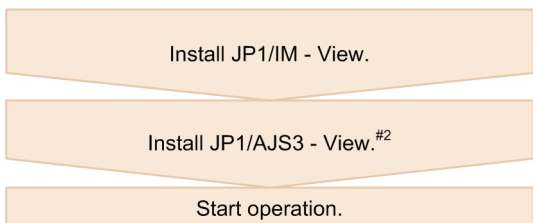
#1 This procedure is unnecessary if Web GUI is not used.
#2 This procedure is unnecessary if Web GUI is used.

To monitor the status of JP1/AJS3 by using icons, execute the `ajs_adapter_setup` command from the JP1/AJS3 manager host. This operation is required to enable JP1/IM to collect the JP1/AJS3 definition information. Use the following format to execute the `ajs_adapter_setup` command:

```
ajs_adapter_setup -i
```

To stop linkage with JP1/IM, execute `ajs_adapter_setup -u` command.

10.2.1 Setup for displaying the job that has output the JP1 event in the Jobnet Monitor

When you call the Jobnet Monitor window from JP1/IM - View to display the jobnets related to the issued JP1 event, the window displays the root jobnet to which the job causing the JP1 event belongs, by default. If the relevant job exists in a nested jobnet, you must perform the following procedure to display that nested jobnet.

- Changing the definition file for opening monitor windows
- Setting options for JP1/AJS3 - View

(1) Changing the definition file for opening monitor windows

Change the definition file for opening monitor windows, stored on the JP1/IM manager host, to the file supplied with JP1/AJS3 - View. To change this value:

Cautionary note

If you perform the setup described here on a JP1/IM manager host, the Jobnet Monitor window of JP1/AJS3 - View is displayed on all JP1/IM clients that are connected to the JP1/IM manager host. Note that this might confuse the users if operation based on Web GUI has already started.

1. Terminate JP1/IM - View, if running.

2. Change the extension of the definition file for opening monitor windows and back up the file.
   Change the extension of the following file:
   - In Windows

     system-drive:`\Program Files`[#]`\HITACHI\JP1Cons\conf\console\monitor\hitachi_jp1_ajs2_mon.conf`

     or

     shared-folder`\jp1cons\conf\console\monitor\hitachi_jp1_ajs2_mon.conf`
   - In UNIX

     `/etc/opt/jp1cons/conf/console/monitor/hitachi_jp1_ajs2_mon.conf`

     or

     shared-directory`/jp1cons/conf/console/monitor/hitachi_jp1_ajs2_mon.conf`

   The following example shows how to change the extension of the file.

   Before the change: `hitachi_jp1_ajs2_mon.conf`

   After the change: `hitachi_jp1_ajs2_mon.conf.bak`

3. Copy the definition file for opening monitor windows from the JP1/AJS3 - View host to the JP1/IM host.
   Copy the following file:

```
JP1/AJS3 - View-installation-folder\Conf\hitachi_jp1_ajs2_mon.conf.0700
```

4. Rename the file you have copied in step 3.

   Before the change: `hitachi_jp1_ajs2_mon.conf.0700`

   After the change: `hitachi_jp1_ajs2_mon.conf`

5. Restart the JP1/IM - Manager service.

#

   For 64-bit versions of Windows, replace `Program Files` with `Program Files (x86)`.

(2) Setting options for JP1/AJS3 - View

Specify the following option in the `ajs2view_opt.conf` file:

```
jajsExecJobnetMonitorAllJobName=Yes
```

For details about customizing the `ajs2view_opt.conf` file, see *11.1.1 Types of customization methods* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

10.2.2 Setup for displaying Web GUI from the Event Console window of JP1/IM - View

The default screen displayed when JP1/AJS3 is started by clicking the **Monitor** button in the Event Console window of JP1/IM - View is the Jobnet Monitor window of JP1/AJS3 - View. However, you can change the displayed screen to the Monitor screen of Web GUI by changing the definition file for opening monitor windows.

Cautionary note

   If you perform the setup described here on a JP1/IM manager host, the Monitor screen of Web GUI is displayed on all JP1/IM clients that are connected to the JP1/IM manager host. Note that this might confuse the users if operation based on JP1/AJS3 - View has already started.

To change the definition file for opening monitor windows, use a model file provided by JP1/AJS3 - Web Console. You can select one of two model files.

- To use HTTPS communication, use the following model file:
  `hitachi_jp1_ajs2_mon_ssl.conf.model`
- To use HTTP communication, use the following model file:
  `hitachi_jp1_ajs2_mon.conf.model`

The following is the procedure for changing the definition file for opening monitor windows to a file provided by JP1/AJS3 - Web Console.

1. On all client hosts, terminate JP1/IM - View.

2. On the JP1/IM manager host, rename the definition file for opening monitor windows as a backup file.

   Rename the following file:

   - In Windows

system-drive:\Program Files[#1]\HITACHI\JP1Cons\conf\console\monitor
\hitachi_jp1_ajs2_mon.conf[#2]

or

shared-folder\jp1cons\conf\console\monitor\hitachi_jp1_ajs2_mon.conf[#2]

- In UNIX

/etc/opt/jp1cons/conf/console/monitor/hitachi_jp1_ajs2_mon.conf[#2]

or

shared-directory/jp1cons/conf/console/monitor/hitachi_jp1_ajs2_mon.conf[#2]

#1

For 64-bit versions of Windows, replace Program Files with Program Files (x86).

#2

If the version of JP1/IM - Manager is earlier than 10-00, change the file name to
hitachi_jp1_ajs2_mon_ja.conf (for the Japanese version of JP1/IM) or
hitachi_jp1_ajs2_mon_en.conf (for the English version of JP1/IM).

3. From the Web Console server, copy the model file of the definition file for opening monitor windows to the JP1/IM manager host.

Copy the following file:

Communication method to be used	OS of the Web Console server	
	Windows	UNIX
HTTPS communication	*JP1/AJS3 - Web Console-installation-folder*\conf\hitachi_jp1_ajs2_mon_ssl.conf.model	/etc/opt/jp1ajs3web/conf/hitachi_jp1_ajs2_mon_ssl.conf.model
HTTP communication	*JP1/AJS3 - Web Console-installation-folder*\conf\hitachi_jp1_ajs2_mon.model	/etc/opt/jp1ajs3web/conf/hitachi_jp1_ajs2_mon.conf.model

4. Rename the model file you have copied.

On the JP1/IM manager host, rename the copied model file to hitachi_jp1_ajs2_mon.conf so that the model file becomes the new definition file for opening monitor windows. However, if the version of JP1/IM - Manager is earlier than 10-00, change the file name of the copied file to hitachi_jp1_ajs2_mon_ja.conf (for the Japanese version of JP1/IM) or hitachi_jp1_ajs2_mon_en.conf (for the English version of JP1/IM).

5. Open the definition file for opening monitor windows with a text editor, and edit the file.

The name of the host on which JP1/AJS3 - Web Console is installed is set as the host name of the Web Console server in the definition file for opening monitor windows. If you change the host name, use a different name, or change the default port number, you will need to edit the definition file for opening monitor windows.

In the definition file for opening monitor windows, change the Web Console server's host name and port number in the URL set for the PATH entry according to your environment.

6. Restart the JP1/IM - Manager service.

10.2.3 Setup for displaying a hyperlink to Web GUI in the Event Details window of JP1/IM - View

A hyperlink to the Monitor screen of Web GUI can be displayed in the Event Details window of JP1/IM - View. By opening the Monitor screen of Web GUI from the Event Details window, the user can quickly check the status of the unit related to an issued JP1 event.

For details about the event guide function, see the *JP1/Integrated Management - Manager Overview and System Design Guide*.

Before you can change the display of the Event Details window, you must set up the event guide function. To set up the event guide function, edit the following two files:

- Event-guide message file

  File in which to write a message to be displayed in the Event Details window.

  In an event guide message file, you can specify the message to be output for a JP1 event that occurs, and the URL for opening the Monitor screen of Web GUI.

- Event guide information file

  A file managed by JP1/IM - Manager. This file contains the information about the mapping between JP1 events occurring in JP1/AJS3 and event guide message files.

The following is the procedure for setting up the event guide function by editing the above two files.

1. On all client hosts, terminate JP1/IM - View.

2. Create an event-guide message file.

   Create (in HTML) a message to be displayed in the Event Details window. An example of an event-guide message file is as follows:

```
<HTML>
 <HEAD>
 </HEAD>
 <BODY>
   A job terminated abnormally.<BR>
   <A HREF="URL-for-opening-the-Monitor-screen">Open the Monitor screen
of Web GUI.</A>
 </BODY>
</HTML>
```

You can specify one of the following two types of URLs as the URL for opening the Monitor screen:

URL supporting single sign-on (JP1/IM - Manager 11-10 or later):

   If this type of URL is specified, the user can directly open the Monitor screen of Web GUI from the Event Details window. The user logs in to JP1/AJS3 with a login account of JP1/IM.

   This type of URL has the following format:

   communication-protocol`://`*host-name-or-IP-address-of-Web-Console-server*`:`*port-number*`/ajs/ login.html?sign=jt`

URL not supporting single sign-on (JP1/IM - Manager 09-50 or later):

   If this type of URL is specified, the Web GUI login screen opens first. To open the Monitor screen of Web GUI, the user must log in to JP1/AJS3.

   This type of URL is formatted as follows (Δ indicates a one-byte space.):

```
communication-protocol://host-name-or-IP-address-of-Web-Console-server:port-number/ajs/
login.html?manager=$B.SOURCESERVER$URLENCΔ&type=monitor&unitName=
$E.OBJECT_NAME$URLENCΔ&execID=$E.A3$URLENCΔ&eou=1
```

In the following part, specify values appropriate for your environment:

communication-protocol://*host-name-or-IP-address-of-Web-Console-server*:*port-number*

communication-protocol

Specify `http` or `https` as the communication protocol.

host-name-or-IP-address-of-Web-Console-server

Specify the host name or IP address of the Web Console server.

port-number

Specify the port number to be used for communication with the Web Console server. If SSL communication is disabled, the default port number is `22252`. If SSL communication is enabled, the default port number is `22253`.

The following shows an example of the URL that can be specified:

```
https://hostA:22253/ajs/login.html?sign=jt
```

3. Place the created event-guide message file in any path on the JP1/IM - Manager host.

4. Create the event guide information file.

You can omit this step if you have already created the event guide information file.

For details about the event guide information file, see the manual *JP1/Integrated Management - Manager Command and Definition File Reference*.

The following shows the storage folders for the event guide information file.

- In Windows

  system-drive:`\Program Files`#`\HITACHI\JP1Cons\conf\guide\jco_guide.txt`

  or

  shared-folder`\jp1cons\conf\guide\jco_guide.txt`

- In UNIX

  `/etc/opt/jp1cons/conf/guide/jco_guide.txt`

  or

  shared-directory`/jp1cons/conf/guide/jco_guide.txt`

#

  For 64-bit versions of Windows, replace `Program Files` with `Program Files (x86)`.

5. Edit the event guide information file to map JP1 events that can occur in JP1/AJS3 to event-guide message files.

Add the following entry (or substitute it for the existing description) in the event guide information file. You can add multiple entries of the event guide information.

For details and cautionary notes about the event guide information file, see the manual *JP1/Integrated Management - Manager Command and Definition File Reference*.

```
DESC_VERSION=file-version

[EV_GUIDE_event-guide-number]
EV_COMP=B.IDBASE:event-ID
EV_COMP=E.PRODUCT_NAME:/HITACHI/JP1/AJS2
EV_FILE=location-of-the-event-guide-message-file
[END]
```

The following describes the value to be specified for each entry. Specify a value appropriate for your environment.

file-version

> Specify `2`.

event-guide-number

> Specify a unique number.

event-ID

> Specify the ID of a JP1 event to be mapped to an event-guide message file. For the JP1 events that can be specified, see *10.2.5 JP1 events supported by JP1/IM linkage*.

location-of-the-event-guide-message-file

> Specify the path that you specified in step 3.

The following shows an example of entries to be added to the event guide information file:

```
DESC_VERSION=2

[EV_GUIDE_1]
EV_COMP=B.IDBASE:00004102
EV_COMP=E.PRODUCT_NAME:/HITACHI/JP1/AJS2
EV_FILE=C:\\Program Files\\HITACHI\\JP1Cons\\conf\\guide\
\guidemes01_Webcon.htm
[END]
[EV_GUIDE_2]
EV_COMP=B.IDBASE:00004103
EV_COMP=E.PRODUCT_NAME:/HITACHI/JP1/AJS2
EV_FILE=C:\\Program Files\\HITACHI\\JP1Cons\\conf\\guide\
\guidemes02_Webcon.htm
[END]
```

6. Restart the JP1/IM - Manager service, or execute the `jco_spmd_reload` command.

Cautionary note

> The maximum length of a URL that can be used as a hyperlink for an event guide in HTML format is 2,046 characters. For details on how to change the maximum length of a URL, see the Release Notes for JP1/IM.

10.2.4 Setup for displaying a Web GUI URL in emails sent by automated actions of JP1/IM

You can include the URL of the Monitor screen of Web GUI in emails sent by automated actions of JP1/IM. To change the settings for emails sent by automated actions, perform the following operations. For details, see the *JP1/Integrated Management - Manager Configuration Guide*.

- Setting up an execution environment for the automated action function

- Setting the execution conditions and details of automated actions

  For details about the IDs of JP1 events that can be specified in the definitions of automated actions, see *10.2.5 JP1 events supported by JP1/IM linkage*.

- Setting email transmissions

  Specify the URL for opening the Monitor screen of Web GUI in the email body.

  You can specify a URL in the following format:

```
communication-protocol://host-name-or-IP-address-of-Web-Console-
server:port-number/ajs/login.html?manager=$EVHOST
$URLENC#&type=monitor&unitName=$EV"OBJECT_NAME"$URLENC#&execID=
$EV"A3"$URLENC#&eou=1
```

\#

> The variables $EVHOST$URLENC, $EV"OBJECT_NAME"$URLENC, and $EV"A3"$URLENC can be specified only in the command line for automated actions. You need to specify these variables as arguments in a script when you call the script from the command line, and write an email sending command and email text in the script.

In the following part, specify values appropriate for your environment:

communication-protocol://*host-name-or-IP-address-of-Web-Console-server*:*port-number*

communication-protocol

> Specify `http` or `https` as the communication protocol.

host-name-or-IP-address-of-Web-Console-server

> Specify the host name or IP address of the Web Console server.

port-number

> Specify the port number to be used for communication with the Web Console server. The default is `22252`.

The following shows an example of defining an action in the automated action definition file and an example of the batch file to run:

Example of specifying an action:

```
# Example of action definition in the automated action definition file
cmd C:\launch_ajs_webcon.bat $EVHOST$URLENC $EV"OBJECT_NAME"$URLENC
$EV"A3"$URLENC
```

Example of batch file:

```
rem Example of the batch file called by the automated action
rem launch_ajs_webcon.bat
"C:\Program Files (x86)\HITACHI\JP1Cons\bin\jimmail.exe" -s " Job error
notification" -b "A job error was detected. Access the following URL, and
check the details.\nhttp://hostA:22252/ajs/login.html?manager=
%1&type=monitor&unitName=%2&execID=%3&eou=1"
```

10.2.5 JP1 events supported by JP1/IM linkage

The following table lists the IDs of JP1 events supported by JP1/IM linkage of JP1/AJS3 - Web Console.

Table 10–1: List of JP1 events supported by JP1/IM linkage

Event ID	Event name
00004102	Jobnet start event
00004103	Jobnet normal end event
00004104	Jobnet abnormal end event
00004105	Job start event
00004106	Job normal end event

Event ID	Event name
00004107	Job abnormal end event
00004108	Jobnet warning end event
00004109	Job warning end event
0000410A	Queued job canceled event
00004120	Held jobnet event
00004121	Held job event
00004122	Jobnet delayed start event
00004123	Jobnet delayed end event
00004124	Next scheduled queued event
00004125	Job submission start event
00004127	Job delayed end event
00004145	End of start-condition monitoring wait event
00004146	Jobnet waiting-process start event
00004147	Jobnet waiting-process end event
00004148	Jobnet waiting-process retained event
00004149	Jobnet waiting-process resumed event
0000414A	Job waiting-process start event
0000414B	Job waiting-process end event
0000414C	Job waiting-process retained event
0000414D	Job waiting-process resumed event
00004155	Wait start event for the automatic retry interval
00004156	Start event for automatic retry execution
00004157	Error event that disables automatic retry execution
00004158	Start event for submitting jobs for automatic retry

10.3 Monitoring jobnets using JP1/IM

By linking JP1/IM which provides integrated management of the JP1-series programs, the following operations are available:

- Check the JP1 events issued by JP1/AJS3 in the Event Console window of JP1/IM - View.
- Call the JP1/AJS3 - View window from JP1/IM - View.
- Call the Web GUI screen from JP1/IM - View.

Read the following for details.

10.3.1 Check JP1 events in the Event Console window

The Event Console window of JP1/IM - Console View displays information based on the JP1 events that are sent from JP1-series programs.

The Event Console window displays the severity of events (Error, Warning), names of the programs and the names of the hosts that issued events, the time and date when JP1 events are received, and messages. The window also displays the end status of jobnets (whether a jobnet ended normally or abnormally) and the execution status of jobnets (execution started, or the status during execution).

When you select the status of a JP1/AJS3 job or jobnet displayed on the Event Console window and click the **Monitor** button, the Jobnet Monitor window of JP1/AJS3 - View or the Monitor screen of Web GUI appears.

10.3.2 Displaying JP1/AJS3 - View from JP1/IM - View

This subsection shows the procedure for displaying JP1/AJS3 - View from JP1/IM - View. You can call JP1/AJS3 - View from the following JP1/IM - View windows. For each window, how to call JP1/AJS3 - View is described below.

- Tool Launcher window
- Event Console window

When you call the JP1/AJS3 - View window from JP1/IM - View, you must have JP1/AJS3 - View and JP1/IM - View installed on the same host.

(1) From the Tool Launcher window

To display JP1/AJS3 - View:

1. Display the Tool Launcher window in JP1/IM - View.

   The Tool Launcher window displays the programs you can call from JP1/IM - View in a tree structure.

2. In the tree, click **Job Management** folder.

   The menu in the tree expands.

3. From the expanded menu, click **Job Scheduler** menu.

   When you click the menu, the Login screen of JP1/AJS3 - View appears. You cannot enter the JP1 user name and password here because those you entered when logging in to JP1/IM - View are used. Specify **Host to connect**, and then click the **OK** button. The JP1/AJS3 - View window appears.

(2) From the Event Console window

To display JP1/AJS3 - View:

1. Display the JP1/IM - View Event Console window.

2. From the JP1 events displayed in the Event Console window, choose the JP1 event issued by JP1/AJS3.

3. Click the Monitor Start button.

   You are connected to the host that has issued the JP1 event and the Jobnet Monitor window of JP1/AJS3 - View appears.

   The Jobnet Monitor window displays the jobnet relevant to the selected JP1 event.

   If you have made settings as described in *10.2.1 Setup for displaying the job that has output the JP1 event in the Jobnet Monitor*, the window displays the jobnet to which the job causing the JP1 event belongs. Otherwise, the window displays the root jobnet to which the job causing the JP1 event belongs.

   When you display JP1/AJS3 - View, the JP1 user name and password you used to log in to JP1/IM - View are used. Therefore, the Login screen of JP1/AJS3 - View does not appear as long as the authentication bloc is the same.

10.3.3 Displaying Web GUI from JP1/IM - View

You can use one of the following three methods to open the Monitor screen of Web GUI from JP1/IM:

- Use the **Monitor** button in the Event Console window of JP1/IM - View

  The Jobnet Monitor window of JP1/AJS3 - View is the default screen displayed by clicking the **Monitor** button. However, you can change the default screen to the Monitor screen of Web GUI by performing the procedure in *10.2.2 Setup for displaying Web GUI from the Event Console window of JP1/IM - View*.

- Use a hyperlink displayed in the Event Details window of JP1/IM - View

  To display a hyperlink to the Monitor screen of Web GUI in the Event Details window, perform the procedure in *10.2.3 Setup for displaying a hyperlink to Web GUI in the Event Details window of JP1/IM - View*.

- Use the URL displayed in an email sent by an automated action

  To display the URL of the Monitor screen of Web GUI in emails sent by automated actions, perform the procedure in *10.2.4 Setup for displaying a Web GUI URL in emails sent by automated actions of JP1/IM*.

The above methods are described in the following subsections.

Cautionary notes

- You can open the Monitor screen only if units or generations that will be displayed on that page exist.

- If the full name of a unit to be displayed in the Monitor screen includes many multibyte characters, the length of the URL might exceed the upper limit of Internet Explorer. A Monitor screen whose URL is too long might not open. In such a case, try using Firefox. If you want to use Firefox, you will need to set Firefox as the default browser.

(1) Using the Monitor button in the Event Console window of JP1/IM - View

1. Display the JP1/IM - View Event Console window.

2. From the JP1 events displayed in the Event Console window, choose the JP1 event issued by JP1/AJS3.

   Cautionary note

   Web GUI pages can be displayed only for JP1 events that are issued by JP1/AJS3 - Manager 11-00 or later.

3. Click the Monitor Start button.

The Monitor screen appears. You are automatically logged in to JP1/AJS3 with your JP1/IM login account.

The Monitor screen displays the unit related to the JP1 event you chose.

(2) Using a hyperlink displayed in the Event Details window of JP1/IM - View

1. Display the JP1/IM - View Event Console window.

2. From the JP1 events displayed in the Event Console window, choose the JP1 event issued by JP1/AJS3.

    Cautionary note

    Web GUI pages can be displayed only for JP1 events that are issued by JP1/AJS3 - Manager 11-00 or later.

3. Click the Event Details button.

    The Event Details window for the JP1 event that you chose appears.

4. In the **Guide** area, click a hyperlink to the Monitor screen of Web GUI.

    If the hyperlink uses a URL that supports single sign-on, the Monitor screen opens immediately. You are automatically logged in to JP1/AJS3 with your JP1/IM login account.

    If the hyperlink uses a URL that does not support single sign-on, the Web GUI login screen first opens. In this screen, enter your JP1 user name and password, and then click the **OK** button.

    The Monitor screen opens, displaying the unit related to the JP1 event you chose.

(3) Using the URL displayed in an email sent by an automated action

1. Display the email sent by an automated action.

2. In the email body, click the URL of the Monitor screen of Web GUI.

    The Login screen of Web GUI appears.

3. Enter information in the **User name** and **Password**, and then click **OK**.

    In the User name and Password fields, specify the user name and password of the JP1 user who is to log in.

    If login is successful, the Monitor screen of Web GUI appears. The Monitor screen displays the unit related to the JP1 event for which the email was sent.

11

Automatic Distribution Using JP1/Software Distribution

This chapter explains how to distribute unit definition information, including calendar information, about the units defined by JP1/AJS3, and explains how to distribute to remote host using JP1/Software Distribution.

11.1 Overview of linking JP1/Software Distribution

By linking JP1/Software Distribution, you can package multiple jobnets and calendars and distribute them to JP1/AJS3 - Manager on other hosts.
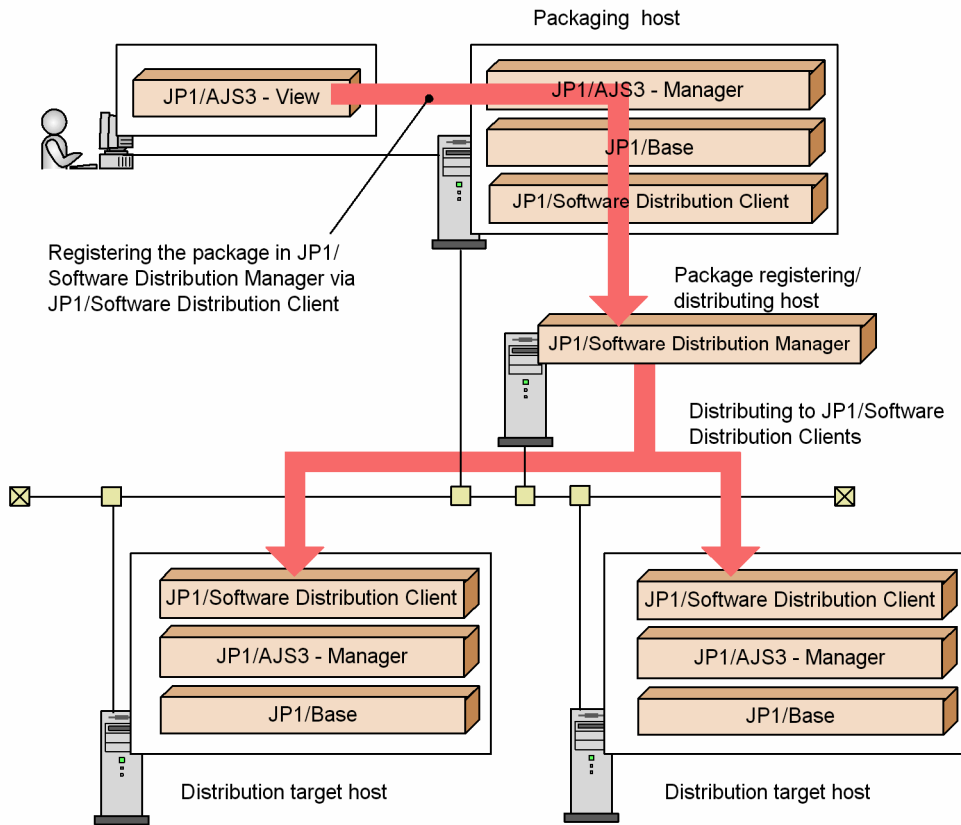
JP1/Software Distribution allows you to distribute and register new jobnets and calendars in a batch when you change the definition of jobnets and calendars. This eases the management of tasks in a large system.

11.2 Setup for linking JP1/Software Distribution

This section describes the setup for linking JP1/Software Distribution to distribute jobnets automatically.

The following figure shows an example of a system configuration for linking with JP1/Software Distribution.

Figure 11–1: Example of a system configuration for linking with JP1/Software Distribution

The host to which JP1/AJS3 - View is connecting (the host where JP1/Software Distribution Client is installed) is called the *packaging execution host*. The host to which JP1/Software Distribution Client on the packaging execution host is connecting (the host where JP1/Software Distribution Manager is installed) is called the *package registration host*. The package registration host is also called the *package source host* because it distributes the package to JP1/Software Distribution Client. The host to which JP1/Software Distribution Manager on the package source host distributes the package is called the *package destination host*.

The packaging execution host must have JP1/Software Distribution Client installed on it.

In this example, JP1/AJS3 - Manager and JP1/Software Distribution Manager are installed on separate hosts. You can, however, also install them on the same host.

The packaging execution host and package destination host must have the same type of OS (Windows or UNIX) installed. In UNIX, make sure that the execution and destination hosts also have the same system language. Packages registered from a Windows packaging execution host can be distributed only to Windows hosts. Packages registered from a UNIX packaging execution host can be distributed only to UNIX hosts that use the same system language.

The following figure shows the setup procedures for linking JP1/Software Distribution.

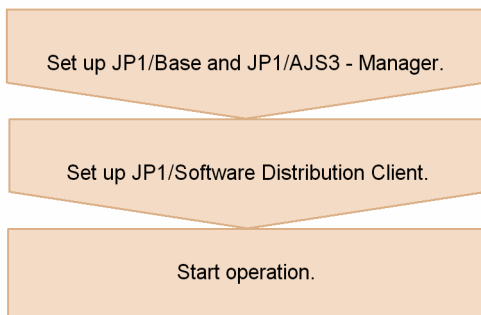# Figure 11–2: Setup procedures for linking JP1/Software Distribution

(1) Procedure for the packaging host

Set up JP1/Base and JP1/AJS3 - Manager.

Set up JP1/Software Distribution Client.

(2) Procedure for the package registering/package distributing host

Set up JP1/Software Distribution Manager.

Register the distribution target host name in the hosts file.
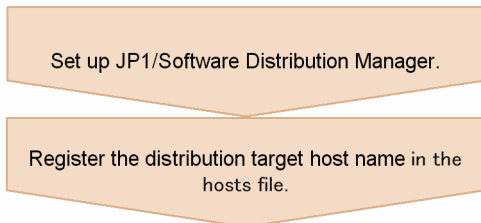
(3) Procedure for the distribution target host

Set up JP1/Base and JP1/AJS3 - Manager.

Set up JP1/Software Distribution Client.

Start operation.

Cautionary note

For a Windows host, it is necessary to add the value *JP1/Software-Distribution-Client-installation-folder*`\bin` to the `PATH` environment variable.

For further details on setting up JP1/Software Distribution in Windows, see the *Job Management Partner 1/Software Distribution Setup Guide* (for Windows systems). In UNIX, see the *Job Management Partner 1/Software Distribution Manager Description and Administrator's Guide*, *Job Management Partner 1/Software Distribution SubManager Description and Administrator's Guide* (for UNIX systems), and *Job Management Partner 1/Software Distribution Client* (for UNIX systems).

11.3 Automatic distribution procedure

This section describes the tasks required for packaging unit definition information and including calendar information about units defined by JP1/AJS3, and how to automatically distribute a package to remote hosts using JP1/Software Distribution.

To automatically distribute tasks:

1. Package the unit definition information and calendar information in the Package dialog box of JP1/AJS3 - View.
   At packaging, specify a package name, where to recover the package in the host, and other information.

2. Distribute packaged information (a *package*) to the remote host using JP1/Software Distribution Manager.

For further details, see *12.3.6 Package dialog box* in the *JP1/Automatic Job Management System 3 Operator's Guide*.

For further details on JP1/Software Distribution for Windows, see the *Job Management Partner 1/Software Distribution Setup Guide* (for Windows Systems), *Job Management Partner 1/Software Distribution Administrator's Guide Volume 1* (for Windows Systems), and *Job Management Partner 1/Software Distribution Administrator's Guide Volume 2* (for Windows Systems). For further details on JP1/Software Distribution for UNIX, see the *Job Management Partner 1/Software Distribution Manager Description and Administrator's Guide*, *Job Management Partner 1/Software Distribution SubManager Description and Administrator's Guide* (for UNIX systems) and *Job Management Partner 1/Software Distribution Client Description and User's Guide* (for UNIX systems).

11.4 Packaging

This section describes how to package the unit definition information and calendar information.

To package both the unit definition and calendar information:

1. Activate JP1/AJS3 - View.

2. In the JP1/AJS3 -View window, click the units that you want to package as well as the job group that is defined for the calendar that you want to package.
   The units you click are shown in the selected status.

3. Choose **File** and **Package**.
   The Package dialog box appears.

4. Define the attribute of the package.

5. Click **Package**.
   According to the definition in step 4, the unit definition information and calendar information are packaged on the package registration host.
   The following describes the cabinet in which the package is created and the cabinet ID.

   When the package registration host or packaging execution host is a UNIX host
   > JP1/AJS3 - View ignores the cabinet name specified in step 4 and creates a package in the cabinet for a specified cabinet ID (group ID). The cabinet name will be the same as the cabinet ID.

   When both the package registration host and packaging execution host are Windows hosts
   > JP1/AJS3 - View creates a package in the cabinet having the cabinet name and cabinet ID specified in step 4. However, if the specified cabinet ID has already been used, JP1/AJS3 - View ignores the cabinet name and creates a package in the cabinet for a specified cabinet ID.

   The result of packaging appears in **Execution result**. For details about the error messages displayed in **Execution result**, see the *Job Management Partner 1/Software Distribution Administrator's Guide Volume 1* (for Windows Systems) and *Job Management Partner 1/Software Distribution Administrator's Guide Volume 2* (for Windows Systems) for Windows, and the *Job Management Partner 1/Software Distribution SubManager Description and Administrator's Guide* (for UNIX systems) and *Job Management Partner 1/Software Distribution Client Description and User's Guide* (for UNIX systems) for UNIX.

Cautionary note
> In the Windows version of JP1/AJS3 - Manager, before you perform packaging from JP1/AJS3 - View, you must add the path *installation-folder-of-JP1/Software-Distribution-Client*\Bin in the Path environment variable of the JP1/AJS3 - Manager host.
> You can only distribute packages created in Windows to Windows. You cannot distribute them to UNIX.
> And, you can only distribute packages created in UNIX to UNIX. You cannot distribute them to Windows.

11.5 Automatic distribution of packages

This section describes how to automatically distribute the information packaged in the Package dialog box of JP1/AJS3 - View (package) using JP1/Software Distribution for Windows and for UNIX.

11.5.1 Automatic distribution using JP1/Software Distribution (for Windows)

Assume that **Client Manager** of JP1/Software Distribution Client and JP1/AJS3 - Manager are active at the target host.

To automatically distribute the package using JP1/Software Distribution:

1. Make sure that the name of the target host has been defined in the `hosts` file of the distributing host.

2. From the **Start** menu, choose **Programs**, **Software Distribution Manager** and **Remote Installation Manager**.
   The Remote install manager window appears.

3. Choose **File - New**.
   The New dialog box appears.

4. Select the System Configuration window, the Package window, and the Job Status window and then click the **OK** button.
   The New dialog box closes.
   The selected windows appear.

5. In the System Configuration window, click **Network** and choose **File** and **Create Host**.
   The Create Host dialog box appears.

6. Specify the target host name (a host name where JP1/Software Distribution Client is installed) and then click the **OK** button.
   The Create Host dialog box closes.
   The specified host appears in the System Configuration window.

7. In the Package window, click the distributing package and from **Execute** choose **Execute job**.
   The Define New Job dialog box appears.

8. Select **Install package** and click the **OK** button.
   The Create Job dialog box appears.

9. On the **Destination** page, click the **Add** button.
   The Add Destination dialog box appears.

10. Add the destination and click the **OK** button.
    The destination has been added and the Add Destination dialog box closes.
    If you want to redistribute a package to the host specified in the **Destination** page, click the package in the **Package** page, and then click the **Change** button to display the Change Installation Conditions dialog box. In this dialog box, on the **System Conditions** page, select **Replace existing package**.

11. Click the **Execute** button.
    Distribution of the package starts.

You can check the status of package distribution from the Job Status window.

11.5.2 Automatic distribution using JP1/Software Distribution (in UNIX)

Assume that **Client Manager** of JP1/Software Distribution Client and JP1/AJS3 - Manager are active at the package-distributed destination host.

To automatically distribute the package using JP1/Software Distribution:

1. Make sure that the name of the target host has been defined in the `hosts` file of the distributing host.

2. Execute the following command to display the package information:

```
directory-storing-JP1/Software-Distribution-commands/rdsdmrsc -c
```

The package information output in the following format after the command is executed is called a *resource*.

When the packaging is performed on a Windows host:

`D.`*cabinet-ID*`.`*package-ID*`.`*version-number*`.`*generation-number*

When the packaging is performed on a UNIX host:

`C.`*cabinet-ID*`.`*package-ID*`.`*version-number*`.`*generation-number*

3. Execute the following command to generate an instruction:

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -d -a
distributed-host-name -s distributing-resource-name
```

4. Execute the following command to execute the instruction:

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -x
```

5. Execute the following command to check the execution status of the instruction:

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -c
```

Supplementary notes

The following lists the commands of JP1/Software Distribution.

The JP1/Software Distribution commands are:

Command to activate JP1/Software Distribution Manager

```
directory-storing-JP1/Software-Distribution-commands/rdsdmse
```

Command to terminate JP1/Software Distribution Manager

```
directory-storing-JP1/Software-Distribution-commands/rdsdmse -p
```

Command to display resource information

```
directory-storing-JP1/Software-Distribution-commands/rdsdmrsc -c
```

Command to generate an install instruction

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -d -a
distributed-host-name -s distributing-resource-name
```

Command to execute an instruction

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -x
```

Command to check the status of distribution

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -c
```

Command to delete a resource

```
directory-storing-JP1/Software-Distribution-commands/rdsdmrsc -r -s
distributing-resource-name
```

Command to delete the status of distribution

```
directory-storing-JP1/Software-Distribution-commands/rdsdmind -r -a
distributed-host-name -s distributing-resource-name
```

Replace directory-storing-JP1/Software-Distribution-commands with the following directory:

For HP-UX:

```
/opt/NETMDM/bin
```

For Solaris or AIX:

```
/usr/bin
```

12

Linking JP1/DH - AJE

This chapter describes how to define a job that uses JP1/DH - AJE to send and receive data.

12.1 Overview of linking JP1/DH - AJE

JP1/DH - AJE is a product that automates the process of transferring data to and from JP1/DH - Server. By linking with JP1/DH - AJE, you can define the sending and receiving of data in a JP1/AJS3 custom job, allowing you to incorporate data transfer into a series of operations performed by JP1/AJS3. You can also use a scheduler to automate the job, making operations that incorporate data transfer even more efficient.

To automate the sending and receiving of data as jobs, you need to define a custom job for JP1/DH - AJE in a jobnet and then execute the jobnet. To define such a custom job, JP1/DH - AJE (job definition program) must be installed on the JP1/AJS3 - View host, and JP1/DH - AJE (job execution program) must be installed on the host that will execute the custom job.

12.2 Setup for linking JP1/DH - AJE

When defining a custom job for JP1/DH - AJE in JP1/AJS3 - View, you need to install JP1/DH - AJE (job definition program) on the JP1/AJS3 - View host before you register the custom job in JP1/AJS3 - View. Also, JP1/DH - AJE (job execution program) must be installed on the host that will execute the custom job.

For details on how to install JP1/DH - AJE and register a custom job, see the manual *JP1/Data Highway - Automatic Job Executor*.

For details on how to register a custom job in JP1/AJS3 - View, see *3.2 Registering default custom jobs*.

12.3 Sending and receiving data using JP1/ DH - AJE

To send and receive data using JP1/DH - AJE, register a custom job for JP1/DH - AJE and define it in a jobnet.

To register and define a custom job for JP1/DH - AJE:

1. In JP1/AJS3 - View, display the Jobnet Editor window for the jobnet you want to edit.

2. Select **Exclusive edit**.

3. Drag the icon of the custom job for JP1/DH - AJE from the icon list to the map area.
   The Define Details - [Custom Job] dialog box appears.

4. Define the unit name and other attributes.

5. Click the **Details** button.
   A dialog box appears in which you can define how data is to be sent and received. For details on the information you can set in this dialog box, see the manual *JP1/Data Highway - Automatic Job Executor*.

6. Click the **OK** button.
   The dialog box closes.

7. In the Define Details - [Custom Job] dialog box, click **OK**.
   The Define Details - [Custom Job] dialog box closes.

13

Linking JP1/PFM

By linking JP1/PFM with JP1/AJS3, you can examine the cause of a problem with a JP1/AJS3 job due to system performance, and you can view the performance information about the manager host as a report. This chapter describes how to link JP1/PFM with JP1/AJS3.

13.1 Overview of linking JP1/PFM

The JP1/PFM product supports more stable system operation by collecting the operating information of various monitoring targets throughout the system, analyzing system performance, and identifying and resolving problems.

For example, by linking JP1/PFM with JP1/AJS3, you can pinpoint the cause of a job delay or job failure that occurred because of a problem with system performance.

13.2 Setup for linking JP1/PFM

The following figure shows an example of a system configuration for linking with JP1/PFM.

Figure 13–1: Example of a system configuration for linking with JP1/PFM
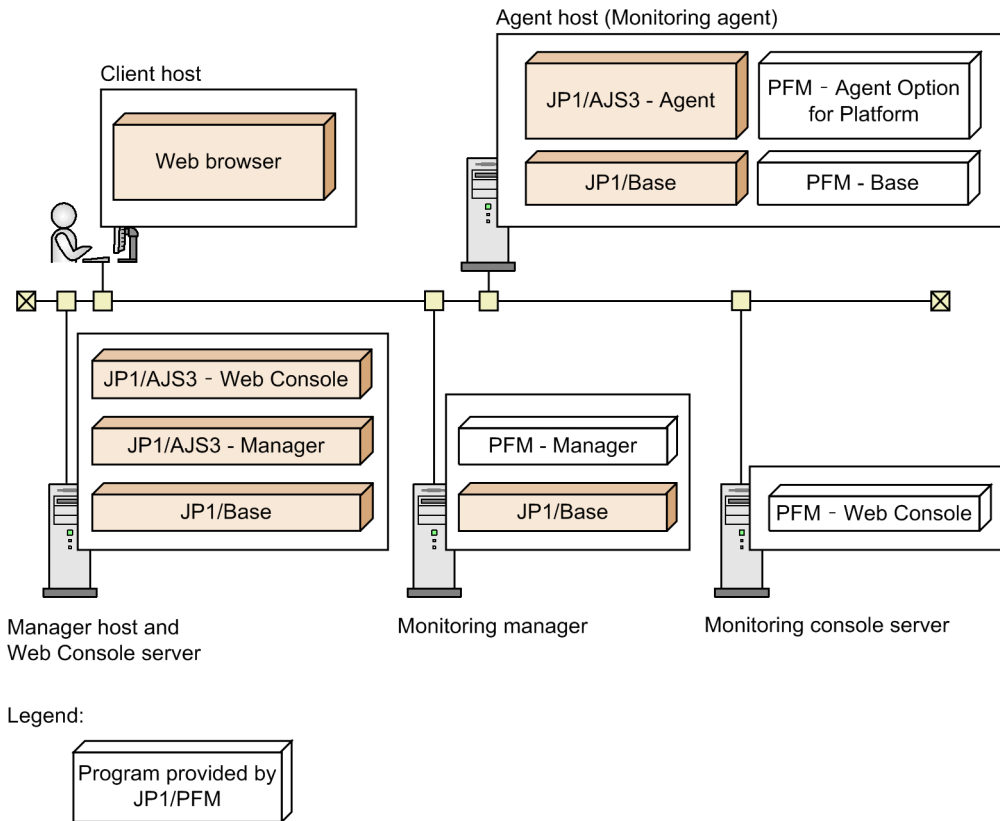
In the above example, PFM - Manager collects the operating status of the agent host (monitoring agent). The user who is logged in to PFM - Web Console from a web browser installed on the client host can monitor the operating status of the agent host. The logged-in user also can launch PFM - Web Console from the Web GUI (web browser) on the client host.

Cautionary note

For the monitoring host name of JP1/PFM, set the name of a manager host or agent host that is managed. Note the following when you set the host name:

If the monitoring target is a manager host:

In a physical host operating environment, set a real host name for the monitoring host name of JP1/PFM. In a logical host operating environment, set a logical host name for the monitoring host name of JP1/PFM.

Note that the monitoring host name of JP1/PFM cannot be specified in FQDN format. If the real host name has FQDN format, set an alias name for the monitoring host name of JP1/PFM.

If the monitoring target is an agent host:

For the monitoring host name of JP1/PFM, specify the execution host name that was specified when an execution agent was added.

Note that the monitoring host name of JP1/PFM cannot be specified in FQDN format. If the real host name has FQDN format, set an alias name for the monitoring host name of JP1/PFM. In this case, also set the same alias name for the execution host name.

To open the PFM - Web Console window from the Web GUI, set the following entries in the JP1/AJS3 - Web Console environment settings file:

- `PFM_URL`

  The URL for accessing PFM - Web Console

- `HOSTNAME_ALIAS_FOR_PFM`

  The JP1/AJS3 - Manager host alias name to be passed to PFM - Web Console[#]

  #

  For the host alias name, specify the alias name that is set for the monitoring host name of JP1/PFM.

For details about the setting item, see *3.4.3 Details on the settings in the environment-settings file (ajs3web.conf)* in the *JP1/Automatic Job Management System 3 Configuration Guide* (if the OS of the Web Console server is Windows), or *13.3.3 Details on settings in the environment-settings file (ajs3web.conf)* in the *JP1/Automatic Job Management System 3 Configuration Guide* (if the OS of the Web Console server is UNIX).

For details about installing and setting JP1/PFM, see *JP1/Performance Management Planning and Configuration Guide*. For details about building a system in which PFM - Manager collects the operating status of the JP1/AJS3 - Manager and JP1/AJS3 - Agent hosts, see the *JP1/Performance Management Planning and Configuration Guide*, and the *JP1/Performance Management User's Guide*.

13.3 Procedure for opening the PFM - Web Console window from the Web GUI

The following shows the procedure for opening the PFM - Web Console window from the Web GUI.

1. In the Monitor dialog box or Monitor screen of the Web GUI, select a unit, and then click the **Detail** button.
   The Detail Information dialog box appears.

2. Click the **Open PFM Report** button.
   The PFM - Web Console screen appears.

Cautionary note
   If the local date and time of the scheduler service have been changed, the job execution start and end times will be different from the actual system date and time. Therefore, the range of time indicated by the marker on the report screen in PFM - Web Console might be different from the time when the job was actually executed.

Appendixes

A. Monitoring Jobnets Using HP NNM

The following describes how to monitor JP1/AJS3 - Manager and JP1/AJS3 - Agent using HP NNM.

A.1 Overview of monitoring

HP NNM allows you to monitor the operation status of JP1/AJS3 - Manager, the execution status of jobs in jobnets, and the operation status of JP1/AJS3 - Agent. In addition, you can monitor a status that a user has reported.

This section describes what HP NNM can monitor for JP1/AJS3 - Manager and JP1/AJS3 - Agent.

This chapter refers to HP NNM as *NNM*.

What you can accomplish with NNM is explained separately for both JP1/AJS3 - Manager and JP1/AJS3 - Agent.

- With NNM, you can accomplish the following for JP1/AJS3 - Manager

  - Monitoring the operation status of JP1/AJS3 - Manager[#]

    You can monitor the operation status of JP1/AJS3 - Manager using the symbols that are shown in the node submap in NNM.

    In addition, you can obtain detailed information regarding the operation status from the messages shown in the Alarms Browser or another window.

  - Monitoring the execution status of jobs in jobnets[#]

    You can monitor the execution status of jobs managed by JP1/AJS3 - Manager by utilizing the symbols shown in the node submap in NNM.

    In addition, you can obtain detailed information regarding the execution status of jobs from the messages shown in the Alarms Browser or another window.

  - Monitoring a desired status[#]

    NNM allows you to use symbols shown in the node submap to monitor a status that a user has reported, when the OpenView Status Report job is executed. In addition, you can obtain the words the user has reported from the messages shown in the Alarms Browser or another window.

  - Checking the operating environment of JP1/AJS3 - Manager

    NNM allows you to check the operating environment of JP1/AJS3 - Manager (for example, the names of JP1/AJS3 services, operation status of JP1/AJS3 - Manager, the start time of operations, and other information).

  - Monitoring the status of executed jobnets

    When you use NNM, you can activate JP1/AJS3 - View from NNM. You can monitor the status of executed jobnets managed by JP1/AJS3 - Manager using the Jobnet Monitor, Daily Schedule, and Monthly Schedule windows of JP1/AJS3 - View.

    Note that JP1/AJS3 - View and version 08-00 or later of JP1/AJS2 - View do not support HP-UX or Solaris. You can only link to NNM from JP1/AJS3 - View and version 08-00 or later of JP1/AJS2 - View on a Windows system.

- With NNM, you can accomplish the following for JP1/AJS3 - Agent

  - Monitoring the operation status of JP1/AJS3 - Agent[#]

    You can monitor the operation status of JP1/AJS3 - Agent by utilizing the symbols shown in the node submap of NNM.

    In addition, you can obtain detailed information regarding the operation status from the messages shown in the Alarms Browser or another window.

- Monitoring a desired status#

  NNM allows you to use symbols shown in the node submap to monitor a status that a user has reported, when the OpenView Status Report job is executed.

#

Before you start monitoring with symbols, you have to create the symbols you are going to use in NNM.

A.2 Setup for linking HP NNM (for a Windows host)

When linking HP NNM for monitoring of JP1/AJS3 - Manager and JP1/AJS3 - Agent from NNM, install either JP1/AJS3 - Manager or JP1/AJS3 - View in the host where NNM is installed.

The following figure shows an example of a system configuration for linking with HP NNM.

Figure A–1: Example of a system configuration for linking with HP NNM
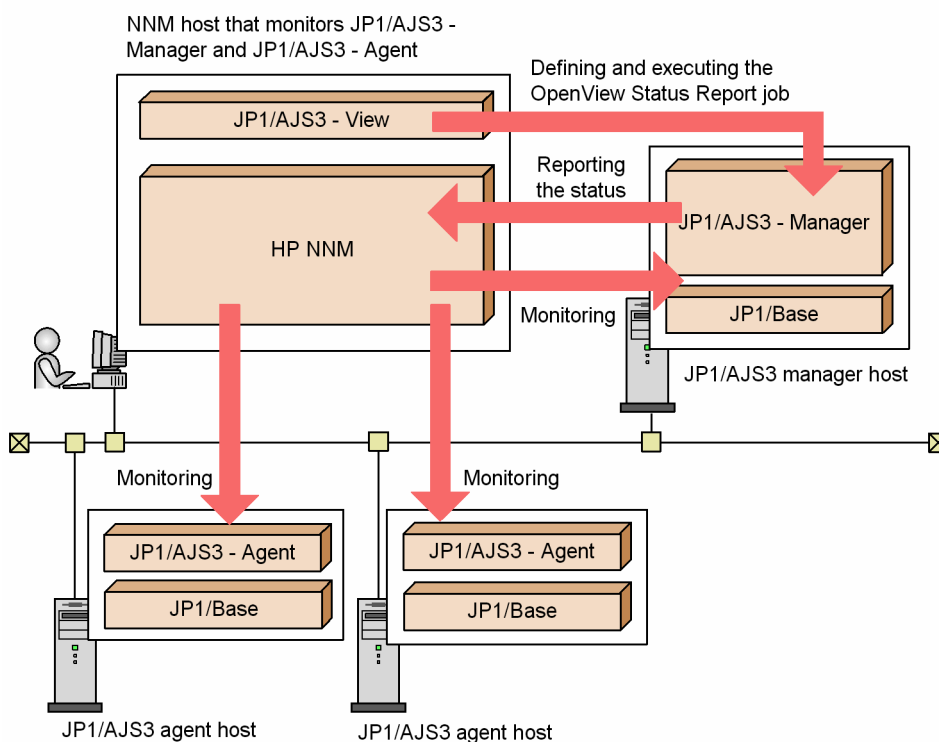
In this example, the *OpenView Status Report* action job is defined and executed using JP1/AJS3 - View for monitoring the status of JP1/AJS3 - Manager and JP1/AJS3 - Agent from NNM in the host where JP1/AJS3 - View is placed.

HP NNM can be linked using the operating systems listed below. If you use JP1/AJS3 as the NNM manager (monitoring host on which NNM is installed), note that NNM does not support the OS versions supported by JP1/AJS3 11-00 or later. To use JP1/AJS3 as the NNM manager, the version of JP1/AJS3 must be 10-50 or earlier.

When used as the NNM agent (the host monitored by NNM):

- Windows Server 2016[1], Windows Server 2012[2], or Windows Server 2008[2]

  (JP1/AJS3 - Manager or JP1/AJS3 - Agent)

#1

HP NNM can be used when the version of JP1/AJS3 - Manager or JP1/AJS3 - Agent is 11-10 or later.

#2

HP NNM can be used when the version of JP1/AJS3 - Manager or JP1/AJS3 - Agent is 10-00 or later.
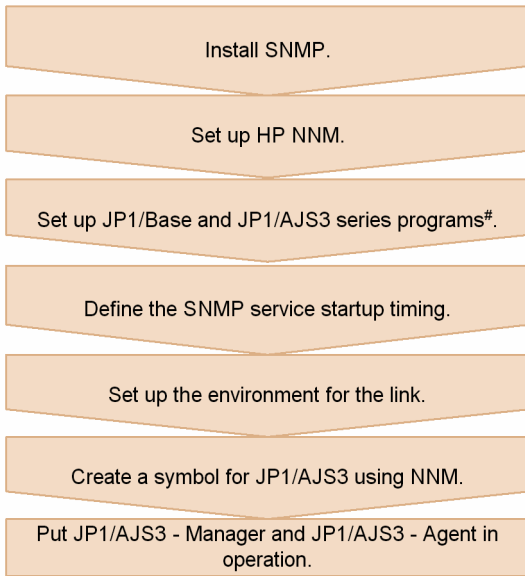
Supplementary note

When JP1/AJS3 sends SNMP traps as an NNM agent, JP1/AJS3 use the Windows SNMP service to obtain the destinations of the SNMP traps.

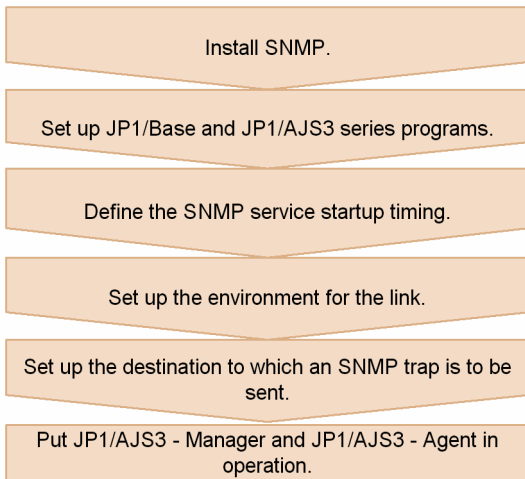The Windows SNMP service is therefore a prerequisite for sending SNMP traps.

The following figure shows the setup procedure for linking HP NNM.

Figure A–2: Setup procedure for linking HP NNM

● NNM host that monitors JP1/AJS3 - Manager and JP1/AJS3 - Agent

Install SNMP.

Set up HP NNM.

Set up JP1/Base and JP1/AJS3 series programs#.

Define the SNMP service startup timing.

Set up the environment for the link.

Create a symbol for JP1/AJS3 using NNM.

Put JP1/AJS3 - Manager and JP1/AJS3 - Agent in operation.

● Host for JP1/AJS3 manager host and JP1/AJS3 agent host to be monitored

Install SNMP.

Set up JP1/Base and JP1/AJS3 series programs.

Define the SNMP service startup timing.

Set up the environment for the link.

Set up the destination to which an SNMP trap is to be sent.

Put JP1/AJS3 - Manager and JP1/AJS3 - Agent in operation.

\# If only JP1/AJS3 - View is installed, JP1/Base need not be set up.

For further details regarding the setup of HP NNM, see the documentation for HP NNM.

The subsections below describe how to define the SNMP service startup timing and environment settings for a link.

(1) Defining the SNMP service startup timing

To issue an SNMP trap correctly when starting up or terminating the JP1/AJS3 service, set up the order in which the SNMP service or NNM and the JP1/AJS3 service are activated.

To specify the order of startup, use the startup management function of JP1/Base.

In the host in which NNM is set up, specify the startup so that NNM is activated first and JP1/AJS3 service is activated next. In the host to be monitored by NNM, specify the startup so that the SNMP service is activated first, followed by the JP1/AJS3 service.

For details on the startup management function of JP1/Base, see the *JP1/Base User's Guide*.

> **❗ Important**
>
> If the HP NNM service has not been activated in the host where NNM is set up when an SNMP trap is issued, the trap might not be reported. The issued SNMP trap also might not be reported depending on the network status because it uses the UDP protocol. The SNMP trap also might not be reported depending on its characteristics. When this occurs, note that SNMP traps are issued but might not be reflected in NNM.

(2) Setting up the environment for the link

If the status of the scheduler is to be monitored, it necessary to set up a monitoring process that monitors the status of the scheduler at 5-minute intervals and, when the status changes, issues `snmptrap`. To set up a monitoring process, edit the `jp1ajs_hstd.conf` file as shown below. Note that you need to specify the settings for monitoring the scheduler status only if you want to monitor the scheduler status. You do not need to specify those settings for JP1/AJS3 - Agent.

- If the `jp1ajs_hstd.conf` file has been altered to set up a standard configuration without ISAM or to configure a queueless job execution environment:

  Back up the `jp1ajs_hstd.conf` file, and then append the following line to the end of the file:

  ```
  ajsovstatd|ajsovstatd.exe|||1800|
  ```

- In all other scenarios:

  Back up the `jp1ajs_hstd.conf` file, and then replace the `jp1ajs_hstd.conf` with the `jp1ajs_hstd_ov.conf.model` file.

The `jp1ajs_hstd.conf` file is stored in the *JP1/AJS3-installation-folder*`\conf` folder.

To change the SNMP traps to be sent for linkage with HP NNM according to the operating environment, set the required environment setting parameters in the JP1/Base common definition and in the environment definition file for linkage with HP NNM. The following table lists the environment setting parameters required for linkage with HP NNM.

Table A–1: List of environment setting parameters for linkage with HP NNM

Location		Parameter name	Description
Common definition	`[JP1_DEFAULT\JP1AOMAGENT\ov_link]`	`"TRAPRESTRAIN"=`	This parameter sets whether to suppress sending SNMP traps.[1]
	`[{JP1_DEFAULT|`*logical-host-name*`}\JP1AOMAGENT\ov_link]`	`"SNMPTRAPCUSTOM"=`	This parameter sets the reference level for customization information during SNMP trap sending.[2]

Location		Parameter name	Description
Common definition	`[{JP1_DEFAULT|logical-host-name}` `\JP1AOMAGENT\ov_link]`	`"TRAPAGENTADDRHOST"=`	This parameter sets the name of the host that sends SNMP traps.[2]
		`"TRAPAGENTADDRIP"=`	This parameter sets the IP address of the host that sends SNMP traps.[2]
		`"CUSTOMCOMMUNITY"=`	This parameter sets the community name for authenticating SNMP traps (on the NNM agent side).[2]

#1

For details about this environment setting parameter, see *(4) Disabling SNMP trap transmission*.

#2

For details about this environment setting parameter, see *(5) Customizing the SNMP trap to be sent*.

(3) Setting up SNMP trap destinations

In the host (where JP1/AJS3 - Manager or JP1/AJS3 - Agent to be monitored is installed) monitored by NNM, it is necessary to set up the community name of the SNMP service and the destination to which the trap is to be sent. The community name must be `Jp1Trap`, and the destination to which the trap is to be sent must be the host name of the manager (where NNM is installed) or one or more IP addresses.

If the NNM agent is to be managed in a cluster system, each node must have a monitoring host specified as the destination to which the trap is to be sent.

(4) Disabling SNMP trap transmission

The JP1/AJS3 service transmits SNMP traps that are used for JP1/AJS3 objects to NNM. To disable SNMP trap transmission from JP1/AJS3, you must specify it in the JP1/Base common definition information, using the following procedure. To disable SNMP trap transmission:

1. Execute the following command:

```
jajs_config -k "[JP1_DEFAULT\JP1AOMAGENT\ov_link]" "TRAPRESTRAIN"="Y"
```

In the `TRAPRESTRAIN` parameter, specify whether to disable SNMP trap transmission. If you want to disable SNMP trap transmission, specify `Y`. If you do not want to disable it, specify `N`. The default is `N`. If you do not want to disable SNMP trap transmission, substitute `N` for `Y` in the following information. If you specify any value other than `Y` or `N`, an error will occur during trap transmission.

(5) Customizing the SNMP trap to be sent

(a) Customizing the send source host name

For sending SNMP traps for JP1/AJS3 objects, the name and IP address of a physical host are generally set for the send source host. If the host sending SNMP traps has more than one IP address, you may have to explicitly specify the name of the send source host. Specify the name of the host sending SNMP traps in the following cases:

- When NNM is set not to recognize the logical host, a clustered JP1/AJS3 node might send an SNMP trap for which the logical host name is set as the send source host name. In this case, set the physical host name as the send source host name.

- When NNM is set to recognize the logical host, a clustered JP1/AJS3 node might send an SNMP trap for which the physical host name is set as the send source host name. In this case, set the logical host name as the send source host name.

To customize the name of the host sending the SNMP trap to be sent, you need to set up the JP1/Base common definition information so that the customization information is referenced when the SNMP trap is sent.

■ Setting procedure

To customize the SNMP trap:

1. Execute the following command to set the environment setting parameters.

```
jajs_config -k definition-key-name "environment-setting-
parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
["environment-setting-parameter-3"=definition-content-3]
```

■ List of environment setting parameters

Table A–2: Environment setting parameters for customizing the send source host name

Definition key	Environment setting parameter	Defined information
[{JP1_DEFAULT|*logical-host-name*}\JP1AOMAGENT\ov_link][1]	"SNMPTRAPCUSTOM"=[2]	dword:{0|1|2}
	"TRAPAGENTADDRHOST"=[3]	"*agent-host-name*"
	"TRAPAGENTADDRIP"=[4]	"*IP-address*"

[1]

The {JP1_DEFAULT|*logical-host-name*} part indicates that you must specify JP1_DEFAULT for the physical host and *logical-host-name* for the logical host.

[2]

The SNMPTRAPCUSTOM environment settings parameter specifies whether to reference the customization information when the SNMP trap is sent. Specify 1 to reference the send source host name. Otherwise, specify 0. The default is 1.

[3]

In the TRAPAGENTADDRHOST environment settings parameter, specify the name of the host that sends the SNMP trap. Use up to 255 bytes. The default is the name of the physical host that sends the SNMP trap.

[4]

In the TRAPAGENTADDRIP environment settings parameter, specify the IP address of the host that sends the SNMP trap. The default is the IP address of the physical host that sends the SNMP trap.

(b) Customizing the community name for authentication

■ Customizing the community name for authenticating the SNMP traps on the status-monitored host (where JP1/AJS3 is installed)

You may want to customize the community name for authenticating the SNMP traps for the JP1/AJS3 objects of the status-monitored host (where JP1/AJS3 is installed). To do this, specify the settings for referencing the customization information in the JP1/Base common definition.

To specify the settings for referencing the customization information in the JP1/Base common definition:

1. Execute the following command to set the environment setting parameters.

```
jajs_config -k definition-key-name "environment-setting-
parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
```

Table A–3: Environment setting parameters for customizing the community name for authentication

Definition key	Environment setting parameter	Defined information
`[{JP1_DEFAULT|`*logical-host-name*`}` `\JP1AOMAGENT\ov_link]`[#1]	`"SNMPTRAPCUSTOM"=`[#2]	`dword:{0|1|2}`
	`"CUSTOMCOMMUNITY"=`[#3]	`"`*community-name-for-authentication*`"`

#1

The `{JP1_DEFAULT|`*logical-host-name*`}` part indicates that you must specify `JP1_DEFAULT` for the physical host and *logical-host-name* for the logical host.

#2

The `SNMPTRAPCUSTOM` environment settings parameter specifies whether to reference the customization information when the SNMP trap is sent. Specify `2` to reference the community name for authentication. The default is `1`.

#3

In the `CUSTOMCOMMUNITY` environment settings parameter, specify the community name for authentication. Use up to 255 bytes. The default is `public`.

Cautionary notes

- To customize both the send source host name and the community name for authentication, specify `2` for the `SNMPTRAPCUSTOM` parameter and specify either the `TRAPAGENTADDRHOST` or `TRAPAGENTADDRIP` parameter with the `CUSTOMCOMMUNITY` parameter.

- To use NNM for the Windows host to receive the customized SNMP trap, you must set up NNM so that it will not use WinSNMP. For details, see the description of `ovtrapd` in NNM Run-time Help.

(6) Unlinking HP NNM

This subsection describes the procedure for unlinking HP NNM.

(a) Unlinking HP NNM on the monitored side (where JP1/AJS3 - Manager or JP1/AJS3 - Agent is installed)

To disable linkage with HP NNM on the monitored side (where JP1/AJS3 is installed), from the list of trap destinations in the SNMP service settings, delete the host on which NNM is installed.

(7) Cautionary notes on linking HP NNM

(a) General notes

- We recommend that you set up NNM so that it will not recognize a logical host when monitoring nodes in a cluster system. Because the JP1/AJS3 trap is transmitted with a physical host name specified as a key, no JP1/AJS3 symbol can be displayed if NNM recognizes the nodes by logical host names. When linking JP1/AJS3 with HP NNM, set up NNM in such a way that it will not recognize logical hosts or customize the SNMP trap to be sent.

For details on how to customize the SNMP trap to be sent, see *(5) Customizing the SNMP trap to be sent*. For details on how to set up NNM, see the documentation for HP NNM.

- If an SNMP trap contains text whose character encoding is different from the NNM language environment, the reported data is corrupted and will not be displayed correctly in Alarms Browser. Therefore, make sure that the language environment settings of NNM and JP1/AJS3 match if you use multi-byte characters for the following items:

  - Root jobnet name
    This information is included in an SNMP trap issued when a root jobnet terminates abnormally.

  - **Additional information** for the OpenView Status Report Job
    This information is included in an SNMP trap issued when the OpenView Status Report Job is executed.

(b) Cautionary notes for the NNM agent side

- If the agent host uses a long host name due to the presence of a DNS or some other reason, ensure that the name of the monitored host (the host where JP1/AJS3 is installed) does not exceed 228 bytes.

  In addition, when JP1/AJS3 on a logical host is monitored, the sum of the lengths of the physical host name and the logical host name must not exceed 246 bytes.

  If the host names exceed this length, symbols are not created in NNM.

- An SNMP trap that notifies an abnormal termination of a jobnet is sent when the root jobnet terminates abnormally.

A.3 Setup for linking HP NNM (for a UNIX host)

When linking HP NNM for monitoring of JP1/AJS3 - Manager and JP1/AJS3 - Agent from NNM, install either JP1/AJS3 - Manager or JP1/AJS3 - View in the host where NNM is installed.

The following figure shows an example of a system configuration for linking with HP NNM.

Figure A–3: Example of a system configuration for linking with HP NNM
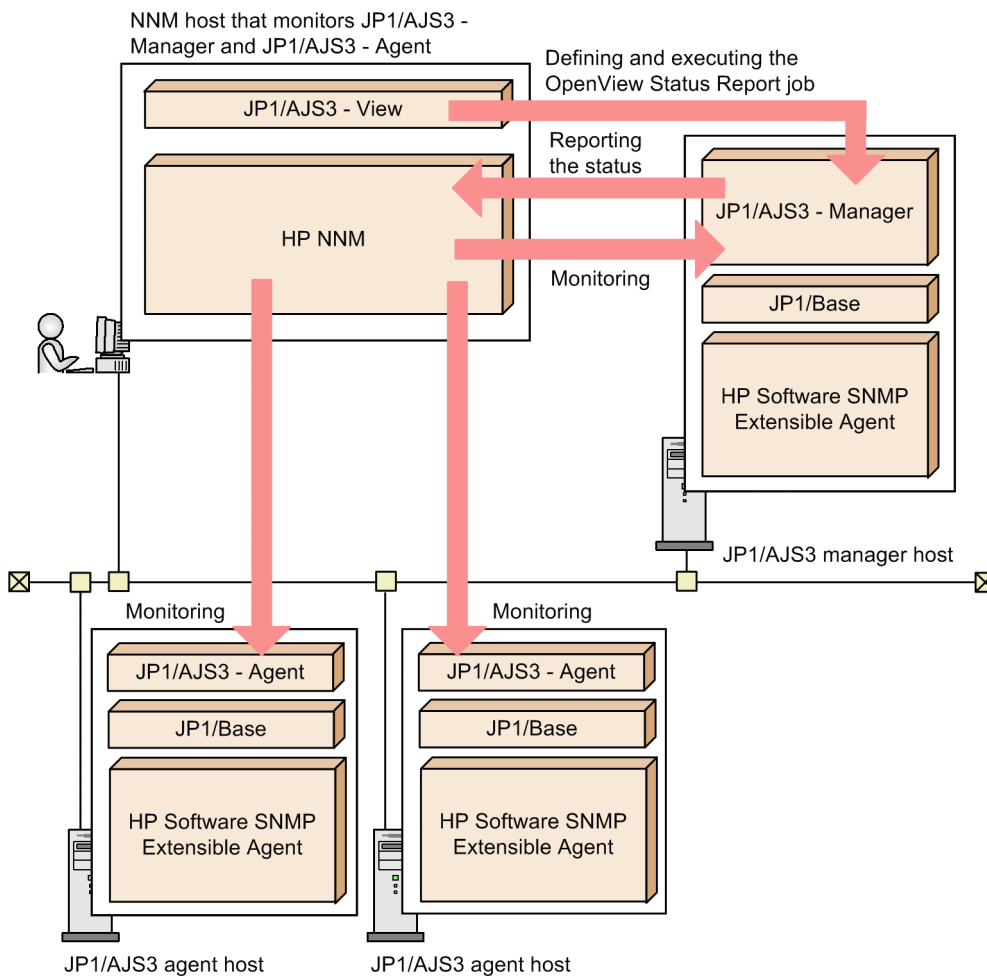
In this example, the *OpenView Status Report* action job is defined and executed using JP1/AJS3 - View installed in the Windows host for monitoring the status of JP1/AJS3 - Manager and JP1/AJS3 - Agent from NNM in the host where JP1/AJS3 - View is placed.

HP NNM can be linked using the operating systems listed below.

When used as the NNM manager (the host where NNM is installed and which is used for monitoring):

- Solaris

  (JP1/AJS3 - Manager)

When used as the NNM agent (the host monitored by NNM):

- Solaris

  (JP1/AJS3 - Manager or JP1/AJS3 - Agent)

- AIX

  (JP1/AJS3 - Manager or JP1/AJS3 - Agent)

- Linux

  (JP1/AJS3 - Manager or JP1/AJS3 - Agent)

Supplementary note

JP1/AJS3 uses the following functions and files of Job Management Partner 1/Consolidated Management 2/ Extensible SNMP Agent or HP Software Extensible SNMP Agent as the NNM agent:
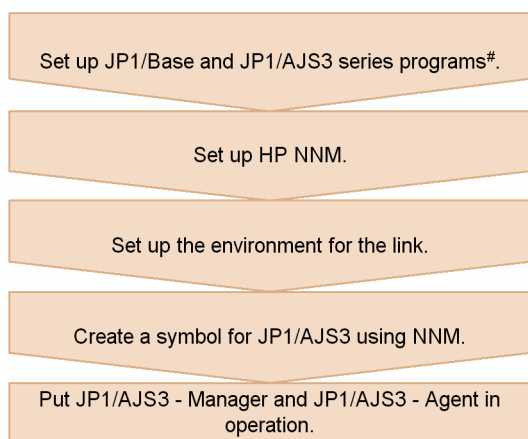
- SNMP trap destination referencing

- `snmptrap` command

- Extensible MIB definition file

For this reason, Job Management Partner 1/Consolidated Management 2/Extensible SNMP Agent or HP Software Extensible SNMP Agent is required as a prerequisite program.
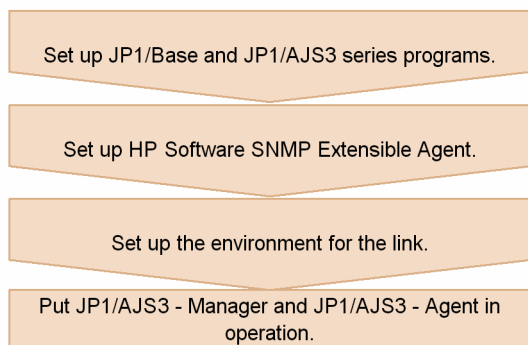
The following figure shows the setup procedure for linking HP NNM.

Figure A–4: Setup procedure for linking HP NNM

● NNM host that monitors JP1/AJS3 - Manager and JP1/AJS3 - Agent

> Set up JP1/Base and JP1/AJS3 series programs#.

> Set up HP NNM.

> Set up the environment for the link.

> Create a symbol for JP1/AJS3 using NNM.

> Put JP1/AJS3 - Manager and JP1/AJS3 - Agent in operation.

● Host for JP1/AJS3 manager host and JP1/AJS3 agent host to be monitored

> Set up JP1/Base and JP1/AJS3 series programs.

> Set up HP Software SNMP Extensible Agent.

> Set up the environment for the link.

> Put JP1/AJS3 - Manager and JP1/AJS3 - Agent in operation.

If only JP1/AJS3 - View is installed in a host, JP1/Base need not be set up in the host.

For details on how to set up HP NNM, see the relevant manual or the HP NNM documentation.

For details on setting up Job Management Partner 1/Consolidated management 2/Extensible SNMP Agent or HP Software Extensible SNMP Agent, see the manual *Job Management Partner 1/Consolidated Management 2/Extensible SNMP Agent* or the HP NNM document.

The subsections below describe environment settings for a link.

(1) Setting up the environment for the link

To link with HP NNM, use the `ajsovsetup` command to set up the environment for the link. Execute the command on both the monitoring side (that is, the host where NNM is installed) and the monitored side (the host where JP1/AJS3 - Manager or JP1/AJS3 - Agent is installed).

If the status of the scheduler is to be monitored, it is necessary to set up a monitoring process that monitors the status of the scheduler at 5-minute intervals and, when the status changes, issues `snmptrap`. To set up a monitoring process, edit the `jp1ajs_hstd.conf` file as shown below. If JP1/AJS3 - Agent is installed, however, you need not set up scheduler status monitoring.

- If the `jp1ajs_hstd.conf` file has been altered for a purpose such as setting up a standard configuration without ISAM

  Back up the `jp1ajs_hstd.conf` file, and then append the following line to the end of the file:

  ```
  ajsovstatd|/opt/jp1ajs2/bin/ajsovstatd|||1800|
  ```

- In all other scenarios:

  Back up the `jp1ajs_hstd.conf` file, and then replace the `jp1ajs_hstd.conf` with the `jp1ajs_hstd_ov.conf.model` file.

The `jp1ajs_hstd.conf` file is stored in the `/etc/opt/jp1ajs2/conf` directory.

To change the SNMP traps to be sent for linkage with HP NNM according to the operating environment, set the required environment setting parameters in the JP1/Base common definition and in the environment definition file for linkage with HP NNM. The following table lists the environment setting parameters required for linkage with HP NNM.

Table A–4: List of environment setting parameters for linkage with HP NNM

Location		Parameter name	Description
Common definition	`[JP1_DEFAULT\JP1AOMAGENT` `\ov_link]`	`"TRAPRESTRAIN"=`	This parameter sets whether to suppress sending SNMP traps.[1]
	`[{JP1_DEFAULT|`*logical-host-name*`}` `\JP1AOMAGENT\ov_link]`	`"SNMPTRAPCUSTOM"=`	This parameter sets the reference level for customization information during SNMP trap sending.[2]
		`"TRAPAGENTADDRHOST"=`	This parameter sets the name of the host that sends SNMP traps.[2]
		`"TRAPAGENTADDRIP"=`	This parameter sets the IP address of the host that sends SNMP traps.[2]
		`"CUSTOMCOMMUNITY"=`	This parameter sets the community name for authenticating SNMP traps (on the NNM agent side).[2]
Environment definition file for linkage with HP NNM[3] (`/etc/opt/jp1ajs2/conf/jpoov.conf`)		`[SETSYMBOLCOMMUNITY` `]=`	This parameter sets the community name for authenticating SNMP traps (on the NNM manager side).[2]

#1

　For details about this environment setting parameter, see *(2) Disabling SNMP trap transmission*.

#2

　For details about this environment setting parameter, see *(3) Customizing the SNMP trap to be sent*.

#3

　The parameters that are contained in the environment definition file for linkage with HP NNM but are not described in this manual are for maintenance. Do not change the values of these parameters.

(2) Disabling SNMP trap transmission

The JP1/AJS3 service transmits SNMP traps that are used for JP1/AJS3 objects to NNM. To disable SNMP trap transmission from JP1/AJS3, you must specify it in the JP1/Base common definition information, using the following procedure. To disable SNMP trap transmission:

1. Execute the following command:

```
jajs_config -k "[JP1_DEFAULT\JP1AOMAGENT\ov_link]" "TRAPRESTRAIN"="Y"
```

In the `TRAPRESTRAIN` parameter, specify whether to disable SNMP trap transmission. If you want to disable SNMP trap transmission, specify `Y`. If you do not want to disable it, specify `N`. The default is `N`. If you do not want to disable SNMP trap transmission, substitute `N` for `Y` in the following information. If you specify anything other than `Y` or `N`, an error will occur during trap transmission.

(3) Customizing the SNMP trap to be sent

(a) Customizing the send source host name

For sending SNMP traps for JP1/AJS3 objects, the name and IP address of a physical host are generally set for the send source host. If the host sending SNMP traps has more than one IP address, you may have to explicitly specify the name of the send source host. Specify the name of the host sending SNMP traps in the following cases:

- When NNM is set not to recognize the logical host, a clustered JP1/AJS3 node might send an SNMP trap for which the logical host name is set as the send source host name. In this case, set the physical host name as the send source host name.

- When NNM is set to recognize the logical host, a clustered JP1/AJS3 node might send an SNMP trap for which the physical host name is set as the send source host name. In this case, set the logical host name as the send source host name.

To customize the name of the host sending the SNMP trap to be sent, you need to set up the JP1/Base common definition information so that the customization information is referenced when the SNMP trap is sent.

■ **Setting procedure**

To customize the SNMP trap:

1. Execute the following command to set the environment setting parameters.

```
jajs_config -k definition-key-name "environment-setting-
parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
["environment-setting-parameter-3"=definition-content-3]
```

■ **List of environment setting parameters**

Table A–5: Environment setting parameters for customizing the send source host name

Definition key	Environment setting parameter	Defined information
[{JP1_DEFAULT|*logical-host-name*}\JP1AOMAGENT\ov_link][1]	"SNMPTRAPCUSTOM"=[2]	dword:{0|1|2}
	"TRAPAGENTADDRHOST"=[3]	"*agent-host-name*"
	"TRAPAGENTADDRIP"=[4]	"*IP-address*"

#1

The {JP1_DEFAULT|*logical-host-name*} part indicates that you must specify JP1_DEFAULT for the physical host and *logical-host-name* for the logical host.

#2

The SNMPTRAPCUSTOM environment settings parameter specifies whether to reference the customization information when the SNMP trap is sent. Specify 1 to reference the send source host name. Otherwise, specify 0. The default is 1.

#3

In the TRAPAGENTADDRHOST environment settings parameter, specify the name of the host that sends the SNMP trap. Use up to 255 bytes. The default is the name of the physical host that sends the SNMP trap.

#4

In the TRAPAGENTADDRIP environment settings parameter, specify the IP address of the host that sends the SNMP trap. The default is the IP address of the physical host that sends the SNMP trap.

(b) Customizing the community name for authentication

SNMP traps for JP1/AJS3 objects use public as the community name for authentication. To customize the community name for authenticating the send SNMP traps, you must specify the settings so that the customization information be referenced during sending of SNMP traps.

■ Customizing the community name for authenticating the SNMP traps on the status-monitored host (where JP1/AJS3 is installed)

To customize the community name to authenticate the SNMP traps for JP1/AJS3 objects on the status-monitored host (where JP1/AJS3 is installed), specify the settings for referencing the customization information in the JP1/Base common definition. The procedure is as follows.

To customize the community name for authenticating the SNMP traps on the status-monitored host:

1. Execute the following command to set the environment setting parameters.

```
jajs_config -k definition-key-name "environment-setting-
parameter-1"=definition-content-1
["environment-setting-parameter-2"=definition-content-2]
```

Table A–6: Environment setting parameters for customizing the send source host name

Definition key	Environment setting parameter	Defined information
[{JP1_DEFAULT|*logical-host-name*} \JP1AOMAGENT\ov_link][#1]	"SNMPTRAPCUSTOM"=[#2]	dword:{0|1|2}
	"CUSTOMCOMMUNITY"=[#3]	"*community-name-for-authentication*"

#1

The {JP1_DEFAULT|*logical-host-name*} part indicates that you must specify JP1_DEFAULT for the physical host and *logical-host-name* for the logical host.

#2

The SNMPTRAPCUSTOM environment settings parameter specifies whether to reference the customization information when the SNMP trap is sent. Specify 2 to reference the community name for authentication. The default is 1.

#3

In the `CUSTOMCOMMUNITY` environment settings parameter, specify the community name for authentication. Use up to 255 bytes. The default is `public`.

Cautionary notes

- To customize both the send source host name and the community name for authentication, specify `2` for the `SNMPTRAPCUSTOM` parameter and specify either the `TRAPAGENTADDRHOST` or `TRAPAGENTADDRIP` parameter with the `CUSTOMCOMMUNITY` parameter.

- To use NNM for the Windows host to receive the customized SNMP trap, you must set up NNM so that it will not use WinSNMP. For details, see the description of `ovtrapd` in NNM Run-time Help.

■ **Customizing the community name for authenticating the SNMP traps on the status-monitoring host (where NNM is installed)**

To change the community name of the SNMP traps for JP1/AJS3 objects on the status-monitoring host (where NNM is installed), specify the new community name in the environment definition file for linkage with HP NNM (`/etc/opt/jp1ajs2/conf/jpoov.conf`). You can specify a character string not longer than 255 bytes. The following shows the entry in the environment definition file.

`[SETSYMBOLCOMMUNITY]=`*community-name-for-authentication*

If you specify a character string longer than 255 bytes, the first 255 bytes are used as the community name. The community name setting is applied immediately. The default community name is `public`.

Cautionary notes

- If you want to specify a community name that includes spaces, enclose the community name in double quotation marks (`"`).

- On a host where only JP1/AJS3 - View is installed, the name of the environment definition file for linkage with HP NNM is `/etc/opt/jp1ajs2v/conf/jpoov.conf`.

(4) Unlinking HP NNM

This subsection describes the procedure for unlinking HP NNM.

(a) Unlinking HP NNM on the monitored side (where JP1/AJS3 is installed)

To unlink HP NNM on the monitored side (where JP1/AJS3 is installed), use the following procedure.

To unlink HP NNM on the monitored side:

1. To disable SNMP trap transmission, you must specify it.
   For details on how to disable SNMP trap transmission, see *(2) Disabling SNMP trap transmission*.

2. Execute the `ajsovremove` command.

(b) Unlinking HP NNM on the monitoring side (where NNM is installed)

To unlink HP NNM on the status monitoring side (where NNM is installed), use the following procedure.

To unlink HP NNM on the status monitoring side:

1. Unlink HP NNM in all hosts that are the status monitoring targets and where JP1/AJS3 - Manager or JP1/AJS3 - Agent is installed.

For details on how to unlink HP NNM from JP1/AJS3 - Manager or JP1/AJS3 - Agent, see *(a) Unlinking HP NNM on the monitored side (where JP1/AJS3 is installed)*.

2. Execute the `ajsovsymrem` command in the monitoring host.

3. If the NNM window is not open, open it.

4. In the NNM window, choose **Administer**, **JP1/AJS2 Manager**, **Create symbol**, and **For All hosts**.
   JP1/AJS3 symbols are deleted from the submap of all hosts.

5. Open the submap that contained the JP1/AJS3 symbols, and then choose **Map**, **Submap**, and **Properties**.
   The Submap Context dialog box appears.

6. Select `isJP1AJS2ObjExist`, and delete it.
   The JP1/AJS3 context is deleted from the submap on which the JP1/AJS3 symbols were.

7. Close the NNM window.

8. Execute the `ajsovremove` command.
   The HP NNM link definition for JP1/AJS3 is deleted from NNM.

(c) Unlinking HP NNM when the same host serves as the monitored side (where JP1/AJS3 is installed) and monitoring side (where NNM is installed)

To unlink the HP NNM in a situation where the same host serves as the monitored side (where JP1/AJS3 is installed) and monitoring side (where NNM is installed):

1. Delete the local host from the trap destinations specified in the SNMP service setup.

2. Execute the `ajsovsymrem` command.

3. If the NNM window is not open, open it.

4. In the NNM window, choose **Administer**, **JP1/AJS2 Manager**, **Create symbol**, and **For All hosts**.
   JP1/AJS3 symbols are deleted from the submap of all hosts.

5. Open the submap that contained the JP1/AJS3 symbols, and then choose **Map**, **Submap**, and **Properties**.
   The Submap Context dialog box appears.

6. Select `isJP1AJS2ObjExist`, and delete it.
   The JP1/AJS3 context is deleted from the submap on which the JP1/AJS3 symbols were located.

7. Close the NNM window.

8. Execute the `ajsovremove` command.
   The HP NNM link definition for JP1/AJS3 is deleted from NNM.

(5) Cautionary notes on linking HP NNM

(a) General notes

- We recommend that you set up NNM so that it will not recognize a logical host when monitoring nodes in a cluster system. Because the JP1/AJS3 trap is transmitted with a physical host name specified as a key, no JP1/AJS3 symbol

can be displayed if NNM recognizes the nodes by logical host names. When linking JP1/AJS3 with HP NNM, set up NNM in such a way that it will not recognize logical hosts or customize the SNMP trap to be sent.

For details on how to customize the SNMP trap to be sent, see *(3) Customizing the SNMP trap to be sent*. For details on how to set up NNM, see the HP NNM documentation.

- If you use HP NNM linkage in an environment in which HP NNM 6.1 has been updated to HP NNM 6.4 or later, you must set up HP NNM linkage again. To set up HP NNM linkage again, execute the `ajsovremove` and `ajsovsetup` commands before starting linkage.

- If an SNMP trap contains text whose character encoding is different from the NNM language environment, the reported data is corrupted and will not be displayed correctly in Alarms Browser. Therefore, make sure that the language environment settings of NNM and JP1/AJS3 match if you use multi-byte characters for the following items:

  - Root jobnet name

    This information is included in an SNMP trap issued when a root jobnet terminates abnormally.

  - **Additional information** for the OpenView Status Report Job

    This information is included in an SNMP trap issued when the OpenView Status Report Job is executed.

- The following table shows the NNM files configured in JP1/AJS3.

Table A–7: The NNM files configured in JP1/AJS3

Purpose of file	File names
Trap action definition	`/etc/opt/OV/share/conf/$LANG/trapd.conf`
Field definition	`/etc/opt/OV/share/fields/C/jp1ajs2_f`
Application definition	`/etc/opt/OV/share/registration/$LANG/jp1ajs2`
Trusted command definition	`/etc/opt/OV/share/conf/trustedCmds.conf/trustajs2`
Extended user MIB definition	`/etc/SnmpAgent.d/snmpd.extend`

Do not modify these files from their original state. Symbols might not display in NNM if these files are modified.

(b) Cautionary notes for the NNM host side

- Make sure that the NNM service is running and the NNM window is closed when you execute the `ajsovsetup` or `ajsovremove` command.

- When linking with NNM on a Solaris host, do not execute the `ajsovsetup` command without first setting the setup language for the HP NNM in the `LANG` environment variable. For details on the values you can use for the `LANG` environment variable when linking with the HP NNM linkage, see the documentation for the HP NNM.

- If the extended use MIB definition file already exists when the `ajsovsetup` command is executed, the back up file of this file is created as *previous-file-name*.`old`. In addition, if the back up file already exists, the system inquires to overwrite. If `y` is replied, overwrite takes place, and processing continues. If `n` is replied, processing continues without taking the back up. After executing the `ajsovsetup` command, the following messages are issued. However, these messages do not pose any problems.

```
KAVT0952-I OpenView Environment(fields) Setup skipped.
KAVT0952-I OpenView Environment(trapd.conf) Setup skipped.
KAVT0952-I OpenView Environment(registration) Setup skipped.
```

- If the agent host is renamed, NNM might display identical symbols (one for the previous host name and the other for the new host name) on the node submap for that host. In this case, delete the symbol whose status does not change in response to a trap, or delete both symbols and display a symbol with a new trap.

- Do not change the object attributes for symbols that JP1/AJS3 manages, or the selection name.

- If you change the node submap selection name to a name other than the host name, the JP1/AJS3 symbol might not be created. To specify a name other than the host name for the node submap selection name, change the node submap selection name to the host name and create the JP1/AJS3 symbol. Then change the selection name to a name other than the host name.

- To use HP NNM linkage, you need to set `All Levels` for the fixed submap level (on-demand submap).

  To do so, display the IP Map settings for NNM in the map properties, then check and change the fixed submap level.

- When the alarm browser in NNM is stopped, even if a trap is received from the monitored host (where JP1/AJS3 is installed), the colors of the symbols do not correspond to the received statuses. Even if the symbols are reset, the statuses of the symbols are unchanged.

- Immediately after the system is configured or if a node corresponding to the agent host is deleted, an error message indicating that no status color can be set up might appear. Restarting NNM or choosing **Administer**, **JP1/AJS2 Manager**, **Create symbol**, and **For All hosts** from the NNM menus will suppress this error message.

(c) Cautionary notes for the NNM agent side

- SNMP traps might fail to send if the process that controls the sending of SNMP traps is inactive, for example. Because different software controls the sending of SNMP traps in different ways, the cause of the error might differ depending on the software. On the host from which SNMP traps are sent (the host where JP1/AJS3 is installed), make sure that SNMP traps can be sent correctly.

- If the agent host uses a long host name due to the presence of a DNS or some other reason, ensure that the name of the monitored host (the host where JP1/AJS3 is installed) does not exceed 228 bytes.

  In addition, if JP1/AJS3 on a logical host is monitored, the sum of the lengths of the physical host name and the logical host name must not exceed 246 bytes.

  If the host names exceed this length, symbols are not created in NNM.

- When the `ajsovsetup` command is executed, JP1/AJS3 MIB definition information is added to the extended MIB definition file. When the `ajsovremove` command is executed, JP1/AJS3 MIB definition information is deleted from the extended MIB definition file. Note that the changes to the extended MIB definition file are applied when the SNMP agent is restarted.

  For details about restarting the SNMP agent, see the *Job Management Partner 1/Consolidated Management 2/ Extensible SNMP Agent Description, Operator's Guide and Reference*.

- An SNMP trap that notifies an abnormal termination of a jobnet is sent when the root jobnet terminates abnormally.

A.4 Creating and deleting symbols

When you use NNM to monitor the operation status of JP1/AJS3 - Manager operations, the execution status of jobs in jobnets, and the operation status of JP1/AJS3 - Agent with symbols, you have to first create the symbols you are going to use in NNM.

Symbols are classified into two types:

- **JP1AJS2** symbols

  Symbols of objects representing the operation status of JP1/AJS3 - Manager, execution status of jobs in jobnets, and operation status of JP1/AJS3 - Agent

- **AJS2USER** symbols

 Symbols of objects representing statuses as reported by the OpenView Status Report job

This section describes how to create and delete the two types of symbols, as well as their attributes.

(1) Creating symbols

When receiving a Simple Network Management Protocol (SNMP) trap from a monitored JP1/AJS3 host, NNM automatically creates the **JP1AJS2** and **AJS2USER** symbols at the time of executing the `ovw` command. The UDP protocol attains the SNMP traps; therefore, the reliability of transmission of SNMP traps depends on the UDP protocol. If JP1/AJS3 - Manager operates in the cluster system mode, two **JP1AJS2** symbols (one is a physical host and the other is a logical host) are created for one JP1/AJS3 - Manager host. When the OpenView Status Report job is used, an **AJS2USER** symbol is created. Note that a single **AJS2USER** symbol is created for each JP1/AJS3 - Manager host. A single symbol of the OpenView Status Report job indicates its status for both the physical host and the logical host.

See the figure below for each symbol. The same symbols are shown for both the primary node and the secondary node.

Figure A–5: JP1AJS2 and AJS2USER symbols
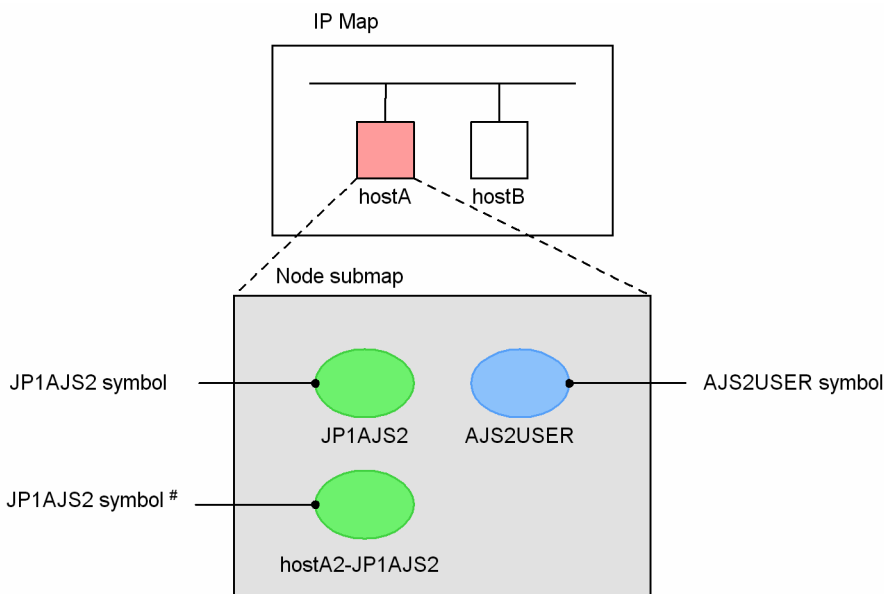
This symbol appears only when JP1/AJS3 - Manager operates with a cluster system. The logical host name is added at the beginning of the label name.

Alternatively, if NNM executes the `ovw` command before receiving an SNMP trap, the **JP1AJS2** and **AJS2USER** symbols are not created automatically. When this occurs, create the symbols manually.

There are three methods for creating symbols:

- Creating symbols for a specified host

  You can create symbols explicitly for a specified host. These symbols appear in the node submap even before an SNMP trap is received from the host.

- Creating symbols for all hosts

  You can create symbols for all hosts from which SNMP traps are received. The corresponding symbols do not appear in the node submap before an SNMP trap is received from a host.

- Re-executing the `ovw` command

Cautionary notes

- The symbols created by *Creating symbols for a specified host* are **JP1AJS2** and **AJS2USER** symbols indicating the physical host.

- To create a **JP1AJS2** symbol indicating a logical host, use the *Creating symbols for all hosts* method or the *Re-executing the ovw command* method. It is required to receive SNMP straps from the logical hosts corresponding to primary and secondary nodes in a cluster system before creating the symbol.

The procedures for creating symbols are described below.

(a) Creating JP1AJS2 and AJS2USER symbols for specified hosts

To create symbols for a specific host:

1. Execute the `ovw` command in NNM.

   The IP Map appears.

2. Click the symbol of the host for which you want to create symbols.

   The specified symbol changes to the selected status.

3. From **Administer**, choose **JP1/AJS2 Manager**, **Create symbol** and then **For Selected Host**.

   The **JP1AJS2** and **AJS2USER** symbols are created for the host selected in step 2.

4. Double-click the symbol of the host selected in step 2.

   The node submap appears.

5. Make sure that the **JP1AJS2** and **AJS2USER** symbols have been created.

   When just created, the **JP1AJS2** and **AJS2USER** symbols are shown in a color that indicates an unknown status. Upon receiving an SNMP trap from the JP1/AJS3, the symbols change to a color that indicates a reported status. For details about the **JP1AJS2** symbol, see *A.5(1) Interpreting JP1AJS2 symbols shown in the node submap*. For further details about the **AJS2USER** symbol, see *A.6(1) Interpreting AJS2USER symbols shown in the node submap*.

Be sure to delete any unnecessary symbols since both **JP1AJS2** and **AJS2USER** symbols are created at the same time. For further details, see *(2) Deleting symbols*.

## (b) Creating JP1AJS2 and AJS2USER symbols for all hosts

To create symbols for all hosts:

1. Execute the `ovw` command in NNM.

   The IP Map appears.

2. From **Administer**, choose **JP1/AJS2 Manager**, **Create Symbol** and then **For All Hosts**.

   The **JP1AJS2** and **AJS2USER** symbols are created for all hosts from which SNMP traps have been received. The symbols corresponding to the traps that have not been received at this operation are not created .

3. Double-click the symbol of a host from which an SNMP trap was received.

   The node submap appears.

4. Make sure that the **JP1AJS2** and **AJS2USER** symbols have been created.

   The **JP1AJS2** and **AJS2USER** symbols are shown in a color that indicates a reported status. For details about the **JP1AJS2** symbol, see *A.5(1) Interpreting JP1AJS2 symbols shown in the node submap*. For further details about the **AJS2USER** symbol, see *A.6(1) Interpreting AJS2USER symbols shown in the node submap*.

Cautionary note

   No symbol is created for a host from which no SNMP trap was received. The following example gives further details:

Figure A–6: Example of executing the For all hosts menu command
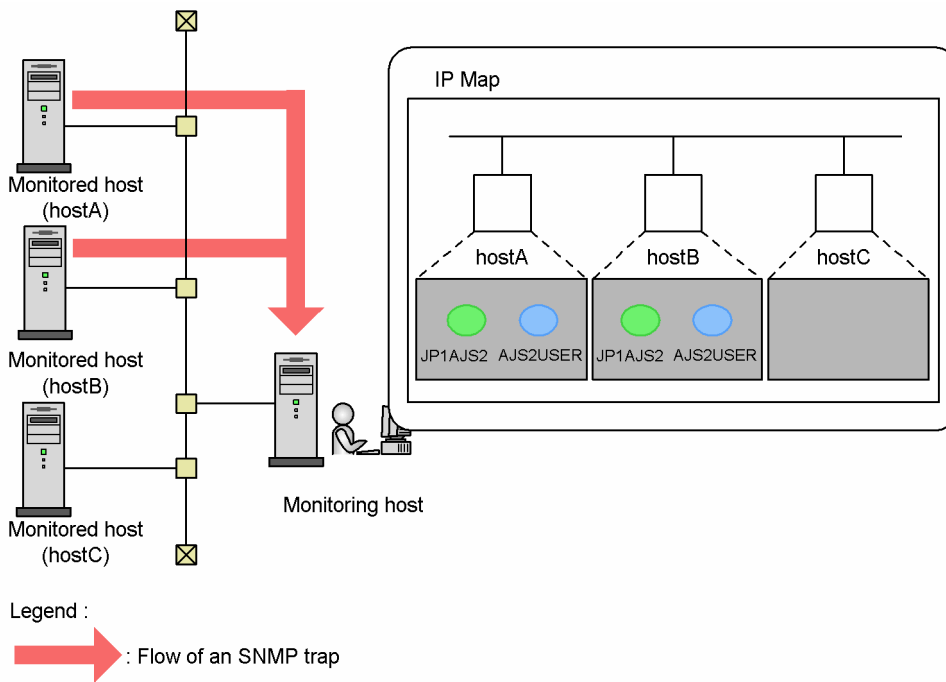
In this example, the monitoring host is receiving SNMP traps from hostA and hostB. Therefore, if you execute the **For All Hosts** menu command, the symbols appears in the node submaps of hostA and hostB. However, no symbol appears in the node submap of hostC because no SNMP trap was received from hostC.

(2) Deleting symbols

If you do not monitor JP1/AJS3 - Manager or JP1/AJS3 - Agent using HP NNM, delete any unnecessary symbols.

Since the **JP1AJS2** and **AJS2USER** symbols are never deleted automatically, be sure to delete them from NNM.

A.5 Monitoring the status of JP1/AJS3

You can determine the operation status of JP1/AJS3 - Manager, execution status of jobs in jobnets, and operation status of JP1/AJS3 - Agent based on the color of **JP1AJS2** symbols. In addition, you can obtain detailed information from the Alarms Browser and the ajsdetail window.

When the status of JP1/AJS3 - Manager or JP1/AJS3 - Agent changes, an SNMP trap reporting the status change is sent to NNM. Then, NNM displays the symbols in a color that corresponds to the reported status.

- When JP1/AJS3 - Manager is monitoring the scheduler status, the monitoring process checks the jobnet every 5 minutes. Therefore, a job status change is applied to NNM symbols a maximum of 5 minutes later than the time at which the status was changed.

- The status monitoring process of the scheduler is common to the physical and logical hosts. If at least one job in the *Warning* or *Abnormal* status exists on a host, regardless of whether the host is a physical host or logical host, the process assumes JP1/AJS3 - Manager to be abnormal and notifies NNM symbols of the abnormal status.

Even if you remove the cause of the status change that is reported to NNM while you are using JP1/AJS3 - Manager or JP1/AJS3 - Agent, the symbol indicating the operation status of JP1/AJS3 - Manager or JP1/AJS3 - Agent is not initialized to keep indicating the status of a higher severity level (for example, if an error occurs in JP1/AJS3 and the

error is reported to NNM, the **JP1AJS2** symbol of NNM remains displayed in the color indicating an error even if you remove the cause of the error). When this occurs, reset the symbol manually.

This section describes how to interpret the **JP1AJS2** symbols shown in the node submap, how to read the messages shown in the Alarms Browser, and how to use detailed information shown in the ajsdetail window, as well as how to reset the status of the **JP1AJS2** symbols.

(1) Interpreting JP1AJS2 symbols shown in the node submap

The colors and meanings of **JP1AJS2** symbols shown in the node submap vary depending on whether the status of JP1/AJS3 - Manager or JP1/AJS3 - Agent is monitored. *Table A-8* shows symbol colors and their meanings when monitoring the status of JP1/AJS3 - Manager. *Table A-9* shows symbol colors and their meanings when monitoring the status of JP1/AJS3 - Agent.

Table A–8: Colors and meanings of JP1AJS3 symbols when monitoring JP1/AJS3 - Manager

Color of symbol (default[1])	Meaning	Severity[2]
Color indicating Unknown (Light blue)	The status is unknown.	1
Color indicating a Normal range (Green)	JP1/AJS3 - Manager is active. JP1/AJS3 - Manager is operating normally.	2
Color indicating a Warning range (Cyan)	Some warning-end jobs exist.	3
Color indicating a Minor alert range (Yellow)	Some abnormal-end jobs exist.	4
Color indicating a Restricted operation (Light pink) Color indicating a Critical range (Red)	• Execution of jobnets in schedule failed. • Job execution failed. • Operation based on an event job failed.	5

#1

   The default symbol colors might differ depending on the NNM you are using.

#2

   The highest severity is 5 and 1 is the lowest.

Table A–9: Colors and meanings of JP1AJS2 symbols when monitoring JP1/AJS3 - Agent

Color of symbol (default[1])	Meaning	Severity[2]
Color indicating Unknown (Light blue)	The status is unknown.	1
Color indicating a Normal range (Green)	JP1/AJS3 - Agent is active. JP1/AJS3 - Agent is operating normally.	2
Color indicating a Restricted operation (Light pink) Color indicating a Critical range (Red)	• Job execution failed. • Operation based on an event job failed.	3

#1

   The default symbol colors might differ depending on the NNM you are using.

#2

   The highest severity is 3 and 1 is the lowest.

The color of a **JP1AJS2** symbol indicates the most serious status among the following operation statuses of the JP1/AJS3 functions:

• Schedule control of jobnets (except when monitoring the status of JP1/AJS3 - Agent)

• Execution control of jobs

• Operation control with event jobs

You can check the status of each function in the ajsdetail window. For further details, see *(3) Viewing detailed information in the ajsdetail window*.

(2) Reading messages in Alarms Browser

When NNM receives an SNMP trap from JP1/AJS3 - Manager or JP1/AJS3 - Agent, it displays detailed information regarding the following statuses in the Alarms Browser:

- Operation status of JP1/AJS3 - Manager

- Execution status of jobs in jobnets of JP1/AJS3 - Manager

- Status of scheduler service of JP1/AJS3 - Manager

- Execution status of event job-based operation control of JP1/AJS3 - Manager

- Operation status of JP1/AJS3 - Agent

- Execution status of event job-based operation control of JP1/AJS3 - Agent

The following describes how to display the Alarms Browser as well as two kinds of message formats and message meanings shown in the Alarms Browser.

You can find out what causes a particular message to appear in the Alarm Browser by checking the messages output to the integrated trace log and scheduler log with reference to *Table A-10*.

- How to display the Status Alarms Browser

  In NNM's **Alarm Categories**, click the **Status Alarms** button.

- Message format 1

  "*object-name*" Status change to "*status*". ("*Status-change-factor-code*")

  object-name

  > Indicates the name of the object.

  status and *status-change-factor-code*

  > See the following table for the status and status change factor code combinations:

Table A–10: Status and status change factor code combinations

Status	Status change factor code	Meaning
Normal	Factor:Start	JP1/AJS3 started operating.[1]
Normal	Factor:Schedule Normal	The scheduling function is operating normally.[2]
Warning	Factor:Job Warning End	Some warning-end jobs exist.[2]
Minor	Factor:Job Abnormal End	Some abnormal-end jobs exist.[2]
Restricted	Factor:Schedule Restricted	Restricted operation by the scheduling function.[2]
Restricted	Factor:jpqmon[3]	The job execution control stopped.[1]
Restricted	Factor:evactiona[4]	Operation with event jobs (agent control) stopped.[1]
Restricted	Factor:jajs_dbmd *embedded-DB-setup-ID*[5]	Database management stopped.[1]
Restricted	Factor:jajs_hstd	Host service management stopped.[1]

Status	Status change factor code	Meaning
`Restricted`	`Factor:jajs_agtd`	Agent service management stopped.[#1]
`Restricted`	`Factor:jajs_schd` *scheduler-service-name*[#6]	Scheduler service management stopped.[#1]
`Restricted`	`Factor:queuea`[#4]	Job execution control stopped.[#1]
`Restricted`	`Factor:jpoagent`[#3]	Operation with event jobs (agent control) stopped.[#1]
`Restricted`	`Factor:Event`	Reception of a JP1 event failed.[#7]
`Restricted`	`Factor:File`	Monitoring of a file failed.[#7]
`Restricted`	`Factor:Mail`	Reception of mail failed.[#7]
`Restricted`	`Factor:Time`	Control of the execution interval failed.[#7]
`Unknown`	`Factor:Schedule Unknown`	The status of the scheduling function is unknown.[#2]
`Critical`	`Factor:Schedule Stop`	The scheduling function stopped.[#2]
`Critical`	`Factor:Stop`	JP1/AJS3 stopped operating.[#1]

#1

Process Manager (process management control of JP1/AJS3) sends the SNMP trap.

#2

Job Schedule (schedule control of jobnets) sends SNMP trap.

#3

This is the status change factor code in messages displayed for NNM in UNIX.

#4

This is the status change factor code in messages displayed for NNM in Windows.

#5

embedded-DB-setup-ID is replaced with the setup identifier of the embedded database.

For example, `jajs_dbmd__JF0` is displayed when the setup identifier of the embedded database is `_JF0`.

#6

scheduler-service-name is replaced with the name of the scheduler service.

For example, `jajs_schd_AJSROOT1` is displayed when the scheduler service name is `AJSROOT1`.

#7

Event Action (operation control with event jobs) sends SNMP trap.

- How to display the Error Alarms Browser

  In NNM's **Alarm Categories**, click the **Error Alarms** button.

- Message format 2

  "*object-name*" Jobnet terminates abnormally. ("*scheduler-service-name*":"*jobnet-name*")

  scheduler-service-name

  Indicates the scheduler service name to which the root jobnet that ended abnormally belongs.

  jobnet-name

  Indicates the root jobnet name that ended abnormally.

You can also obtain details on a message shown in the Alarms Browser by double-clicking the event in the Event setup dialog box in NNM to display the Event change dialog box. However, do not change the settings for the event.

(3) Viewing detailed information in the ajsdetail window

When NNM receives an SNMP trap from JP1/AJS3 - Manager or JP1/AJS3 - Agent, it displays detailed information regarding the operation status of JP1/AJS3 - Manager, execution status of jobs in jobnets, or operation status of JP1/AJS3 - Agent in the ajsdetail window.

The following describes how to display the ajsdetail window and the meaning of the items displayed in the window.
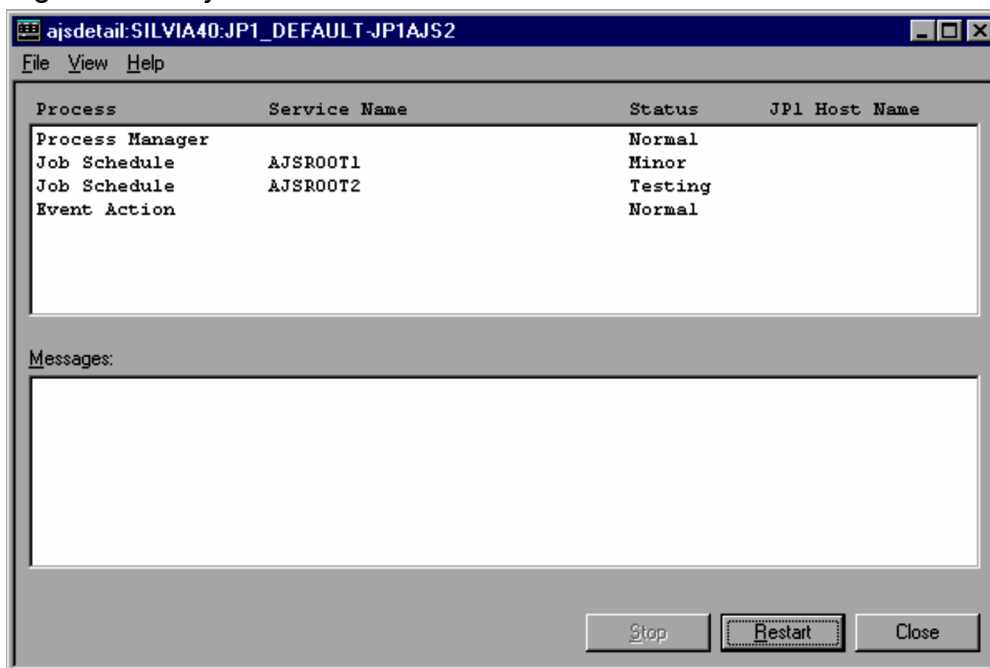
To display the ajsdetail window:

1. Click the **JP1AJS2** symbol about which you want to display detailed information, and then choose **Administer**, **JP1/AJS2 Manager,** and **View Detail**.
   The ajsdetail window appears.
   See the following figure:

Figure A–7: ajsdetail window

Meaning of the items displayed in the ajsdetail window

Title line

   Indicates the object name.

Process

   Displays the names of the JP1/AJS3 functions.

   - `Process Manager`
     Process management control of JP1/AJS3

   - `Job Schedule`
     Schedule control of jobnets.
     Displayed in units of scheduler services.
     This function does not work while the status of JP1/AJS3 - Agent is being monitored.

   - `Event Action`
     Operation control with event jobs

Service Name

> Displays the names of scheduler services.

Status

> Indicates the status of each function. For details, see *(1) Interpreting JP1AJS2 symbols shown in the node submap*.

JP1 Host Name

> Displays the appropriate logical host name when multiple logical hosts are activated.

Message

> Nothing displayed.

Cautionary notes

> When the scheduler service configuration is changed, the status before the change remains in the JP1AJS2 symbol objects. If the status of the scheduler service whose configuration was changed is not correctly reflected in the ajsdetail window, enable the new configuration.

> To enable the new configuration:

> 1. Use the ajsovsymrem command to delete, in one operation, the JP1AJS2 symbols from the node submap.
>   For details on the `ajsovsymrem` command, see *C.3 ajsovsymrem*.

> 2. Restart the JP1/AJS3 service.

> 3. Re-create the JP1AJS2 symbols by the method creating symbols for all hosts.
>   For details, see subsection *A.4(1) Creating symbols*.

(4) Resetting JP1AJS2 symbols

If, after JP1/AJS3 - Manager or JP1/AJS3 - Agent has reported an operation status to NNM, you remove the factor of the status change, reset the **JP1AJS2** symbol. Usually, you must reset it to the **Normal**. However, if you are not sure about the operation status or execution status of jobs, reset it to **Unknown**.

To reset the **JP1AJS2** symbol:

1. Click the **JP1AJS2** symbol that you want to reset. Then, choose **Administer**, **JP1/AJS2 Manager**, **Initial symbol** and **Normal** or **Unknown**.
   The **JP1AJS2** symbol is reset to a **Normal** or an **Unknown** status.

A.6 Monitoring any status that a user has reported

The color of the **AJS2USER** symbol allows you to determine a status that a user has reported. In addition, you can obtain detailed information regarding the status in the Alarms Browser.

When the OpenView Status Report job is executed, an SNMP trap for reporting the status is sent to NNM. NNM displays the symbol in the color corresponding to the reported status.

After a status is reported to NNM, even if NNM stops monitoring the status, it does not reset the symbol. When this occurs, reset the symbol manually.

This section describes how to interpret the **AJS2USER** symbols shown in the node submap, how to read messages shown in the Alarms Browser, and how to reset the status of the **AJS2USER** symbols.

(1) Interpreting AJS2USER symbols shown in the node submap

The following table lists the colors and meanings of **AJS2USER** symbols shown in the node submap:

Table A–11: Colors and meanings of AJS2USER symbols

Color of symbol (default#)	Meaning
Color indicating a Normal range (Green)	Decided by the user
Color indicating a Warning range (Cyan)	Decided by the user
Color indicating a Minor alert range (Yellow)	Decided by the user
Color indicating a Critical range (Red)	Decided by the user
Color indicating Unknown (Light blue)	Decided by the user
Color indicating a Restricted operation (Light pink)	Decided by the user
Color indicating a Major alert range (Orange)	Decided by the user
Color indicating Testing (Tan)	Decided by the user
Color indicating Disabled (Dark red)	Decided by the user

Note
    The **AJS2USER** symbols have no severity settings.

#
    The default symbol colors might differ depending on the NNM you are using.

Note that the color of the **AJS2USER** symbol does not change even if the JP1/AJS3 stops operating.

(2) Reading messages in the Alarms Browser

When NNM receives an SNMP trap from JP1/AJS3 - Manager or JP1/AJS3 - Agent, it displays detailed information regarding the reported status in the Alarms Browser.

The following describes how to display the Alarms Browser as well as the message format and message meaning shown in the Alarms Browser.

How to display the Status Alarms Browser
    In NNM's **Alarm Categories**, click the **Status Alarms** button.
Message format
    "*object-name*" Status change to "*status*". ("*user-specified-code*")

    object-name
        Indicates the name of the object.

    status
        Indicates a status that a user has specified.

    user-specified-code
        Indicates a code that a user has specified.

(3) Resetting AJS2USER symbols

If monitoring status terminates on the NNM side, reset the **AJS2USER** symbol to either the **Normal range** or **Unknown**.

To reset the **AJS2USER** symbol:

1. Click the **AJS2USER** symbol that you want to reset, and from **Administer** choose **JP1/AJS2 Manager**, **Initial Symbol** and **Normal** or **Unknown**.

   The **AJS2USER** symbol is reset to a **Normal** or an **Unknown** status.

A.7 Checking the operating environment of JP1/AJS3 - Manager

You can check the operating environment of JP1/AJS3 - Manager from NNM.

The information you can check includes the name of the JP1/AJS3 scheduler service, operation status of the JP1/AJS3 scheduler, and operation start time.

To check the operation status of JP1/AJS3 - Manager from NNM:

1. Execute the `ovw` command in NNM.

   The IP Map appears.

2. Click the host for which you want to check the operating environment, and choose **Administer**, **JP1/AJS2 Manager** and **View Status**.

   The ajsstatus window appears.

   See the following figure:

   Figure A–8: ajsstatus window
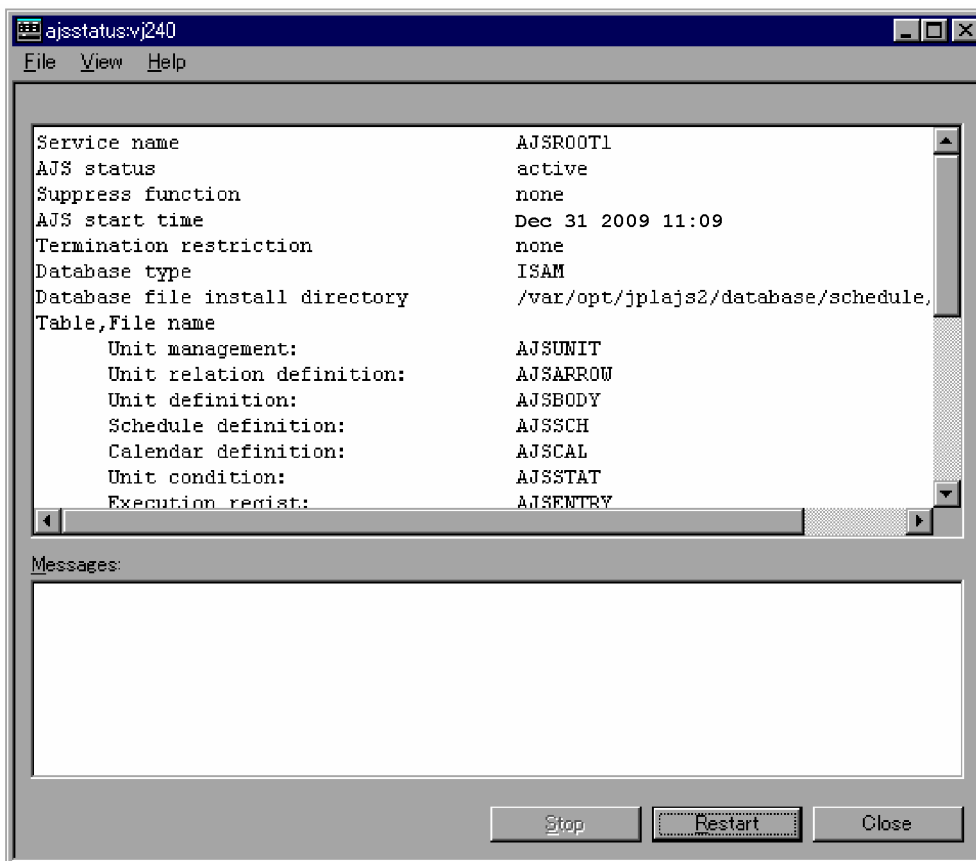
3. Check the operating environment of JP1/AJS3 - Manager.

   For details about the contents displayed in the ajsstatus window, see *ajsstatus* in *3. Commands Used for Normal Operations* in the manual *JP1/Automatic Job Management System 3 Command Reference*.

Cautionary note

In the ajsstatus window, to display the information of the operating environment of JP1/AJS3, you must set the user mapping in the target host. In the user mapping, set the name of the user who enters the `ovw` command and the name of the OS user for the requests from the host where NNM is started. For details on how to set the user management function of JP1/Base, see *3.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* (for Windows) or *13.1.1 Setting up JP1/Base* in the *JP1/Automatic Job Management System 3 Configuration Guide* (for UNIX).

In the ajsstatus window, to display the information of the operating environment of JP1/AJS3, JP1/AJS3 - Manager must be installed in the host where NNM is installed.

A.8 Monitoring the status of executed jobnets

When you are using NNM, you can activate JP1/AJS - View from NNM. You can monitor the status of executed jobnets managed by JP1/AJS3 - Manager in the Jobnet monitor, Daily schedule, and Monthly schedule windows of JP1/AJS - View.

To activate JP1/AJS - View from NNM:

1. Execute the `ovw` command of NNM.

   The IP Map appears.

2. Click the symbol of the host for which you want to check the status of executed jobnets, and choose **Administer**, **JP1/AJS2 Manager**, and **JP1/AJS2 - View**.

   JP1/AJS - View is activated.

3. Check the status of executed jobnets using the Jobnet monitor and other windows.

Supplementary notes

- You cannot change the attributes of unit elements, schedule information, and other information with the JP1/AJS - View activated in NNM.

- If you have created the **JP1AJS2** symbol, double-clicking the symbol activates JP1/AJS - View.

- JP1/AJS3 - View and JP1/AJS2 - View 08-00 or later are not supported in HP-UX and Solaris. You must be running Windows to link with JP1/AJS3 - View and JP1/AJS2 - View 08-00 or later.

A.9 SNMP traps

This section describes SNMP traps used when monitoring JP1/AJS3 - Manager and JP1/AJS3 - Agent.

(1) Defining objects

Objects are classified into two types:

- Objects representing the status of JP1/AJS3 (objects representing the operation status of JP1/AJS3 - Manager, execution status of jobs in jobnets, and operation status of JP1/AJS3 - Agent)

- Objects representing a status that a user has reported

(a) Objects representing the status of JP1/AJS3

The following describes the selection name and symbol attribute of objects representing the status of JP1/AJS3:

■ Selection name

Format

> *host-name*:*logical-host-name*-JP1AJS2

> *host-name*
>> In *host-name*, the host name for JP1/AJS3 - Manager or JP1/AJS3 - Agent is set.

> *logical-host-name*
>> In *logical-host-name*, the logical host name for JP1/AJS3 - Manager or JP1/AJS3 - Agent is set.
>> If they do not have a logical host name, JP1_DEFAULT is set.

■ Symbol attributes

The following table lists the attributes of the **JP1AJS2** symbol:

Table A–12: JP1AJS2 symbol attributes

Attribute	Description
Label	JP1AJS2 (or *logical-host-name*-JP1AJS2 only when JP1/AJS3 has a logical host name)
Icon symbol class	Software:Process
Status source	Object status
Operation of symbol	Executable
Action	Activates JP1/AJS3 - View.

(b) Objects representing a status that a user has reported

The following describes the format of the objects representing a status that a user has reported:

■ Selection name

Format

> *host-name*:*logical-host-name*-AJS2USER

> *host-name*
>> In *host-name*, the host name for JP1/AJS3 - Manager or JP1/AJS3 - Agent is set.

> *logical-host-name*
>> In *logical-host-name*, the logical host name for JP1/AJS3 - Manager or JP1/AJS3 - Agent is set.
>> If they do not have a logical host name, JP1_DEFAULT is set.

■ Symbol attributes

The following table lists the attributes of the **AJS2USER** symbol:

Table A–13: AJS2USER symbol attributes

Attribute	Description
Label	AJS2USER

Attribute	Description
Icon symbol class	Software:Process
Status source	Object status
Operation of symbol	Not executable
Action	None

(c) Detailed event definition

See Tables A-14 to A-16 for detailed event definition information for the following three traps:

- Jp1ajs2_Sts_Report
- Jp1ajs2_Sts_Caution
- Jp1ajs2_Err_Jobnet

Table A–14: Detailed event definition (trap name: Jp1ajs2_Sts_Report)

Item	Description
Trap name	Jp1ajs2_Sts_Report
Object ID	.1.3.6.1.4.1.116.7.17.10
Extended trap ID	6
Severity	1
Message format#	$A:$2-$5 Status change to $7.($8)
Message details	This trap is reported for JP1/Automatic Job Management System 2 status changed.

\#

    The parameters in the message are:

    $A: Host name

    $2: JP1 host name

    $5: Label name

    $7: Status

    $8: Additional information

Table A–15: Detailed event definition (trap name: Jp1ajs2_Sts_Caution)

Item	Description
Trap name	Jp1ajs2_Sts_Caution
Object ID	.1.3.6.1.4.1.116.7.17.10
Extended trap ID	6
Severity	2
Message format#	$A:$2-$5 Status change to $7.($8)
Message details	This trap is reported for JP1/Automatic Job Management System 2 status changed.

\#

    The parameters in the message are:

    $A: Host name

    $2: JP1 host name

    $5: Label name

$7: Status

$8: Additional information

Table A–16: Detailed event definition (trap name: Jp1ajs2_Err_Jobnet)

Item	Description
Trap name	Jp1ajs2_Err_Jobnet
Object ID	.1.3.6.1.4.1.116.7.17.10
Extended trap ID	6
Severity	21
Message format[#]	$A: $2-$5 Jobnet terminates abnormally. ($3:$4)
Message details[#]	This trap is reported that jobnet terminates abnormally on JP1/Automatic Job Management System 2. ($3: AJS service name, $4: Jobnet name)

Note

The Jp1ajs2_Err_Jobnet trap reports the abnormal end of a root jobnet to **Error alarm**. This trap does not change the status of the **JP1AJS2** symbol.

#

The parameters in the message are:

$A: Host name

$2: JP1 host name

$3: AJS service name

$4: Jobnet name

$5: Label name

(d) Additional fields

The following table describes additional fields:

Table A–17: Additional fields

Field name	Type	Flag	Description
isJP1NNM	boolean	capability	Indicates whether a management object is of the JP1 series or not. 0: Not a management object of JP1 series 1: A management object of JP1 series
isJP1AJS2	boolean	capability	Indicates whether a management object is of JP1/AJS3 or not. 0: Not a management object of JP1/AJS3 1: A management object of JP1/AJS3
isJP1AJS2Submap	boolean	capability	Indicates whether the object managed by JP1/AJS3 has a submap. 0: Does not have a submap. 1: Has a submap.
isJP1AJS2Action	boolean	capability	Indicates whether the symbol managed by JP1/AJS3 has an action. 0: Does not have an action. 1: Has an action.
isJP1AJS2Type	boolean	capability	Indicates the type of symbol managed by JP1/AJS3. 0: **JP1AJS2** symbol 1: **AJS2USER** symbol

Field name	Type	Flag	Description
isJP1AJS2Del	boolean	capability	Indicates whether the object managed by JP1/AJS3 has been deleted. 0: Has not been deleted. 1: Has been deleted.

jp1ajs2 Control	Enumeration	capability	Indicates who controls the object managed by JP1/AJS3.
			jp1ajs2
			    JP1/AJS3 management
			spm
			    Process management
			queue
			    Queuing
			schedule
			    Scheduler
			evactionm
			    Event action control manager
			evactiona
			    Event action control agent

jp1ajs2 Status	Enumeration	capability	Indicates the status of the symbol managed by JP1/AJS3. • Unknown • Normal • Warning • Minor • Major • Critical • Restricted • Testing • Disabled
jp1ajs2 SymbolType	Enumeration	capability	Indicates the symbol type of the symbol managed by JP1/AJS3. Software:Process Software process
jp1ajs2 HostName	string	general	Indicates the host name of the instance of JP1/AJS3 being monitored.
jp1ajs2 jp1HostName	string	general	Indicates the logical host name of the instance of JP1/AJS3 being monitored.
isJP1AJS2ObjExist	boolean	capability	Indicates whether the management object of JP1/AJS3 associates with the map. (Used for a context function) 0: The management object of JP1/AJS3 does not exist. 1: The management object of JP1/AJS3 exists.
jp1ajs2 AJSServiceName$n$ (n is a value between 1 and 9. 9 fields in total)	string	general	Indicates the service name of the instance of JP1/AJS3 being monitored.
jp1ajs2 Status AJSServ$n$ (n is a value between 1 and 9. 9 fields in total)	Enumeration	capability	Indicates the status of object managing of the JP1/AJS3 service. • Unknown • Normal

Field name	Type	Flag	Description
jp1ajs2 Status AJSServ*n* (*n* is a value between 1 and 9. 9 fields in total)	Enumeration	capability	• Warning • Minor • Major • Critical • Restricted • Testing • Disabled

A.10 MIB objects (UNIX only)

When an environment for using HP NNM linkage is set up in JP1/AJS3 - Manager on a UNIX host, jobnet statistical information is registered in MIB objects.

The following figure illustrates the configuration of MIB objects in which jobnet statistical information is registered.

Figure A–9: Configuration of MIB objects
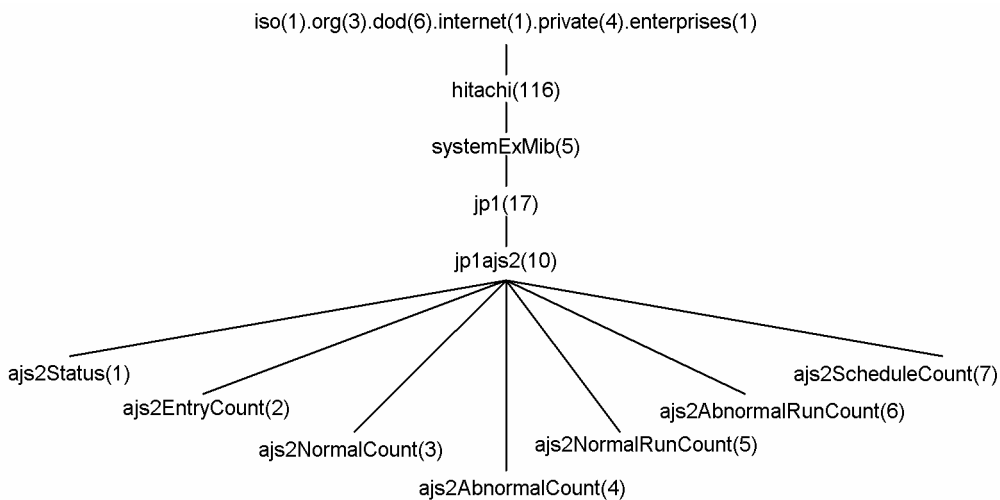
The following table lists MIB objects under jp1ajs2.

Table A–18: MIB objects under jp1ajs2

Object ID	Object name	Syntax	Description

1	ajs2Status	DisplayString	The status of JP1/AJS3
			
			Unknown
			    The status is unknown.
			
			Normal
			    Executing normally.
			
			Minor
			    Some abnormal-end jobs exist.
			
			Warning
			    Some warning-end jobs exist.
			
			Critical
			    Stopped.

Object ID	Object name	Syntax	Description
1	ajs2Status	DisplayString	Restricted Restricted processing
2	ajs2EntryCount	Gauge	Number of registered jobnets
3	ajs2NormalCount	Gauge	Number of normal-end jobnets as of the current date
4	ajs2AbnormalCount	Gauge	Number of abnormal- or warning-end jobnets as of the current date
5	ajs2NormalRunCount	Gauge	Number of jobnets being executed
6	ajs2AbnormalRunCount	Gauge	Number of jobnets for which abnormal-end or warning is detected
7	ajs2ScheduleCount	Gauge	Number of jobnets scheduled as of the current date

B. Events Reported to HP NNM

Table B-1 and *Table B-2* cover the formats of the SNMP traps reported by JP1/AJS3 to HP NNM.

Table B-3 describes the format of an SNMP trap that is sent only when the root jobnet ended abnormally (specific trap associated with the Jp1ajs2_Err_Jobnet event).

Table B–1: SNMP trap format (1)

Enterprise ID	1.3.6.1.4.1.116.7.17.10			
General trap number	6			
Specific trap number	1~2			
Object ID	*Enterprise-ID*.1.1.0	*Enterprise-ID*.1.2.0	*Enterprise-ID*.1.3.0	*Enterprise-ID*.1.4.0
Value syntax	octetstring	octetstring	octetstring	octetstring
Value	Control name	Logical host name	JP1 symbol type	Scheduler service name

Table B–2: SNMP trap format (2)

Enterprise ID	1.3.6.1.4.1.116.7.17.10			
General trap number	6			
Specific trap number	1~2			
Object ID	*Enterprise-ID*.1.5.0	*Enterprise-ID*.1.6.0	*Enterprise-ID*.1.7.0	*Enterprise-ID*.1.8.0
Value syntax	octetstring	octetstring	octetstring	octetstring
Value	Symbol label name	Symbol type	Symbol status Unknown Normal Warning Minor Major Critical Restricted Testing Disabled	Additional information

Table B–3: SNMP trap format (3)

Enterprise ID	1.3.6.1.4.1.116.7.17.10				
General trap number	6				
Specific trap number	21				
Object ID	*Enterprise-ID*.1.1.0	*Enterprise-ID*.1.2.0	*Enterprise-ID*.1.3.0	*Enterprise-ID*.1.4.0	*Enterprise-ID*.1.5.0
Value syntax	octetstring	octetstring	octetstring	octetstring	octetstring
Value	Control name	Logical host name	Scheduler service name	Jobnet name	Symbol label name

For details on how to suppress sending SNMP traps for these events, see *A.2(4) Disabling SNMP trap transmission* (for Windows), or *A.3(2) Disabling SNMP trap transmission* (for UNIX) .

C. Commands Used When Linking with HP NNM

The following table lists the commands used when linking with HP NNM.

Table C–1: Commands used for HP NNM linkage

Function	Command name	Windows	UNIX	Required privileges	Supported products
Configures the registration files associated with the HP NNM	ajsovsetup	Y[#]	Y	Windows: Administrators UNIX: Superuser	M, A, and V
Removes the registration files associated with the HP NNM	ajsovremove	Y[#]	Y	Windows: Administrators UNIX: Superuser	M, A, and V
Deletes the JP1/AJS2 symbols from NNM	ajsovsymrem	Y[#]	Y	None	M, A, and V
Issues SNMP traps	ajsovtrap	--	Y	None	M

Legend:

Y: Supported

--: Not supported

M: JP1/AJS3 - Manager

A: JP1/AJS3 - Agent

V: JP1/AJS3 - View

[#]

Not supported in Windows Server 2016, Windows Server 2012, and Windows Server 2008.

C.1 ajsovsetup

Format

```
ajsovsetup
```

Description

Configures the registration files for HP NNM.

The following files are configured:

- Application management file
- Field definition file
- Trap action definition file
- Trusted command definition file
- Extended MIB definition file (UNIX only)

Execution privileges

In Windows: Administrators privilege

In UNIX: Superuser privilege

Notes

- When linking with NNM on a Solaris host, do not execute the `ajsovsetup` command without first setting the setup language for the HP NNM in the `LANG` environment variable. For details on the values you can use for the `LANG` environment variable when linking with the HP NNM linkage, see the documentation for the HP NNM.

- When you execute the `ajsovsetup` command in UNIX, MIB definition information for JP1/AJS3 is added to or removed from the extended MIB definition file. For the new MIB definition information to take effect, you must restart the SNMP agent.

    For details on restarting the SNMP agent, see the *Job Management Partner 1/Consolidated Management 2/ Extensible SNMP Agent Description, Operator's Guide and Reference*.

Return values

0	Normal end
Other than 0	Abnormal end

Additional information

The `ajsovsetup` command takes no arguments. Any arguments you specify are ignored.

Example

To configure the registration files for HP NNM:

```
ajsovsetup
```

C.2 ajsovremove

Format

```
ajsovremove
```

Description

Removes the registration files associated with the HP NNM.

The following files are removed:

- Application management file

- Field definition file

- Trap action definition file

- Trusted command definition file

- Extended MIB definition file (UNIX only)

Execution privileges

In Windows: Administrators privilege

In UNIX: Superuser privilege

Notes

- Execute the `ajsovremove` command on the monitoring host (where NNM is installed) and the monitored host (where JP1/AJS3 is installed)

- When unlinking from NNM on a Solaris host, do not execute the `ajsovremove` command without first setting the setup language that you set when you executed `ajsovsetup` command for the HP NNM in the `LANG` environment variable.

- When you execute the `ajsovremove` command in UNIX, MIB definition information for JP1/AJS3 is removed from the extended MIB definition file. To invalidate this definition information, you must restart the SNMP agent.

  For details on restarting the SNMP agent, see the *Job Management Partner 1/Consolidated Management 2/ Extensible SNMP Agent Description, Operator's Guide and Reference*.

Return values

0	Normal end
Other than 0	Abnormal end

Additional information

The `ajsovsetup` command takes no arguments. Any arguments you specify are ignored.

Example

To remove the registration files for HP NNM:

```
ajsovremove
```

C.3 ajsovsymrem

Format

```
ajsovsymrem
```

Description

Deletes the JP1/AJS3 symbols from NNM when linking with HP NNM.

Execution privileges

None

Notes

- The `ajsovsymrem` command requests deletion of the NNM objects that manage the symbols. The actual deletion of the symbols and objects takes place when you start NNM, or execute the **For All hosts** command in the NNM menu (by choosing **Administer**, **JP1/AJS2 Manager**, **Create symbol**, and then **For All hosts**).

- In UNIX, do not execute the `ajsovsymrem` command without first setting the setup language that you set when you executed the `ajsovsetup` command for the HP NNM in the `LANG` environment variable.

Return values

0	Normal end
Other than 0	Abnormal end

Additional information

The `ajsovsetup` command takes no arguments. Any arguments you specify are ignored.

Example

To delete the JP1/AJS3 symbols from NNM when linking with HP NNM:

```
ajsovsymrem
```

C.4 ajsovtrap (UNIX only)

Format

```
ajsovtrap
     [-F service-name]
     [-m node-name]
     [-o company-ID]
     [-a agent-address]
     -n extended-trap-number
     object-ID
     value-syntax
     value
```

Description

Issues SNMP traps.

Under normal circumstances, this command is called from a scheduler service. However, when monitoring the status of JP1/AJS3 - Manager, a user can use this command to issue SNMP traps to the manager for HP NNM.

Execution privileges

None

Arguments

-F *service-name*

Specify the name of the scheduler service.

The name can be 1 to 30 bytes in length.

The SNMP trap destination is notified of the scheduler service name specified in this option.

When omitted, AJSROOT1 is used.

-m *node-name*

Specify the IP address or host name of the SNMP trap destination (the HP NNM manager).

The host name can be 1 to 255 bytes in length.

When omitted, SNMP traps are sent to all the nodes specified for the trap-dest parameter in the configuration definition file for the SNMP agent.

-o *company-ID*

Specify sysObjectID.

If you omit this option, the system assumes .1.3.6.1.4.1.116.7.17.10.

-a *agent-address*

Specify the IP address or host name of the instance of JP1/AJS3 - Manager that serves as the SNMP trap source (the HP NNM agent).

The host name can be 1 to 255 bytes in length.

When omitted, the system assumes the name of the host from which the

command is executed.

-n *extended-trap-number*

Specify an integer representing the extended trap number.

You can specify 1 or 2.

object-ID

Specify the object ID, without the company ID component.

For example, if you specify `2` as the object ID, the object ID set for the `snmptrap` command is `.`
`1.3.6.1.4.1.116.7.17.10.2.0`.

value-syntax

Select the value syntax from among the following eight items:

- `integer`
- `octetstring`
- `objectidentifier`
- `ipaddress`
- `counter`
- `gauge`
- `timeticks`
- `opaque`

value

Specify a value that confirms to the value syntax.

For details, see the documentation for HP NNM.

Notes

- This command is only available for UNIX. You cannot execute this command in Windows.
- SNMP traps are implemented by UDP (User Datagram Protocol); therefore, the reliability of SNMP trap notification to the HP NNM manager depends on the UDP protocol.

Example

The following command uses an SNMP trap to notify the HP NNM manager (`Manager`) that the status of JP1/AJS3 - Manager is unknown.

```
ajsovtrap -m Manager -n 2 1 octetstring Unknown
```

D. Version Revisions

This appendix lists the changes in each version of the JP1/AJS series programs.

D.1 Revisions in 11-50

The following lists the revisions in 11-50 for each program.

(1) JP1/AJS3 - Manager

- The Web GUI now support the following functions:
  - Viewing monthly schedules
  - Adding execution schedules
  - Change plan (change time)
  - Change plan (execute immediately)
  - Change plan (execution prohibited)
  - Change plan (release change)
  - Change delay monitor
- The API now supports the function to acquire unit information.
- The maximum size of the Java heap on the Web Console server can now be changed, and the default value was changed from 512 MB to 2,048 MB.
- A function was added to enable you to change the colors indicating unit statuses displayed in the windows and dialog boxes of the Web GUI.
- The map area in the Monitor dialog box and the Monitor screen of the Web GUI can now switch between displaying unit names and comments.
- The following functions were added to improve job throughput when multiple scheduler services are active:
  - Function to reduce the number of ports that are used during job execution
  - Function to output trace logs for each scheduler service

  In addition to the changes to internal processing, the JP1/AJS3 performance processing that runs when multiple root jobnets start at the same time was improved. As a result, job throughput when a single scheduler service is active was also improved.
- The maximum number of execution agents that can be registered on one manager host can now be increased to 2,048.
- To enable the comments on units to be viewed in JP1/IM windows, commenting on units was added as an extended attribute (specific information) of a JP1 event whose `OBJECT_TYPE` is `JOBNET` or `JOB`.
- Commands to specify settings of environment setting parameters were integrated into the `jajs_config` command.
- When the scheduler service is restarted, a job that meets specific conditions now transitions to *Wait for prev. to end* or to *Not executed + Ended* status (and *not to Unknown end* status). This enables you to determine, from the job status after the restart of the scheduler service, whether a user program has started.

(2) JP1/AJS3 - Agent

- Commands to specify settings of environment setting parameters were integrated into the `jajs_config` command.

(3) JP1/AJS3 - Agent Minimal Edition

- Descriptions were added concerning JP1/AJS3 - Agent Minimal Edition, which limits the number of jobs that can be executed per day to 10.

D.2 Revisions in 11-10

The following lists the revisions in 11-10 for each program.

(1) JP1/AJS3 - Manager

- The Web GUI and API now support the following functions:
  Web GUI

  - Check execution schedule

  - Interrupt

  - Kill

  - Rerun

  - Change job status

  - Change detailed definitions for PC jobs and Unix jobs

  - Filter monitoring targets by execution status

  API

  - Fixed execution registration (specifying a specific date and time)

  - Change plan (change time)

  - Change plan (execute immediately)

  - Change plan (execution prohibited)

  - Change plan (release change)

  - Change hold attribute

  - Interrupt

  - Kill

  - Rerun

  - Change delay monitor

  - Change job status

  - Obtain execution result details for units

  - Obtain the protocol version of JP1/AJS3 - Manager

- JP1/IM and JP1/AJS3 - Web Console can now be linked so that the Web GUI can be displayed from an email sent by an automated action of JP1/IM - View or JP1/IM.

- JP1/PFM and JP1/AJS3 - Web Console can now be linked so that PFM - Web Console can be launched from the Web GUI.

- The `ajscalutil` command was added. This command calculates multiple calendars and outputs the results.

- A function was added to set a hold attribute for the first execution generation created by registering a jobnet for planned execution or fixed execution.

- The job distribution delay reduction function was added. (When a job is to be executed concurrently on multiple execution agents, if a communication failure occurs on some execution agents, this function reduces the delay in job distribution to the normally operating execution agents.)

- In HP-UX, AIX, and Linux, the architecture of most JP1/AJS3 - Manager processes was changed to 64-bit architecture. Note that the following processes were not changed to 64-bit architecture: `jpqman32`, `jpqimport`, `jpqexport`, `jpqdbcond`, `jajs_maintain`, and `jajs_migrate`.

- The broadcast function was added. This function distributes a job to multiple execution agents by using a flexible job.

- When the `ajswebsetup` command is run with the `-s` option (option for setting up the standby system) specified, the command now ends normally even if no shared disk is mounted.

(2) JP1/AJS3 - Agent

- In HP-UX, AIX, and Linux, the architecture of most JP1/AJS3 - Agent processes was changed to 64-bit architecture.

- The broadcast function was added. This function distributes a job to multiple execution agents by using a flexible job.

(3) JP1/AJS3 - View

- A function was added to set a hold attribute for the first execution generation created by registering a jobnet for planned execution or fixed execution.

- The broadcast function was added. This function distributes a job to multiple execution agents by using a flexible job.

- The multiuser remote desktop connection function was added. This function allows multiple users to use JP1/AJS3 - View via remote desktop connections.

- A function was added that allows each JP1 user to use different custom jobs in JP1/AJS3 - View.

D.3 Revisions in 11-00

The following lists the revisions in 11-00 for each program.

(1) JP1/AJS3 - Manager

- The supported language types were changed. The specific combinations of languages that are supported when using JP1/AJS3 in multi-language environments was also changed.

- JP1/AJS3 - Web Console was added as a component of JP1/AJS3 - Manager. JP1/AJS3 - Web Console allows you to monitor units over the Internet from a web browser, and develop custom programs that use APIs to perform operations on units.

- JP1/AJS3 - Print Option was incorporated into JP1/AJS3 - Manager. You can use JP1/AJS3 - Print Option to display and print unit information with a customized layout.

- Messages between hosts such as agent hosts and JP1/AJS3 - View hosts can now be encrypted using SSL.

- A *flexible job* was added as a job type. This job allows processing to be executed on an agent host that cannot be managed directly from the manager host. For example, you might use a flexible job with an execution agent in an auto-scaling environment. Although the definition of a flexible job is not OS-dependent, flexible jobs can only be executed in Windows and Linux environments.

- An *HTTP connection job* was added as a job type. This job can send requests to HTTP interfaces such as web APIs provided by cloud environments and web servers. Although the definition of an HTTP connection job is not OS-dependent, HTTP connection jobs can only be executed in Windows and Linux environments.

- The initial values of the following environment setting parameters were changed to reflect the recommended values:
  - `UNITDEFDIVIDEUPDATE`
  - `AJSPRINTSORTUNITINF`
  - `ReceiveFileSizeStatus`
  - `LoadUserProfile`
  - `IsAccessTokenCache`
  - `MergeEnvMode`
  - `NotfyJobStateCount`
  - `PassingInfoUsePreRc`
  - `FileWriteMode`
  - `ResolveAgentInfo`
  - `RetryAgtStartNotification`

- The environment setting parameters that require assessment in the design stage of JP1/AJS3 were reviewed, and corresponding improvements were made to the manual.

- An option was added that causes JP1/AJS3 - Manager to continue waiting when the status of a unit whose end is being waited for changes after re-execution of its succeeding unit. The behavior of JP1/AJS3 - Manager when waiting is enabled after a new installation of JP1/AJS3 was also changed.

- The following OS is supported:
  - CentOS 6(x64)
  - CentOS 7
  - Linux 6.1(x64)
  - Linux 7.1
  - Oracle Linux 6(x64)
  - Oracle Linux 7
  - SUSE Linux 12

- The following OS is no longer supported:
  - Windows Server 2008 (excluding Windows Server 2008 R2)
  - Windows Server 2003
  - Windows Server 2003(x64)
  - Linux 6.1(x86) or later
  - Linux 5.1(x86) or later
  - Linux 5.1(AMD/Intel 64) or later

- Support for Outlook 2003 linkage was eliminated. JP1/AJS3 - Manager now supports linkage with Outlook 2013 (32 bit) and Outlook 2010 (32 bit).

- JP1/AJS3 Console is now compatible with earlier versions.

(2) JP1/AJS3 - Agent

- The supported language types were changed. The specific combinations of languages that are supported when using JP1/AJS3 in multi-language environments was also changed.

- Messages exchanged with JP1/AJS3 - Manager can now be encrypted using SSL.

- Flexible jobs can now be executed (Windows and Linux only).

- HTTP connection jobs can now be executed (Windows and Linux only).

- The initial values of the following environment setting parameters were changed to reflect the recommended values:
  - `LoadUserProfile`
  - `IsAccessTokenCache`
  - `MergeEnvMode`
  - `NotfyJobStateCount`
  - `FileWriteMode`
  - `ResolveAgentInfo`
  - `RetryAgtStartNotification`

- The environment setting parameters that require assessment in the design stage of JP1/AJS3 were reviewed, and corresponding improvements were made to the manual.

- The following OS is supported:
  - CentOS 6(x64)
  - CentOS 7
  - Linux 6.1(x64)
  - Linux 7.1
  - Oracle Linux 6(x64)
  - Oracle Linux 7
  - SUSE Linux 12

- The following OS is no longer supported:
  - Windows Server 2008 (excluding Windows Server 2008 R2)
  - Windows Server 2003
  - Windows Server 2003(x64)
  - Linux 6.1(x86) or later
  - Linux 5.1(x86) or later
  - Linux 5.1(AMD/Intel 64) or later

- Support for Outlook 2003 linkage was eliminated. JP1/AJS3 - Manager now supports linkage with Outlook 2013 (32 bit) and Outlook 2010 (32 bit).

(3) JP1/AJS3 - View

- The supported language types were changed. The specific combinations of languages that are supported when using JP1/AJS3 in multi-language environments was also changed.

- Messages exchanged with JP1/AJS3 - Manager can now be encrypted using SSL.

- Flexible jobs can now be defined in the Define Details dialog box.

- HTTP connection jobs can now be defined in the Define Details dialog box.

- The paste commands in the menu of the Jobnet Editor window were replaced with two new commands. One is the **Paste (Units and relations)** command, which pastes icons, the coordinates of the icons, and the relation lines between icons. The other is the **Paste (Units only)** command which pastes icons and their coordinates.

- An option was added that allows you to set the display order of items in the tree area and list area of the JP1/AJS3 - View window (Main window).

- An option was added that allows you to change where the current day is positioned in the Time area and Schedule area of the Monthly Schedule window.

- The settings below now apply as the default settings for all windows. You can customize these settings in JP1/AJS3 - View.

  - A question mark (**?**) is used as the icon for unregistered custom jobs.

  - Units in the tree area are displayed in the same order as the list area.

- The settings below now apply as the default settings in JP1/AJS3 - View windows. You can customize these settings in JP1/AJS3 - View.

  - Job groups and planning groups are selected in the list area when the JP1/AJS3 - View window (Main window) is displayed

  - The same units remain selected and the scroll position is maintained when you refresh the window contents or specify list filtering

  - A confirmation message is displayed before deleting a defined schedule rule for a nested jobnet for which the **Depends on upper-level jobnet** check box is selected

  - Jobnets that have been registered for execution appear in the list area when **Jobnet Definition** is selected in **Function Menu**

- The following settings now apply as the default settings in the Jobnet Editor window. You can customize these settings in JP1/AJS3 - View.

  - Nested jobnets and nested remote jobnets are selected in the map area when the Jobnet Editor window is displayed

  - Users are prevented from opening multiple Jobnet Editor windows

- The following settings now apply as the default settings in the Jobnet Monitor window. You can customize these settings in JP1/AJS3 - View.

  - The contents of the Execution Result Details dialog box are not automatically refreshed

  - The Execution Result Details dialog box is displayed in large size

  - Users are prevented from opening multiple Jobnet Monitor windows

  - Jobs are displayed directly in the map area when displaying the Jobnet Monitor window from JP1/IM - View

- Color images are now used to represent the execution status, execution results, and delays in **Status** and **Result** in the list area and **Status** in the detailed information area of the JP1/AJS3 - View window (Main window).

- The following units are now hidden by default in the icon list in the Jobnet Editor window:

  - Remote jobnet

- Receive MQ Message job
- Receive MSMQ Message job
- Send MQ Message job
- Send MSMQ Message job
- Support for Windows 10 has been added.
- The following OS is no longer supported:
  - Windows Server 2008 (excluding Windows Server 2008 R2)
  - Windows Vista
  - Windows Server 2003
  - Windows Server 2003(x64)
  - Windows XP Professional

D.4 Revisions in 10-50

The following lists the revisions in 10-50 for each program.

(1) JP1/AJS3 - Manager

- A virtual machine on which JP1/AJS3 has been installed and configured can now be duplicated.
- Functionality was expanded so that a disaster recovery environment can be set up with the main and remote hosts whose logical host names are the same.
- A setting for shifting the start day by a number of days (counting both open and closed days) was added.
- A function that holds jobnet execution during immediate execution registration was added.
- A function that can execute some commands from JP1/AJS3 - View to JP1/AJS3 - Manager was added.
- The files `jajs_log.bat` and `jajs_log`, which have the same functionality as the data collection tool (`_04.bat` and `_04`), are now available. In addition, an option was added to the Windows version of the data collection tools that allows you to specify the location to which data is output.
- An option was added to the `ajsprint` command so that relation line information can be output in order of the unit name.
- The procedure for changing the IP address of an agent host was changed.
- UTF-8 was added to the list of character encodings that can be used in AIX, HP-UX, and Solaris 10.
- The number of characters that can be used when specifying a logical host name for the command `jajs_killall.cluster` was increased.

(2) JP1/AJS3 - Agent

- The files `jajs_log.bat` and `jajs_log`, which have the same functionality as the data collection tool (`_04.bat` and `_04`), are now available. In addition, an option was added to the Windows version of the data collection tools that allows you to specify the location to which data is output.
- The procedure for changing the IP address of an agent host was changed.
- UTF-8 was added to the list of character encodings that can be used in AIX, HP-UX, and Solaris 10.

- The number of characters that can be used when specifying a logical host name for the command `jajs_killall.cluster` was increased.

(3) JP1/AJS3 - View

- A setting for shifting the start day by a number of days (counting both open and closed days) was added to the **Schedule by days from start** settings in the **Advanced** tab of the Schedule Rule dialog box.

- A setting for holding jobnet execution if the registration method is **Immediate execution** was added to the Register for Execution dialog box.

- A function that can execute some commands from JP1/AJS3 - View to JP1/AJS3 - Manager was added.

- The files `jajs_log.bat` and `jajs_log`, which have the same functionality as the data collection tool (`_04.bat` and `_04`), are now available. In addition, an option was added to the Windows version of the data collection tools that allows you to specify the location to which data is output.

D.5 Revisions in 10-10

The following lists the revisions in 10-10 for each program.

(1) JP1/AJS3 - Manager

- A function was added that uses IP addresses to restrict the hosts that are able to connect to a manager host.

- A function was added for checking the execution schedule of unregistered units in the Monthly Schedule window of JP1/AJS3 - View.

- A function was added for preventing scheduler services for which the JP1 user logged in to JP1/AJS3 - View has no access privileges from appearing in JP1/AJS3 - View.

- A function was added for restricting the maximum number of allowed JP1/AJS3 - View concurrent sessions for a scheduler service.

- A function was added for changing the passwords of JP1 users by using JP1/AJS3 - View.

- The following OS is supported:
  - Linux 5.1 (x86) or later
  - Linux 5.1 (AMD/Intel 64) or later
- Content related to Solaris 11 (SPARC) was added.

(2) JP1/AJS3 - Agent

- A function was added that uses IP addresses to restrict the hosts that are able to connect to an agent host.
- Content related to Solaris 11 (SPARC) was added.

(3) JP1/AJS3 - View

- A function was added for checking the execution schedule of unregistered units in the Monthly Schedule window of JP1/AJS3 - View.

- A function was added for preventing scheduler services for which the JP1 user logged in to JP1/AJS3 - View has no access privileges from appearing in JP1/AJS3 - View.

- A function was added for restricting the maximum number of allowed JP1/AJS3 - View concurrent sessions for a scheduler service.

- A function was added for changing the passwords of JP1 users by using JP1/AJS3 - View.

- The way in which the Register Custom Job dialog box and the Set Properties of Custom Job dialog box are displayed was changed.

- A change was made so that when **Jobnet Definition** is selected from **Function Menu**, jobnets for which execution has been registered are displayed in the list area of the JP1/AJS3 - View window (main window).

- The function for hiding the icons of unused units in the Jobnet Editor window (a setting in the Set Default Values dialog box) was extended.

- A function was added for preventing the history of previously-used login-user names and connection-destination host names from appearing on the Login screen.

D.6 Revisions in 10-00

The following lists the revisions in 10-00 for each program.

(1) JP1/AJS3 - Manager

- IPv6 addresses are now supported for communication.

- Mirroring by copying a disk is now supported to enable disaster recovery operations.

- The AJS administrator, with JP1/AJS3 access permissions that are almost equivalent to superuser permissions, can now be designated when JP1/AJS3 is installed as a new installation.

- Wait conditions can now be used as a means for controlling the execution order of units across jobnets.

- The number of definition items for which macro variables can be specified has been increased, and the passing information setting job, which uses macro variables to pass information, has been added.

- A function that assigns a created or copied unit the attributes inherited from the upper-level unit, and a function that can permanently assign (fix) an execution user to a job have been added.

- A function that prevents jobs from being executed on unauthorized execution agents has been added.

- A function that allows users to save information about temporary change operations and to re-execute temporary change operations has been added.

- A function that automatically retries execution of a job when the executable file defined for the job terminates abnormally has been added.

- The dependent job of a judgment job can now be re-executed when the judgment job terminates normally.

- Mutually exclusive conditions and range conditions can now be specified as judgment conditions for judgment jobs.

- The Monitoring Event Log Job now can monitor the types of log data and events that were added in Windows Server 2008.

- An option that can be used when the Interval Control Job is defined as a start condition has been added to forcibly assume that the start condition is satisfied immediately after the monitoring of the start condition starts.

- The email sending job now supports a function that sends emails without using Outlook.

- SNMP traps can now be issued in Windows Server 2008.

- Processes for managing the embedded database have been improved.

- The startup type of the JP1/AJS3 Database service has been changed to **Manual** so that the JP1/AJS3 Database ClusterService service will not be created.

- An option has been added that checks the permissions of JP1 users mapped to OS users that have administrator permissions based on the JP1 permission level.

- A time period can now be specified when the `ajsentry` command is used to register a jobnet for fixed execution.

- Options that can be specified when the `jajs_setup` or `jajs_setup_cluster` command is used to set up the embedded database have been added.

- The `ajsembdbidlist` and `ajsembdbstatus` commands can now be used to display the status of the embedded database.

- The embedded database settings file is now generated when an embedded database is set up. If this file is specified when the `ajsembdbbuild` command is used to build another embedded database, the other embedded database will be set up with the settings in the file.

- *Execution user name* and *Execution time* have been added as extended attributes that can be output for JP1 events (specific information) so that JP1 events indicating job termination can be used as job operating information.

- JP1/AJS3 - Manager can now link with JP1/DH - AJE, and DHAJEW has been added as a standard custom job.

- The following OS is no longer supported:
  - Solaris 9(SPARC)
  - Linux 5 (x86)
  - Linux 5 (AMD/Intel 64)
  - Linux 5 (IPF)

- The following OS is supported:
  - Windows Server 2012
  - Solaris 11(SPARC)
  - Linux 6 (x86)
  - Linux 6 (x64)

(2) JP1/AJS3 - Agent

- IPv6 addresses are now supported for communication.

- The AJS administrator, with JP1/AJS3 access permissions that are almost equivalent to superuser permissions, can now be designated when JP1/AJS3 is installed as a new installation.

- An option that can be used when the Interval Control Job is defined as a start condition has been added to forcibly assume that the condition is satisfied when the monitoring of the start condition starts.

- The email sending job now supports a function that sends emails without using Outlook.

- SNMP traps can now be issued in Windows Server 2008.

- The Monitoring Event Log Job now can monitor the types of log data and events that were added in Windows Server 2008.

- The following OS is no longer supported:
  - Solaris 9(SPARC)
  - Linux 5 (x86)
  - Linux 5 (AMD/Intel 64)
  - Linux 5 (IPF)

- The following OS is supported:

- Windows Server 2012

- Solaris 11(SPARC)

- Linux 6 (x86)

- Linux 6 (x64)

(3) JP1/AJS3 - View

- The Wait Conditions Settings List window and the Wait Conditions Statuses window have been added as means for managing units with wait conditions and units whose end is being waited for.

- A dialog box which lists temporary change operations that have already been performed and which allows users to re-execute (re-apply) specific temporary change operations has been added.

- Retry information can now be displayed in the following windows:

  - Daily Schedule window

  - Monthly Schedule window

  - Jobnet Monitor window

  - Detailed Schedule dialog box

  - Monitor Details - [*icon-name*] dialog box

- Whether retries are enabled is now displayed in the list area of the Jobnet Editor window.

- The Jobnet Monitor window was provided with a function that grays out all relation lines and units other than the day's units (the units that were executed and are to be executed on the day).

- **Specify period**, **Reference calendar**, **Waiting-target**, and **Execution type** have been added as search conditions that can be specified in the Search window.

- In the Search window, **Retry Settings** and **Retry execution** can now be specified as search conditions. In addition, the search results displayed in the Search window now include items related to automatic retry.

- The procedure for displaying the units found in the Search window in the Summary Monitor window has been simplified.

- The Display Item Setup dialog box can now be used to set the items to be displayed in the list areas of the Jobnet Editor window and the Jobnet Monitor window.

- A function that allows users to define all-at-one-time schedule rules that start execution at regular intervals, and a function that allows users to delete multiple schedule rules at one time have been added.

- Definition items related to automatic retry have been added to the detailed definitions of Unix jobs, PC jobs, QUEUE jobs, and custom jobs.

- Mutually exclusive conditions and range conditions can now be specified as judgment conditions for judgment jobs.

- The types of log data and events that were added in Windows Server 2008 can now be specified as **Log type** and **Event type** in the detailed definition of the Monitoring Event Log Job.

- The **Expire right after starting** option has been added in the detailed definition of the Interval Control Job. When the job has been defined as a start condition, this option can be used to forcibly assume that the condition is satisfied immediately after the monitoring of the start condition starts.

- An option ensuring that the job groups and planning groups displayed in the list area are initially selected when the JP1/AJS3 - View window (Main window) opens has been added. In addition, an option ensuring that the nested jobnets and nested remote jobnets displayed in the map area are initially selected when the Jobnet Editor window or the Jobnet Monitor window opens has been added.

- An option has been added that displays a nested jobnet as being selected at the location at which the jobnet existed before it was moved to the upper layer in the Jobnet Editor window or the Jobnet Monitor window.

- When the **Depends on upper-level jobnet** check box is selected in the schedule settings of a nested jobnet, whether to display a confirmation message before defined schedule rules are deleted can now be selected by using an option.

- The **Start** button, which allows users to launch arbitrary programs, has been added to the Monitor Details - [*custom-job-name*] dialog box.

- Because of the user authentication function added in JP1/AJS3 - Definition Assistant 09-10, specifying the JP1 user name is now mandatory for starting JP1/AJS3 - Definition Assistant from JP1/AJS3 - View. With this specification change, **User name** has been added as an item that can be selected from the **Replace** drop-down list in the Tool Entry dialog box.

- The following OS is supported:

  - Windows 8.1

  - Windows 8

  - Windows Server 2012

- An option for preventing the opening of multiple Jobnet Editor windows and Jobnet Monitor windows has been added.

D.7 Revisions in 09-00

The following lists the revisions in 09-00 for each program.

(1) JP1/AJS3 - Manager

- The standard database of JP1/AJS3 is now an embedded database.

- Functions related to an embedded database have been changed as follows:

  - The sizes of the large-scale, medium-scale, and small-scale database models have been changed.

  - The database area auto-increment function and the system log auto-increment function have been added.

  - The system log is no longer used.

  - The functions of the commands used to control an embedded database have been enhanced.

- The ISAM database is now used only for QUEUE jobs and submit jobs.

- An agent management function has been added for specifying a logical execution agent name as the destination host for a job or jobnet. Previously, users could only specify execution hosts by their real names.

- Jobs that are in the *Now queuing* status when the service is stopped are now returned to the *Wait for prev. to end* status when the service restarts (in hot-start mode), before being resubmitted.

- A jobnet release function has been added for replacing the definition of a jobnet that is registered for execution with another definition.

- The job execution control manager process (jpqman) and event/action control manager process (jpomanager) can now be started on a scheduler service basis.

- A scheduler log file can now be output for an individual scheduler service or host.

- The following functions have been enhanced:

  - The method by which the number of logs to keep is managed

  - The process by which monitored generations of jobnets with start conditions are established

- The process by which execution generations when a start condition is established are held

- A format specification has been added to the `ajsshow` command for outputting the standard output file name.

- The Manager Environment Settings dialog box is no longer provided. Instead, you can use the `jajs_config` command to set up the manager environment.

- The following environment setting parameters have been added:

  - `FixedHostnameForAgent`

  - `NotificationConstantRetry`

  - `NotificationRetryInterval`

  - `NotificationRetryCount`

  - `ClientConnectTimeout`

- A function has been added to support end delay monitoring based on how long a job takes to execute.

- The jobnet connector functionality has been enhanced to enable control of the execution order of root jobnets managed by different scheduler services.

- The definition pre-check has been enhanced so that if an invalid execution order is found in the units of the jobnet being checked, the names of the units are output to the check results file.

- The file permission check performed at execution of a Unix job has been enhanced to include checks of the access control list and secondary group settings as well as file permissions.

- A function has been added that enables event jobs to continue executing even if the JP1/AJS3 service stops on the execution host.

- A function has been added for exporting and importing the registration statuses of jobnets as registered execution-schedule information.

- Linkage with message queues on UNIX hosts (TP1/LiNK, TP1/Message Queue, MQSeries) is no longer supported.

- Windows Server 2008 has been added as platforms supported by JP1/AJS3 - Manager.

- A unit called a jobnet connector which controls the execution order of root jobnets has been added.

- An option has been added to output a detailed history of user operations, such as changes to jobnet definitions, to the scheduler log.

- The `ajslogprint` command for extracting log entries from the scheduler log has been added.

(2) JP1/AJS3 - Agent

- The Agent Environment Settings dialog box is no longer provided. Instead, you can use the `jajs_config` command to set up the agent environment.

- Linkage with a message queue system is no longer supported.

- The following environment setting parameters have been added:

  - `FixedHostnameForAgent`

  - `NotificationConstantRetry`

  - `NotificationRetryInterval`

  - `NotificationRetryCount`

  - `ClientConnectTimeout`

- The file permission check performed at execution of a Unix job has been enhanced to include checks of the access control list and secondary group settings as well as file permissions.

- Linkage with message queues on UNIX hosts (TP1/LiNK, TP1/Message Queue, MQSeries) is no longer supported.
- Windows Server has been added as platforms supported by JP1/AJS3 - Agent.

(3) JP1/AJS3 - View

- An agent management function has been added for specifying a logical execution agent name as the destination host for a job or jobnet. Previously, users could only specify execution hosts by their real names.
- A jobnet release function has been added for replacing the definition of a jobnet that is registered for execution with another definition.
- Function menus have been added to the JP1/AJS3 - View window to facilitate task-oriented operation.
- The JP1/AJS3 - View window (Summary Monitor window) has been added. In this window, you can view the progress of jobnets and other information.
- JP1/AJS3 - View can now be started in the following modes:
  - Normal mode
    In this mode, the JP1/AJS3 - View window is equipped with function menus.
  - Monitoring mode
    A mode dedicated to monitoring jobs and jobnets. Only the JP1/AJS3 - View window (Summary Monitor window) is displayed.
  - Compatible mode
    JP1/AJS3 - View operates in the same way as JP1/AJS2 - View version 8 or earlier.
- A Detailed Information area has been added to the JP1/AJS3 - View window (Main window), which displays detailed information about a unit.
- The concurrent execution setting of monitored generations and the holding behavior of execution generations (produced when a start condition is satisfied) can now be selected in the detailed definition of a start condition.
- A list filter function has been added for filtering the information in a list.
- A function has been added for saving list information in CSV format.
- You can now click a button in the Daily Schedule window and Monthly Schedule window to move between days and months.
- A list area has been added to the Jobnet Editor window and Jobnet Monitor window. This area displays the jobs defined in the jobnet.
- A Search window has been added, in which you can set detailed search conditions and perform operations on units listed in the search results.
- You can now use a mouse wheel to scroll inside JP1/AJS3 - View.
- A function has been added that allows you to select whether **Type** in list areas are grouped by type or displayed in detailed format.
- A function has been added for prohibiting changes to specific definition items in the Define Details dialog box.
- A function has been added for removing icons you no longer use from the icon list area in the Jobnet Editor window.
- Windows 7 has been added as a supported OS (JP1/AJS3 - View 09-00-05 or later).
- A function has been added to support end delay monitoring based on how long a job takes to execute.
- The jobnet connector functionality has been enhanced to enable control of the execution order of root jobnets managed by different scheduler services.
- An option has been added to the Filter Settings dialog box so that jobnets with hold plans can be treated as jobnets in *Being held* status for filtering purposes in the Daily Schedule window and Monthly Schedule window.

- The ability to define, operate, and monitor jobnet connectors which control the execution order of root jobnets has been added.

- A function that displays the preceding and succeeding jobs of a given job or jobnet in bold has been added.

- Support for Windows Vista has been added.

E. Reference Material for This Manual

This appendix provides reference information, including various conventions, for this manual.

E.1 Related publications

This manual is part of a related set of manuals. The manuals in the set are listed below (with the manual numbers):

About JP1/AJS:

- *JP1 Version 11 Job Management: Getting Started (Job Scheduler)* (3021-3-B11(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Overview* (3021-3-B12(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 System Design (Configuration) Guide* (3021-3-B13(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 System Design (Work Tasks) Guide* (3021-3-B14(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Configuration Guide* (3021-3-B15(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Administration Guide* (3021-3-B16(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Troubleshooting* (3021-3-B17(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Operator's Guide* (3021-3-B18(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Command Reference* (3021-3-B19(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 Messages* (3021-3-B21(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 - Print Option* (3021-3-B26(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 - Definition Assistant* (3021-3-B25(E))
- *JP1 Version 11 JP1/Automatic Job Management System 3 for Enterprise Applications Description, User's Guide and Reference* (3021-3-B27(E))
- *Job Management Partner 1 Version 10 Job Management Partner 1/Automatic Job Management System 3 - Web Operation Assistant Description, Operator's Guide and Reference* (3020-3-S18(E))

About JP1:

- *JP1 Version 11 JP1/Base User's Guide* (3021-3-A01(E))
- *JP1 Version 11 JP1/Base Messages* (3021-3-A02(E))
- *JP1 Version 11 JP1/Base Function Reference* (3021-3-A03(E))
- *JP1 Version 11 Integrated Management: Getting Started (Integrated Console)* (3021-3-A06(E))
- *JP1 Version 11 JP1/Integrated Management - Manager Overview and System Design Guide* (3021-3-A07(E))
- *JP1 Version 11 JP1/Integrated Management - Manager Configuration Guide* (3021-3-A08(E))
- *JP1 Version 11 JP1/Integrated Management - Manager Administration Guide* (3021-3-A09(E))
- *JP1 Version 11 JP1/Integrated Management - Manager GUI Reference* (3021-3-A10(E))
- *JP1 Version 11 JP1/Integrated Management - Manager Command and Definition File Reference* (3021-3-A11(E))
- *JP1 Version 11 JP1/Integrated Management - Manager Messages* (3021-3-A12(E))
- *JP1 Version 11 JP1/Performance Management Planning and Configuration Guide* (3021-3-A37(E))
- *JP1 Version 11 JP1/Performance Management User's Guide* (3021-3-A38(E))

- *JP1 Version 11 JP1/Performance Management Reference* (3021-3-A39(E))

- *JP1 Version 11 Job Management: Getting Started (Scripting Language)* (3021-3-B31(E))

- *JP1 Version 11 JP1/Advanced Shell* (3021-3-B32(E))

- *Job Management Partner 1 Version 10 Job Management Partner 1/Script Description and Reference* (3021-3-135(E)), for Windows Systems

- *JP1 Version 11 JP1/File Transmission Server/FTP Description, Reference, and Operator's Guide* (3021-3-B36(E)), for Windows systems

- *JP1 Version 11 JP1/File Transmission Server/FTP Description, Reference, and Operator's Guide* (3021-3-B37(E)), for UNIX systems

- *JP1 Version 11 Job Management: Getting Started (High-speed Transfer of Huge Amounts of File)* (3021-3-B41(E))

- *JP1 Version 11 JP1/Data Highway - Automatic Job Executor Operation manual* (3021-3-B46(E))

- *Job Management Partner 1/Software Distribution Description and Planning Guide* (3020-3-S79(E)), for Windows systems

- *Job Management Partner 1/Software Distribution Setup Guide* (3020-3-S80(E)), for Windows systems

- *Job Management Partner 1/Software Distribution System Administrator's Guide Volume 1* (3020-3-S81(E)), for Windows systems

- *Job Management Partner 1/Software Distribution System Administrator's Guide Volume 2* (3020-3-S82(E)), for Windows systems

- *Job Management Partner 1/Software Distribution Automatic Installation Tool Description and Reference* (3020-3-S83(E)), for Windows systems

- *Job Management Partner 1/Software Distribution Administrator Kit Description and Operator's Guide* (3020-3-S84(E))

- *Job Management Partner 1/Software Distribution Client Description and User's Guide* (3020-3-S85(E)), for UNIX systems

- *Job Management Partner 1/Software Distribution SubManager Description and Administrator's Guide* (3020-3-L42(E)), for UNIX systems

- *Job Management Partner 1/Software Distribution Manager Description and Administrator's Guide* (3000-3-841(E))

- *Job Management Partner 1/Consolidated Management 2/Extensible SNMP Agent Description, Operator's Guide and Reference* (3020-3-L04(E)), for UNIX systems

- *Job Management Partner 1/NQSEXEC System Administrator's Guide* (3020-3-F30(E))

- *Job Management Partner 1/Open Job Entry Description, User's Guide and Reference* (6190-3-365(E)), for VOS3 systems

- *Job Management Partner 1/Open Job Entry Description, User's Guide and Reference* (9000-3-365(E)), for MVS systems

- *Job Management Partner 1/Open Job Entry Description, User's Guide and Reference* (9000-3-366(E)), for OSIV/ MSP systems

- *Job Management Partner 1/Open Job Entry for Midrange Computer Description and User's Guide* (9000-3-367(E))

E.2 Conventions: Abbreviations for product names

This manual uses the following abbreviations for product names:

Abbreviation		Full name or meaning
JP1/AJS3	JP1/AJS3 - Manager	JP1/Automatic Job Management System 3 - Manager
	JP1/AJS3 - Agent	JP1/Automatic Job Management System 3 - Agent
	JP1/AJS3 - View	JP1/Automatic Job Management System 3 - View
JP1/AJS3 - Web Console		JP1/Automatic Job Management System 3 - Web Console
JP1/AJS3 - Print Option	JP1/AJS3 - Print Option Manager	JP1/Automatic Job Management System 3 - Print Option Manager
	JP1/AJS3 - Print Option	JP1/Automatic Job Management System 3 - Print Option
JP1/AJS2	JP1/AJS2 - Manager	Job Management Partner 1/Automatic Job Management System 2 - Manager
	JP1/AJS2 - Agent	Job Management Partner 1/Automatic Job Management System 2 - Agent
	JP1/AJS2 - View	Job Management Partner 1/Automatic Job Management System 2 - View
JP1/AJS3 - Definition Assistant		JP1/Automatic Job Management System 3 - Definition Assistant
JP1/AJS3 - Web Operation Assistant		Job Management Partner 1/Automatic Job Management System 3 - Web Operation Assistant
JP1/AJS3 for Enterprise Applications		JP1/Automatic Job Management System 3 for Enterprise Applications
JP1/DH - AJE		JP1/Data Highway - Automatic Job Executor
JP1/DH - Server		JP1/Data Highway - Server
JP1/FTP		JP1/File Transmission Server/FTP
JP1/IM	JP1/IM - Manager	JP1/Integrated Management - Manager
	JP1/IM - View	JP1/Integrated Management - View
JP1/OJE		Job Management Partner 1/Open Job Entry
JP1/OJE for Midrange Computer		Job Management Partner 1/Open Job Entry for Midrange Computer
JP1/OJE for VOS3		JP1/Open Job Entry for VOS3
JP1/PFM	PFM - Manager	JP1/Performance Management - Manager
	PFM - Base	JP1/Performance Management - Base
	PFM - Web Console	JP1/Performance Management - Web Console
	PFM - Agent Option for Platform	JP1/Performance Management - Agent Option for Platform(For UNIX Systems)
		JP1/Performance Management - Agent Option for Platform(For Windows Systems)
JP1/SES		Job Management Partner 1/System Event Service
NNM	HP NNM	HP Network Node Manager Software version 7.5 or earlier

Abbreviation		Full name or meaning
NNM	HP NNM	HP Network Node Manager Software Starter Edition version 7.5 or earlier
AIX		AIX V6.1
		AIX V7.1
Firefox	Firefox ESR	Mozilla(R) Firefox(R) Extended Support Release
HP-UX	HP-UX (IPF)	HP-UX 11i V3(IPF)
Linux	CentOS 6(x64)	CentOS 6(x64)
	CentOS 7	CentOS 7
	Linux 6.1(x64)	Red Hat Enterprise Linux(R) Server 6.1 (64-bit x86_64)
	Linux 7.1	Red Hat Enterprise Linux(R) Server 7.1
	Oracle Linux 6(x64)	Oracle Linux(R) Operating System 6 (x64)
	Oracle Linux 7	Oracle Linux(R) Operating System 7
	SUSE Linux 12	SUSE Linux(R) Enterprise Server 12
SAP BW		SAP Business Information Warehouse
SAP R/3		SAP R/3(R)
Solaris		Solaris 10(SPARC)
		Solaris 11(SPARC)

- In this manual, *JP1/AJS* is sometimes used generically, referring to JP1/AJS3 and JP1/AJS2.
- *UNIX* is sometimes used generically, referring to HP-UX, Solaris, AIX and Linux.

E.3 Conventions: Acronyms

This manual also uses the following acronyms:

Acronym	Full name or meaning
ACL	Access Control List
API	Application Programming Interface
DB	Database
DBMS	Database Management System
DNS	Domain Name System
EUC	Extended UNIX Code
FQDN	Fully Qualified Domain Name
FTP	File Transfer Protocol
GUI	Graphical User Interface
HTTP	Hyper Text Transfer Protocol

Acronym	Full name or meaning
HTTPS	Hyper Text Transfer Protocol Security
IME	Input Method Editor
IPF	Itanium(R) Processor Family
ISAM	Indexed Sequential Access Method
LAN	Local Area Network
MAPI	Messaging Application Programming Interface
MIB	Management Information Base
MIME	Multipurpose Internet Mail Extensions
NAT	Network Address Translator
NFS	Network File System
NIC	Network Interface Card
OS	Operating System
PDF	Portable Document Format
RDB	Relational Database
REST	Representational State Transfer
SMTP	Simple Mail Transfer Protocol
SNMP	Simple Network Management Protocol
SUP	Service Using Program
TCP/IP	Transmission Control Protocol/Internet Protocol
UAC	User Account Control
UNC	Universal Naming Convention
WAN	Wide Area Network
WOW64	Windows On Windows 64
WSDL	Web Services Description Language

E.4 Conventions: Diagrams

This manual uses the following conventions in diagrams:

●Job group ●Planning group ●Jobnet ●Job

●Event job ●Action job ●Judgment job ●OR job ●Jobnet connector

●Unit with wait condition
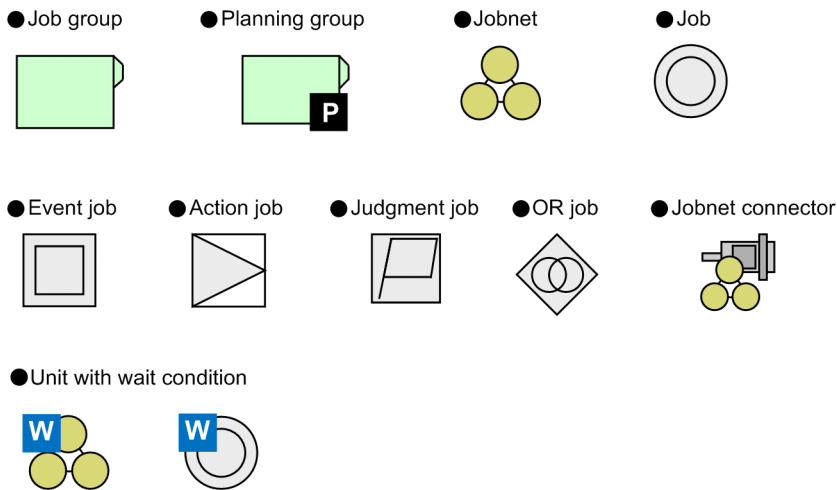
E.5 Conventions: Fonts and symbols

The following table explains the text formatting conventions used in this manual:

Text formatting	Convention
Bold	Bold characters indicate text in a window, other than the window title. Such text includes menus, menu options, buttons, radio box options, or explanatory labels. For example: • From the **File** menu, choose **Open**. • Click the **Cancel** button. • In the **Enter name** entry box, type your name.

Italic	Italic characters indicate a placeholder for some actual text to be provided by the user or system. For example:
	• Write the command as follows:
	  copy *source-file target-file*
	• The following message appears:
	  A file was not found. (file = *file-name*)
	Italic characters are also used for emphasis. For example:
	• Do *not* delete the configuration file.

Monospace	Monospace characters indicate text that the user enters without change, or text (such as messages) output by the system. For example: • At the prompt, enter dir. • Use the send command to send mail. • The following message is displayed: The password is incorrect.

The following table explains the symbols used in this manual:

Symbol	Convention
|	In syntax explanations, a vertical bar separates multiple items, and has the meaning of OR. For example: A|B|C means A, or B, or C.
{ }	In syntax explanations, curly brackets indicate that only one of the enclosed items is to be selected. For example: {A|B|C} means only one of A, or B, or C.

Symbol	Convention
[ ]	In syntax explanations, square brackets indicate that the enclosed item or items are optional. For example: [A] means that you can specify A or nothing. [B|C] means that you can specify B, or C, or nothing.
...	In coding, an ellipsis (...) indicates that one or more lines of coding have been omitted. In syntax explanations, an ellipsis indicates that the immediately preceding item can be repeated as many times as necessary. For example: A, B, B, ... means that, after you specify A, B, you can specify B as many times as necessary.
x	Multiplication sign
/	Division sign
↑ ↑	The calculation result is rounded up to the next whole number. Example: The result of ↑ 34 / 3↑ is 12.
∼ (tilde)	The item shown before this symbol must be specified in accordance with the conventions shown for angle brackets, double parentheses, and double angle brackets (below).

< >
(angle brackets)
	Indicates the characters and lexical elements that can be specified.
	<characters>
	    One or more Kanji characters, katakana characters, upper-case alphabetic characters, lower-case alphabetic characters, or numeric characters
	<numeric>
	    0, 1, 2, 3, 4, 5, 6, 7, 8, or 9
	<alphabetic character>
	    A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, \, #, or @
	<alphanumeric character>
	    Alphabetic or numeric character
	<symbolic name>
	    No more than eight alphanumeric characters beginning with an alphabetic character
	<unsigned integer>
	    One or more numeric characters
	<hexadecimal character>
	    0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, or F
	<file name>
	    A system-determined name assigned to a file
	<path>
	    The directories contained in the path, with each name separated by a forward slash (/) or backslash (\). The path notation is OS-dependent.

(( )) (double parentheses)	Indicates the range of specifiable values.
<< >> (double angle brackets)	Indicates the default assumed by the system when a value is unspecified. Example: If you do not specify *days-to-keep-form* ∼<numeric> ((0 to 365)) <<365>>, 365 is assumed as the number of days to keep the form.
MAX	Choose the largest of the calculation results. Example: The result of MAX (3 **x** 6, 4 + 7) is 18.

E.6 Conventions: KB, MB, GB, and TB

This manual uses the following conventions:

- 1 KB (kilobyte) is 1,024 bytes.

- 1 MB (megabyte) is $1,024^2$ bytes.

- 1 GB (gigabyte) is $1,024^3$ bytes.

- 1 TB (terabyte) is $1,024^4$ bytes.

E.7 Conventions: Meaning of "directory" and "folder"

As a general rule, Windows folder names are used in this manual if they are identical to UNIX directory names.

E.8 Conventions: Version numbers

The version numbers of Hitachi program products are usually written as two sets of two digits each, separated by a hyphen. For example:

- Version 1.00 (or 1.0) is written as 01-00.

- Version 2.05 is written as 02-05.

- Version 2.50 (or 2.5) is written as 02-50.

- Version 12.25 is written as 12-25.

The version number might be shown on the spine of a manual as *Ver. 2.00,* but the same version number would be written in the program as *02-00.*

E.9 About administrator privileges

In this manual, the term "administrator privileges" refers to the execution privileges of the built-in administrator account for a local PC.

If a user has administrator privileges for the local PC, operations do not vary in local user, domain user, and Active Directory environments.

E.10 About the Start menu in Windows

If you are using Windows Server 2016, Windows 8.1, Windows 8, or Windows Server 2012, instead of using the **Start** menu, perform the operations as described below.

In Windows Server 2016, Windows 8.1 or Windows Server 2012 R2:
    Click the down-pointing arrow icon to display the Apps screen.

In Windows 8 or Windows Server 2012 (except Windows Server 2012 R2):
    Right-click on the Start screen to display the All Apps screen.

E.11 Default installation folders of JP1/AJS3 for Windows

The default installation folders of JP1/AJS3 for Windows are as follows:

Default installation folders of JP1/AJS3 - Manager:

system-drive\Program Files (x86)\HITACHI\JP1AJS2

The default installation folders of JP1/AJS3 Web Console are as follows:

system-drive\Program Files\HITACHI\JP1AJS3WEB

Default installation folder of JP1/AJS3 - Agent:

system-drive\Program Files (x86)\HITACHI\JP1AJS2

Default installation folder of JP1/AJS3 - View:

system-drive\Program Files (x86)$^{\#}$\HITACHI\JP1AJS2V

\#

For 32-bit versions of Windows, replace Program Files (x86) with Program Files.

E.12 Online manual

JP1/AJS3 - View comes with an online manual that you can read in browsers.

In JP1/AJS3 - View, you can view the manual by choosing **Help** and then **Contents**. You can also press the **F1** key to view the manual contents. Your web browser must be associated with a file that has the extension htm; otherwise, the online manual will not be displayed correctly. If this happens, associate the htm file with the web browser.

Cautionary note

Depending on the OS settings, the online manual might appear in the active window of the browser when you launch the manual from the **Start** menu.

E.13 Regular expressions available in JP1/AJS3

Regular expressions can be used in some items in dialog boxes and commands. For details about regular expressions in Windows, see the *JP1/Base User's Guide*. For details about regular expressions in UNIX, see your UNIX documentation.

The regular expressions that you can use when executing an event job on a Windows host depend on the JP1/Base settings. For details on setting regular expressions for event job execution, see the explanation about extending the available regular expressions in the *JP1/Base User's Guide*.

Searching may take a long time if you often use the regular expression .* (which means match any character or characters). In long messages, use .* only where necessary. In UNIX, you can use [^]* (repeat characters other than space characters) instead of .* when you want to find a match other than space characters. Using [^]* reduces the search time.

E.14 About the 3rd level and 4th level Kanji characters added in JIS 2004 (JIS X 0213:2004)

JP1/AJS3 cannot use the 3rd level and 4th level Kanji characters added in JIS 2004. If these characters are used, operation might not be performed correctly.

E.15 About NNM linkage

JP1/AJS3 supports linkage with the following products:

- HP Network Node Manager Software version 6 or earlier
- HP Network Node Manager Starter Edition Software version 7.5 or earlier

In this manual, these products are indicated as *HP NNM*.

Note that linkage with the following products is not supported:

- HP Network Node Manager i Software v8.10

F. Glossary

abnormal end

A jobnet ends abnormally if one of the processes defined in the jobnet fails to execute properly. The jobnet is interrupted at that point and subsequent processes are not executed.

A job ends abnormally if it fails to execute properly. The process is interrupted at that point.

The embedded database system ends abnormally when an error causes its status to change from active to stopped or paused, without any intervention by the user. For details, see *D. How the Embedded Database Operates* in the manual *JP1/Automatic Job Management System 3 Troubleshooting*.

abnormal threshold

A value that is compared with a job's return code to evaluate whether the job ended normally or abnormally.

action job

A job that sends email, or sends events reporting the system status to JP1/ IM or the HP NNM.

agent host

A host that executes jobs on request from a manager host. JP1/AJS3 - Agent must be installed on the agent host, or since JP1/AJS3 - Manager also provides JP1/AJS3 - Agent functionality, JP1/AJS3 - Manager might be installed on the agent host.

The agent host executes the job on receipt of a job request from the manager host. At completion of the job, the agent host receives the execution result (return value) of the executable file and forwards it to the manager host.

AJS administrator

A user that has access permissions almost equivalent to superuser permissions for JP1/AJS3. Only one of the JP1/Base administrators in the JP1 administrators group can be designated as the AJS administrator. An ordinary user designated as the AJS administrator can perform such JP1/AJS3 system management operations as specifying the environment settings and starting and stopping services.

AJSPATH

An environment variable for defining the paths used by JP1/AJS3. When this environment variable is defined, you do not need to specify the full path when specifying a jobnet name in a command.

automatic retry

A function that automatically retries execution of a job if the executable file defined for the job terminates abnormally. Because jobs that have terminated abnormally due to a temporary error might be able to run normally when automatically retried, this function can improve the system availability.

backup box

A directory or a folder for storing backup files.

backup file

A file containing the units defined in JP1/AJS3.

base day

A date specified as the starting day of the month in the calendar information.

base time

The time that marks when a day ends and the next day begins in a JP1/AJS3 system. For example, if 8:00 a.m. is set as the base time, the previous day is regarded as lasting until 7:59 a.m.

broadcast agent

An agent that broadcasts a job to multiple destination agents for broadcast execution. The broadcast agent automatically manages the destination agents to which a job is to be broadcast. For example, in an environment in which the number of execution agents is increased or decreased by automatic scaling, the broadcast agent automatically expands or reduces the job distribution range. Therefore, in such an environment, you do not need to modify the job definition, or add or delete jobs manually.

broadcast execution

To broadcast a flexible job to multiple execution agents where the flexible job is to be executed. Use a broadcast execution if you want multiple execution agents to run the same processing.

calendar information

Information about open days and closed days for jobnet execution. You can define calendar information separately for each job group. The calendar information specifies the days on which jobnets in the job group can and cannot be executed. (When the processing cycle falls on a closed day, the jobnet can be executed on another day if a substitute schedule is defined.) For open days, you can specify the base day, base month, and base time.

closed day

A day on which jobnets are not executed. However, if **Execute without shift** is specified, the jobnet will be executed on that closed day.

cluster system

A system configured as multiple linked server systems, designed to continue operation even if one system fails. If a failure occurs in the server currently executing applications (primary node), the other standby server (secondary node) takes over and continues processing the applications. Therefore, a cluster system is also referred to as a *node switching system*.

The term *cluster system* can also mean load balancing based on parallel processing. In this manual, however, *cluster system* refers only to node-switching functionality for preventing interruption of application processing.

common user profile

A file containing the environment settings for JP1/AJS3 - View, accessible to all JP1 users. The system administrator saves the common user profile in JP1/AJS3 - Manager. JP1 users can download this file, enabling the same JP1/AJS3 - View environment to be set for all JP1 users.

A common user profile is useful when a large number of JP1 users will be using JP1/AJS3 - View in the same environment.

compatible ISAM configuration

A system configuration in which JP1/AJS3 information is managed exclusively by the ISAM database.

This configuration is offered to help users migrate from JP1/AJS2 version 8 or earlier. It can restrict to the same degree as in previous versions, the use of resources such as hard disk and memory. However, from version 9 only a subset of the new features offered is provided.

correlation ID

Information for identifying sent and received messages. The correlation ID is received in the character encoding set specified by the sender.

custom job

A predefined job for executing a task with a specific purpose. JP1/AJS3 provides standard custom jobs such as file transfer and job requests to a mainframe. In addition, you can register your own frequently used jobs as custom jobs. When registering a custom job, you can represent it by creating an icon with a special shape and design, and you can create a dialog box for entering job information.

To use a custom job, the requisite program for the job must be installed.

Daily Schedule window

A window that displays each day's execution schedules, execution status, and execution results.

data collection tool

These tools are provided by JP1 for batch collection of log data and other information required to investigate problems. In addition to problems in JP1/AJS3, problems might occur in the OS or user programs or as the result of operational mistakes. The data collection tools collect JP1/AJS3 log data and other information, such as OS log data, at the same time.

default queue

A queue created in an agent host for executing jobs. You must always create a default queue.

When you submit a job for execution, if you specify an agent host name as the destination, the job will be submitted to the default queue of the specified agent host.

dependent job

A job executed when the judgment result of a judgment job is true.

dependent jobnet

A jobnet executed when the judgment result of a judgment job is true.

destination agent

An agent that executes a flexible job. A destination agent might be an execution agent in an auto-scaling environment.

disaster recovery

Disaster recovery refers to measures that are taken when there are unexpected occurrences such as system shutdown due to a large-scale disaster.

JP1/AJS3 supports a disaster recovery operation that copies JP1/AJS3 data on the shared disk to a shared disk at a remote site. If the JP1/AJS3 system fails because of an event such as a disaster, the JP1/AJS3 system at the remote site can continue operation by using the copied data. The disk copy and mirroring functionality of hardware is used to copy data between shared disks.

embedded database

> The standard database of JP1/AJS3. An embedded database offers high reliability, and is well suited to large-scale systems that handle large quantities of information.

embedded database administrator (database administrator)

> A user authorized to assign and cancel various permissions for an embedded database (a user with DBA permissions).
>
> Database administrators are managed within an embedded database.

embedded database operation commands

> A generic term for commands whose name begins with `ajsembdb`.

embedded database service

> A service that provides the environment for using the embedded database in Windows. This service must be started before you can use the embedded database. The name of the embedded database service is JP1/AJS3 Database *setup-identifier*.

embedded database system administrator

> The owner of an embedded database practical directory and embedded database file system areas (data area and system area). The embedded database system administrator can execute commands for an embedded database.
>
> The OS manages embedded database system administrators.

end with warning

> A status indicating that a jobnet finished, but some of the processes defined in the jobnet were executed incorrectly. The jobnet continues to the end without interruption.
>
> This ending method is used when an error is not so serious as to terminate the jobnet.

environment setting parameter

> A parameter for defining the information required to operate JP1/AJS3, written in an environment settings file. With these parameters, you can specify the directory in which information about JP1/AJS3 units is stored, whether to output syslog messages, and other such preferences.

environment settings file

> A file containing the settings required to operate JP1/AJS3, such as the scheduler service environment and job execution environment.

event

> A specific event, such as email reception or file update, that occurred in the system. Events can be used to start a job or jobnet, and can be monitored using an event job.

event job

> A job that monitors specific events occurring in the system. When an event job is initiated, it starts monitoring for file updates, incoming messages, or other specified events.

execution agent

The logical name of an agent host that executes jobs or jobnets. Based on the agent information defined in the manager host, the manager maps the execution agent specified in the job or jobnet to the physical host name of the agent host, and distributes the job or jobnet accordingly.

execution agent group

A group of execution agents configured to realize load distribution. The manager distributes jobs among the execution agents according to their assigned priorities.

execution agent restriction

A function that suppresses execution of jobs on an execution agent that the administrator has not permitted to execute the jobs. The execution agents permitted to execute jobs can be set for each unit.

When the execution agent profile is enabled, this function checks for whether the execution agent is permitted to execute jobs at the following times:

- When a unit is defined in JP1/AJS3 - View

- When the `ajschkdef` command is used to conduct a definition pre-check

- When a job is executed

execution ID

A number assigned to an execution schedule of the uppermost jobnet.

execution-locked resource

A means of preventing multiple jobs from executing at the same time, by specifying the same resource name (execution-locked resource name) for each job.

fixed execution registration

A method of registering a jobnet so that it starts and runs at a predetermined date and time calculated by the system from schedule definitions.

fixed schedule

A schedule set by absolute times when a jobnet is registered for fixed execution.

flexible job

A standard job that executes processing on an agent host that is not managed directly by the manager host.

Because flexible jobs allow you to execute jobs in an environment where processing is distributed by a load balancer, you can use them to execute processing via an execution agent in a cloud environment (auto-scaling environment).

HP NNM

A suite of integrated network management tools from Hewlett-Packard Co. for managing network configuration, performance, and failures.

HTTP connection job

A job that uses the HTTP protocol to send requests and receive responses. By using a HTTP connection job, you can request processing by an API with an HTTP interface, such as the REST API. This allows you to integrate a business system based on JP1/AJS3 with other web-based business systems.

immediate execution registration

A method for starting and processing a jobnet immediately after registering it for execution.

ISAM database

The database that manages the execution environment for QUEUE jobs and submit jobs. Data is indexed using the Indexed Sequential Access Method (ISAM) and is managed in the database. The ISAM database is provided as standard with JP1/Base.

job

A group of commands, shell scripts, or Windows executable files.

job execution environment

A job execution environment consists of a JP1/AJS3 manager and agents.

The job execution environment for the manager is used to manage the definition information for execution agents (such as the maximum number of concurrently executable jobs and job transfer restriction status), job distribution method, and job execution results.

The job execution environment for the agent is used mainly to manage how a job is executed.

These job execution environments are managed by using a database and environment setting parameters.

When QUEUE jobs and submit jobs are used, the ISAM database and environment setting parameters are used as the job execution environment for the QUEUE jobs and submit jobs.

Note that queueless jobs are managed in the queueless job execution environment.

job group

A folder for classifying and managing jobnets.

job network element

The generic term for these elements is *unit*.

jobnet

A set of jobs associated in execution order. When a jobnet is executed, the jobs in the jobnet are automatically executed in their predetermined order.

jobnet connector

A unit for controlling the execution order of root jobnets. A jobnet connector establishes connections between root jobnets and controls their execution order by having connected generations wait for their counterparts to start or finish.

Jobnet Editor window

A window in which you can create new jobnets or edit existing jobnets.

Jobnet Monitor window

A window that displays the execution status or detailed execution results of jobnets or jobs. You can manipulate jobnets or jobs in this window.

JP1 event

Event information that is reported to JP1/Base when an event occurs in the system. JP1 events are reported to other systems via JP1/Base.

JP1 permission level

A name that indicates the operations that a JP1 user is allowed to perform on management targets (resources) defined in JP1/AJS3, including applications and events. Use JP1/Base to define JP1 permission levels.

JP1 resource group

A name given to a specific JP1/AJS3 unit for controlling access by JP1 users to that unit.

JP1 user

A user designation for using JP1/AJS3 or JP1/IM - Manager. Each JP1 user is registered in the authentication server, which controls the user's access to management targets (resources).

JP1/AJS3 - Agent Minimal Edition

A program that can execute a maximum of 10 jobs per day by request from JP1/AJS3 - Manager. JP1/AJS3 - Agent Minimal Edition has the same functionality as JP1/AJS3 - Agent, except for some limitations. JP1/AJS3 - Agent Minimal Edition is suitable for use on a computer that executes only a few jobs per day.

JP1/AJS3 - Definition Assistant

This program allows you to register a large amount of JP1/AJS3 definition information edited using an Excel template into a manager host, or to retrieve JP1/AJS3 definition information from a manager host to an Excel template. The Excel templates provided by JP1/AJS3 - Definition Assistant are called *definition management templates*. With a definition management template in the spreadsheet format, you can enter or edit definition information efficiently by using automatic filling, automatic filtering, and other Excel functionalities.

JP1/AJS3 - Print Option

A component of JP1/AJS3 - Manager.

This program allows you to display or print jobnet or schedule information formatted as needed (for example, as jobnet definition information, an execution schedule table, or an execution result confirmation table).

You can also output jobnet or schedule information in CSV format so that you can edit the information.

JP1/AJS3 for Enterprise Applications

A program that allows you to control jobs in an R/3 system from another system. You can submit, delete, and monitor R/3 jobs.

R/3 jobs can be executed automatically from JP1/AJS3 if you register them as custom jobs for JP1/AJS3 for Enterprise Applications when you define a JP1/AJS3 jobnet.

JP1/AJS3 for Enterprise Applications is the successor to JP1/Application Manager for R/3.

JP1/Base

A program that provides the event service function. JP1/Base allows you to control the order in which services start, and it lets you send and receive JP1 events. JP1/Base is a prerequisite program for JP1/IM and JP1/AJS3. When JP1/IM is deployed in a system with JP1/AJS3, JP1/Base provides functionality for restricting operations by JP1 users.

JP1/DH - AJE

A program that automatically sends data to and receives data from JP1/DH - Server.

JP1/FTP

A program for performing file transfer tasks efficiently, including file transfer/reception linked to application execution, scheduled file transfer, and automated program execution following file reception. JP1/FTP supports monitoring of transfer status, enhancing file transfer reliability.

JP1/IM

A program for centrally monitoring a distributed system. Using the windows in JP1/IM - View, the system administrator can monitor JP1 events, which provide information about job execution status or problems in the distributed system.

JP1/NQSEXEC

A program for executing routine batch processing on a distributed system and for running batch jobs efficiently.

JP1/OJE for Midrange Computer

A program for submitting batch jobs to AS/400 from a Windows or UNIX host, or for submitting batch jobs from AS/400 to a Windows or UNIX host.

JP1/OJE for VOS3

A program that links with JP1/AJS3 for executing and monitoring batch jobs between a Windows or UNIX system and a mainframe (VOS3).

JP1/PFM

A program that collects operating information from numerous monitoring targets throughout the system for more stable system operation.

JP1/Script

A program for creating and executing scripts (batch files) that control jobs on Windows. Job operation can be automated by linking JP1/Script with JP1/AJS3.

JP1/Software Distribution

A general term for a system that distributes software and manages clients using batch operations over a network.

By linking with JP1/AJS3 using the JP1/Software Distribution command interface, the user can automate software distribution and other tasks.

judgment job

A job that executes a dependent unit if the judgment result of a specified condition is true.

judgment value

A value for evaluating whether a job ended normally or abnormally.

kill

To forcibly terminate a unit being executed.

When the root jobnet is killed, all the jobs being executed are killed and the jobnets are terminated.

list file

A file containing a list of extracts from sent and received mail.

logical host

A logical server that provides the JP1 execution environment for running a cluster system. If a failure occurs on the primary node, the logical host is switched to the secondary node.

Each logical host has a unique IP address. At failover, the secondary node inherits the IP address. Thus, if the physical server fails, clients can access the secondary node using the same IP address. To the clients, it appears that one server is operating continuously.

macro variable

A variable used to pass information from one job to another job during execution.

A macro variable name and passing information (or for an event job, a passing information name) are specified during unit definition. A macro variable can be used during job execution by specifying the name of the macro variable in the succeeding job.

macro variable name

A character string in `?AJS2`*xxxxx*`?` format that indicates the name of a macro variable. If a macro variable name is specified during the definition of a unit, the macro variable set in the preceding job can be used during job execution.

mail filtering application

A program or a shell script that converts email formats.

A mail filtering application is required to convert the character set when exchanging email in formats other than RFC822.

mail receipt parameter file

A file containing the mail receipt monitoring parameters defined by the user. The file extension is `.prm`. This file is created automatically when the user defines a Receive Email Event job.

mail send parameter file

A file containing the mail send parameters defined by the user. The file extension is `.prm`. This file is created automatically when the user defines a Send Email Action job.

manager host

A host that manages jobnet definitions and schedule information in a database, and requests agent hosts to execute jobs. You must install JP1/AJS3 - Manager on the manager host.

The manager host creates jobnet execution schedules from the defined schedule information. At jobnet run time, the manager host starts the executable files defined as jobs, forwards the job definitions to an agent host, and requests the agent host to execute the jobs. When execution completes, the execution result is received by the agent host and the database is updated. Based on the updated information, the manager host executes a succeeding job or schedules the next execution of the jobnet.

manager job group

A job group for monitoring JP1/AJS3 - Manager applications from another JP1/AJS3 - Manager.

manager jobnet

A jobnet for monitoring JP1/AJS3 - Manager applications from another JP1/AJS3 - Manager.

MAPI (Messaging Application Programming Interface)

The standard messaging API for Windows.

max. shiftable days

A set number of days within which to shift the next scheduled execution date when the recalculated date falls on a closed day.

maximum number of concurrently executable jobs

The maximum number of jobs that can be executed concurrently.

message ID

One item in an MQSeries message descriptor. Message IDs are stored in the character set specified by the sender. They can be used as storage locations to help identify messages.

MIME (Multipurpose Internet Mail Extensions)

An extended SMTP function used for sending and receiving non-ASCII data.

MIME specifies various procedures, such as how data is to be transmitted between email systems, and the format of control messages for email transfer.

Monthly Schedule window

A window that displays each month's execution schedules and execution results.

nested jobnet

A jobnet defined within another jobnet.

node switching system

See *cluster system*.

normal end

A normal end of a jobnet occurs when all the processes defined in the jobnet have executed correctly and the jobnet has completed.

A normal end of a job occurs when the job has executed correctly.

open day

A day when jobnets run.

passing information

Values specified for macro variables during registration for execution, event IDs, event issuance dates, and other information (values) that is dynamically set in macro variables and passed to succeeding jobs.

passing information name

A variable name indicating the event information to be received by an event job.

Variable names that can be used for this purpose include `EVID` (event ID) and `EVDATE` (event issuance date). These variable names are specified during the definition of an event job.

physical host

An environment unique to each of the servers (nodes) in a cluster system. When a secondary node takes over from the primary node, the environment of the physical host remains unchanged and is not inherited by the other server.

planned execution registration

A method of registering a jobnet so that it starts and executes according to schedule definitions.

planning group

A unit for switching execution among multiple root jobnets in a planned manner. Directly under a planning group, you can create a number of root jobnets, each defined differently and with differing execution schedules. This enables the root jobnets to be executed automatically in turn, according to the set schedules.

preceding job

A job executed immediately before another job or jobnet.

preceding jobnet

A jobnet executed immediately before another job or jobnet.

processing cycle

The interval between one execution start date and the next execution start date of a jobnet. By defining a processing cycle, you can execute a jobnet at regular intervals.

queue

An area for temporarily keeping jobs registered for execution. Jobs are submitted to the queue in order of registration, and are sequentially transferred for execution to the agent connected to that queue.

The queue controls the number of jobs that the agent executes concurrently, thereby preventing any degradation in performance caused by a large number of jobs being executed at the same time.

queueless job

A job transferred directly from the manager to an agent host for execution, without using a queue. Queueless jobs simplify processing because they are not managed in a queue by the job execution control. As a result, they offer better performance than ordinary queued jobs, allowing more jobs to be executed within a given period of time. However, job execution control functions such as execution agent names and execution agent groups are not available with queueless jobs.

You can define PC jobs and Unix jobs in a jobnet as queueless jobs by specifying **Queueless Agent** as the execution service.

Unless otherwise indicated, the descriptions in this manual apply to jobs for which **Standard** is specified as the execution service.

queueless job execution environment

A queueless job execution environment consists of execution environments for the JP1/AJS3 manager (scheduler service and queueless file transfer service) and queueless agents (queueless agent services). The execution of queueless jobs is managed by using the environment setting parameters for the job execution environment.

Note that the job execution environment must be set up by using the `ajsqlsetup` command before environment setting parameters are set.

queuing job

A job submitted directly to a queue and waiting to be executed.

recovery job

A job to be executed when a job or jobnet ends abnormally.

recovery jobnet

A jobnet to be executed when a job or jobnet ends abnormally.

relay agent

An agent that relays the execution requests associated with a flexible job. The execution requests relayed by the relay agent are executed by the destination agent of the flexible job.

By using relay agents, you can execute jobs defined for local execution in a cloud environment.

schedule by days from start

A schedule defined for recalculating the next scheduled execution date, using as the base day the next scheduled execution date determined from the execution start time, processing cycle, and substitute schedule for closed days.

schedule information file

A text file containing schedule information parameters, entered by command when setting fixed execution registration for a jobnet.

schedule rule

Jobnet information such as execution start time and processing cycle. Up to 144 schedule rules can be defined for a single jobnet.

scheduler service

A service that manages the schedules for jobnet execution, and executes processes according to those schedules. Each scheduler service manages all the units in the root job group whose name matches the scheduler service name.

Multiple scheduler services can be activated in a single manager. This allows root job groups to be managed individually. For example, if you start a separate scheduler service for each application, each scheduler service can run its specific application (jobnet and jobs) in parallel, independently of the other scheduler services.

shift days

A set number of days within which to determine a substitute date when the next execution date falls on a closed day.

shutdown status

A situation in which a jobnet fails to start or end due to an error, and the execution status or the next scheduled execution cannot be verified. If this happens, you must cancel and then re-register the jobnet for execution.

SMTP (Simple Mail Transfer Protocol)

A protocol, generally used in UNIX networks, for transferring ASCII data by TCP/IP between heterogeneous systems.

standard configuration

A system configuration in which JP1/AJS3 information is managed by the embedded database.

Unless otherwise indicated, the descriptions in this manual relate to a system in a standard configuration.

Note that the ISAM database is still used to store some information related to QUEUE jobs and submit jobs.

start condition

A definition of the conditions under which a jobnet starts when the jobnet is driven by a specific event.

subject

A character string written in the subject line of an email message. Non-ASCII characters are supported in JP1/AJS3, but might not be supported in connected email systems.

submit

To request the system to execute a job.

submit job

A standard job registered using the `jpqjobsub` command.

If descriptions in this manual do not explicitly distinguish between QUEUE jobs and submit jobs, descriptions for submit jobs also apply to QUEUE jobs.

substitute schedule

A means of executing a jobnet on a different day when the next execution date, determined from the jobnet schedule, falls on a closed day.

succeeding job

A job executed immediately after another job or jobnet.

succeeding jobnet

A jobnet executed immediately after another job or jobnet.

suspend

To suppress the execution of the root jobnet and lower units.

When you change a definition under a root jobnet that has been registered for execution, you should suspend the root jobnet to prevent erroneous operation such as the execution control processing running with the old definition. By suspending the root jobnet, the redefinition processing can be synchronized with the execution control processing.

threshold

A value for evaluating the termination status of a job. You can define an abnormal threshold and a warning threshold for each job.

timeout period

A time interval after which an executed job is forcibly terminated if there was no response from the job or if it failed to complete during the specified period.

TP1/Server Base

Software for distributing transaction processing and server processing in an open system. JP1/AJS2 uses TP1/Server Base transaction processing.

unit

A generic term for any job network element.

unit definition parameter file

A text file containing unit definition parameters, entered by command when defining the units.

unit ID

A unique number allocated to a unit.

unit whose end is being waited for

A unit specified as a wait condition of another unit. The unit for which the unit whose end is being waited for is specified as a wait condition starts when the unit whose end is being waited for terminates.

unit with wait condition

A unit for which another unit (unit whose end is being waited for) is specified as a wait condition. The unit with the wait condition starts execution when the associated unit (unit whose end is being waited for) terminates.

virtual machine

A virtual computer system (host) created on a physical host to run an OS is called a *virtual machine*. Multiple virtual machines can operate on a single physical host to execute multiple processes simultaneously or to run different OSs concurrently.

By replicating a virtual machine that has already been set up, you can easily increase hosts that have the same environment.

wait condition

A condition set for a unit that allows the execution order of units across jobnets to be controlled. A unit with another unit specified as a wait condition starts execution when the associated unit terminates.

warning threshold

A value for evaluating whether a job ended with a warning.

Web Console server

A host on which JP1/AJS3 - Web Console is installed.

A Web Console server operates as a web server and a web application server, and controls HTTP communication and the behavior of web applications. It also acquires unit information from JP1/AJS3 - Manager in response to client requests, and sends the information as a response to the client.

The Web Console server also provides an API that can be used to perform operations in JP1/AJS3. You can use this API to develop custom applications that interact with JP1/AJS3.

Web GUI

An interface used on a client terminal to monitor units defined on the manager host. The Web GUI is displayed in a web browser, and connects to a Web Console server from a client terminal.

You can use the Web GUI to perform various tasks over the Internet, such as monitoring the execution status and progress of units and executing jobnets.

Windows Messaging

A facility that provides an interface for sending and receiving email. Using Windows Messaging, you can manage, access, and share a variety of information such as data received from an online service.

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