

**JP1 Version 13** 

# Job Management: Getting Started (Client Process Automation)

3021-3-L55(E)

### Notices

#### Relevant program products

For details on supported operating system versions and service packs, patches, and other prerequisites for the target product, see the *Release Notes*.

JP1/Client Process Automation (For Windows 11, Windows 10): P-2A12-3BDL JP1/Client Process Automation version 13-00 or later

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#### Microsoft product name abbreviations

This manual uses the following abbreviations for Microsoft product names.

Abbreviation	Full name or meaning
Windows 10	Windows(R) 10 Enterprise
	Windows(R) 10 Pro
Windows 11	Windows(R) 11 Enterprise
	Windows(R) 11 Pro

Windows is sometimes used generically, referring to Windows 11 and Windows 10.

#### Microsoft product screen shots

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### Copyright

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# Summary of amendments

# The following table lists changes in this manual (3021-3-L55(E)) and product changes related to this manual.

Changes	Location
Windows 11 was added as an applicable operating system.	

Legend:

--: Not applicable

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

### Preface

### What you can do with Client Process Automation

Among the many business operations carried out by computers, some are performed regularly such as daily backups or month-end closing, while some are performed irregularly by events such as receiving orders.

Moreover, computer systems can be even more complicated with cloud services or data centers, where services and data are stored in virtual locations, as well as when different computers relate to one another to perform a set of operations. This, as a result, can impose a burden on services and system users who access the data.

Client Process Automation (simply called *CPA* hereafter) is designed to automate periodic or routine processing to help system users do their system operations in a more automated and simplified way.

### What is explained in this manual

This manual explains the basic methods of configuring and operating CPA. The purpose of this manual is to help readers briefly understand the basic usage of CPA.

This manual is intended for the following users:

- Users who will be evaluating the installation of CPA
- Users who want to understand the concepts of CPA and to obtain in a short time an overview from configuration to operation

#### Organization of this manual

This manual is organized as follows:

1. Installation

This chapter describes how to install CPA.

2. Automating Applications by Using CPA

This chapter describes the basic methods of operating CPA.

A. Version Revisions

This appendix explains the version revisions.

B Reference Manual for This Manual

This appendix provides reference material for this manual, including a list of related manuals and a description of the conventions used by the writer.

### 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:

Text formatting	Convention
	<ul> <li>From the File menu, choose Open.</li> <li>Click the Cancel button.</li> <li>In the Enter name entry box, type your name.</li> </ul>
Italic	<ul> <li>Italic characters indicate a placeholder for some actual text to be provided by the user or system. For example:</li> <li>Write the command as follows: copy <i>source-file target-file</i></li> <li>The following message appears: A file was not found. (file = <i>file-name</i>)</li> <li>Italic characters are also used for emphasis. For example:</li> <li>Do <i>not</i> delete the configuration file.</li> </ul>
Monospace	<ul> <li>Monospace characters indicate text that the user enters without change, or text (such as messages) output by the system. For example:</li> <li>At the prompt, enter dir.</li> <li>Use the send command to send mail.</li> <li>The following message is displayed: The password is incorrect.</li> </ul>

#### The following table explains the symbols used in this manual:

Symbol	Convention
I	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.
[]	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.

### 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*.

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## Installation

This chapter describes how to install CPA.

### 1.1 Preparation before installation

This section describes the preparations required before installing CPA.

### 1.1.1 Memory and disk space required for installation

For details about the amount of memory and disk space that is required for installation, see the Release Notes.

### 1.1.2 Requirements

- CPA must be installed on an NTFS file system.
- A host on which you want to install CPA must have a host name with a length of 128 bytes or less.

### 1.2 Installing a new instance

To install a new instance of CPA:

- 1. As a member of the Administrators group, log in to the host on which you want to install
- 2. Insert the CPA media.

The Hitachi integrated installer window appears.

3. Follow the instructions from the Hitachi integrated installer and specify information as necessary to install the software.

Specify the following information during installation:

• User name<sup>#1</sup>

Enter the name of the CPA user. The length must not exceed 50 bytes.

• Organization<sup>#1</sup>

Enter the name of your company or department. The length must not exceed 80 bytes.

• Installation folder<sup>#2</sup>

Specify the absolute path to the folder in which you want to install CPA. The length, including a backslash  $(\)$  that is automatically added to the end of the path, must not exceed 80 bytes. The absolute path must point to a local directory.

If you do not specify any value, the following value is assumed:

system-drive\Program Files (x86)\HITACHI\JP1CPA<sup>#3</sup>

• Data Folder<sup>#2</sup>

Specify the absolute path to the folder in which you want to store CPA data. The length, including a backslash  $(\)$  that is automatically added to the end of the path, must not exceed 80 bytes. The absolute path must point to a local directory.

If you do not specify any value, the following value is assumed:

```
system-drive\ProgramData\HITACHI\jp1\jp1_default\JP1CPA
```

#1

Do not include the following characters in the user name or organization name:

- Symbols except for the following:

Space, left parenthesis ( (), right parenthesis () ), plus sign (+), hyphen (-), and underscore (\_)

#2

Ensure that the installation folder and data folder do not include the following characters or paths:

- Symbols except for the following:

```
Space, left parenthesis ( (), right parenthesis () ), plus sign (+), hyphen (-), and underscore (_)
```

Note that you cannot include a space at the beginning or end of the path, before or after a backslash  $(\)$ , or in succession with another space.

- Multibyte characters

- Paths to non-fixed drives or UNC paths

#3

If you are using a 32-bit operating system, replace Program Files (x86) with Program Files.

4. When the installation is completed, click the **Finish** button.

1. Installation



# Automating Applications by Using CPA

This chapter describes basic procedures to use CPA to automate applications.

### 2.1 Basic functions for automation

CPA provides the following functions for you to automate applications.

Subsequent sections describe how to use the functions.

#### **Creating a job**

Create a job to run an action.

#### Checking a job

Check whether a started job finished successfully.

#### Creating an action flow

Create a sequence of multiple actions that you want to run as a single job.

#### Setting a schedule

Specify a date and time to run a job you created.

#### Registering a job executed on event

Specify a condition to trigger a job you created.

For details on detailed functions and settings in these procedures, see the manual for Client Process Automation, which is listed in *B.1 Related publications*.

### 2.2 Creating a job

This section describes how to create a job with the actual GUI.

As an example, let's create a job that opens a message dialog box on the screen to display the string hello!!.

This example uses the msg command (msg.exe console /w hello!!) to open the message dialog box.

On a computer with CPA installed, from the program menu, select **JP1 Client Process Automation** and **RegistJob**. The Job Design View appears.

#### Procedure

1. Select the **Exec. on time** tab.

Client Process Autom	ation				-		X
lient Proc	ess Automatio	on					
Exec. on tir	ne 🖉 Exec.	on event	Items	Calendar	#	Û	?
Jobs Combine items a	ind execute application						-
	Exec. on time	Execute on d	lecided date and time				
Ø	Exec. on event	Events to sta	rt execution				
Items							_
Create when req	uired to define jobs						
	Action flow	Create when multiple actions continuously executed					
	Calendar	Create when	execution is performed o	n the basis of open days and	closed day	ſS	

2. Click the 🕂 (New) button. The Job exec. on time dialog box appears.

Client Process Automation				– 🗆 X
Client Process A	utomation			
Jobs		items		🔒 🕅 🕐
Exec. on time	🕖 Exec. on event	<b>□</b> ← Action flow	Calendar	2.
Execute on decided date and	d time			
Exec. on time	Details 🔺			

3. Enter the job name and description.

<sup>2.</sup> Automating Applications by Using CPA

#### Example

Job name: TEST01

Details: Hello	Output
----------------	--------

Select item     Image: Command execution   Image: Command execution with recovery option   Image: Command execution in window   Image: Comm	Job exec. on time	
View the explanation of selected item	Select item	Job exec. on time Job name <sup>®</sup> TEST01 Details Hello Output Execute action Action <sup>®</sup> Select from item list Clear Schedule ( Execute immediately after finishing register) Exec. date Select a date S Schedule ( Exec. time Select from item list Clear
	View the explanation of selected item	Claimar

4. Under Select item, select the Action tab.

🕑 Job exec. on time	×
Select item	Job exec. on time
4. Sation Exec. date Exec. time Calendar 24. Compared execution Apple	Job name" TEST01 Details Hello Output
	Execute action
Command execution by list	Action* Command execution Clear
Command execution with recovery option	Execution command* Browse
Command execution in window	Parameter
Send mail	Virtual user name
	Schedule ( Execute immediately after finishing register)
	Exec. date Select a date 5 - Select a date 5
	One day only ~
	Exec. time 💙 : 💙
Execute command.	Calendar Select from item list Clear
	Save job file Register Cancel

- 5. Select the **Command execution** item, and then click the **Apply** button. This sets the **Action** field in the **Execute action** area to Command execution.
- 6. Enter the execution command, the parameter and the virtual user name.

Example

```
Execution command: msg.exe<sup>#</sup>
Parameter: console /w hello!!
```

Virtual user name: Virtual user name<sup>#2</sup>

#### #1

If you want to execute the command on a 64-bit operating system, specify the command as follows.

When the installation path of the Windows system is C: \Windows:

C:\Windows\sysnative\msg.exe

#2

If you want to execute the command as a specific Windows user, specify the name of a virtual user associated with that Windows user.

If this is omitted, the command is executed with the account for the CPA job execution service. For details on the virtual user name, see the manual *JP1/Client Process Automation Configuration and Administration Guide*.

E	xecute action		
	Action*	Command execution	Clear
ľ	Execution command*	msg.exe	Browse
	Parameter	comsole /w hello!!	
	Virtual user name		

7. Set a schedule.

In this example, select the **Execute immediately after finishing register** check box to execute the job immediately after the job is registered. (Leaving **Exec. date**, **Exec. time**, and **Calendar** in the **Schedule** section blank has the same effect as selecting the **Execute immediately after finishing register** check box.)

If you want to set a schedule to run the job at the specified date and time, see 2.5 Setting a schedule.

🚫 Job exec. on time							
Select item			ob exec. on ti	me		*are mandatory	fields [
Action Exec. date	Exec. time Calendar	Job nam Detail	e* TEST01 Hello Output	1			
Command execut	ion Apply	Execute	action				
Command execut	ion by list		Action*	Command execution	n		Clear
Command execut	ion with recovery option	Execu	tion command*	msg.exe			Browse
Command execut	ion in window		Parameter	comsole /w hello!!			
Send mail		7. Vir	tual user name				
		Schedul	e ( 🗹 Execute	immediately after fin	ishing register)		
			Exec. date	Select a date 15	- Select a dat	e 15	
	KNAO4018-I	×	Exec. time	One day only	J		
Execute command.	Job [TEST01] was regi	stered.	Calendar	Select from item list			Clear
	9.	ок					
			2	ave job file	Register		ancel

#### 8. Click the **Register** button.

A message appears indicating the completion of the registration.

9. Click the **OK** button to run the job.

Check that the job TEST01 runs and that a message dialog box appears to show the string hello!!.

10. Click the **OK** button to close the message dialog box.

Message from 3/21/2019 10:35 PM	×
hello!!	
10	
ОК	

### 2.3 Checking job status

After you register a job and the job and its actions run, you can view the status indicating the results. If you set a schedule, the action flow and actions run in order when the specified date and time arrives. The job enters an ended state when the last action finishes.

The following figure shows the status transition of a job and its actions.

Figure 2–1: Overview of the status transition of a job



To see the execution results of a job, open the Checking the status dialog box from the Job Design View.

#### Procedure

1. Start the Job Design View and then select the Exec. on time tab.

When you select a job, the  $\mathbf{N}$  (Checking the status) button appears.

Client Process Automation				– 🗆 X
Client Process A	utomation			
Exec. on time	Exec. on event	Items	Calendar	
Exec. on time TEST01	Details Hello Output			

2. Click the 🔀 (Checking the status) button.

The Checking the status dialog box appears.

3. Check the status of the job.

The upper area of the **Checking the status** dialog box displays a job list, including the job's start time, end time, and status.

<sup>2.</sup> Automating Applications by Using CPA

🔆 Checking the status							×
TEST01					3/21/201	9 10:38:32 PM Up	date 🕜
Start time	End time	Status		Retry		Stop	
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally		Retr	y	Stop	
L							
			Unit nam	ne			
			Status (R	eturn code)			
			Start time	e			
			End time	:			
		E				Executio	on result

#### 4. In the job list, select a job.

A unit list appears in the lower left area of the dialog box.

😒 Checking the status					$\times$
TEST01			3/2	21/2019 10:38:32 PM Update	
4. tart time	End time	Status	Retry	Stop	
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally	Retry	Stop	
	Job lis	st			
	Unit list				
Command execution	•	Unit na	me		
		Status	(Return code)		
		Start ti	me		
		End tin	ne		
				Execution re	esult
					- 1
					- 1
		_	_		

#### Note

In the job list and unit list shown in steps 3 and 4, a job or unit is displayed in red font if the job or unit ended abnormally. For details on how abnormally-ended jobs and units are displayed, see 2.4.1(3) *Checking for abnormal end.* 

#### 5. In the unit list, select a unit.

The lower right area of the dialog box displays the information of the unit, including the unit's status, the start time, and the end time.

<sup>2.</sup> Automating Applications by Using CPA

The Execution result button becomes available if the selected unit is an action and the command execution finished.

😋 Checking the status						×
TEST01				3/21/201	9 10:38:32 PM Update	Ċ
Start time	End time	Status	Retry		Stop	
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally		Retry	Stop	
				Unit infor	mation	
5						
Command execution		Unit	name	Command exe	cution	
		Statu	s (Return code)	Ended normall	y (0)	_
		Start	time	3/21/2019 10:3	38:28 PM	_
		End t	me	3/21/2019 10:3	6.	
					Execution resu	ult
		_				
		_				
		_				

#### 6. Click the **Execution result** button.

The Execution result dialog box appears.

7. Check the execution command, standard output, and standard error output.

Checking the status						>
TEST01				3/21/2019 10:38:32	PM Update	Ċ
Start time 3/21/2019 10:38:27	End time Execution result Command execution	Status	Retry		Stop	
	Execution command "C:\windows\sysnative\msg.	exe" console /w hello!!				
Command exec	Standard output					
	Standard error output					
					ixecution result	

8. Click the  $\times$  (**Close**) button.

After you check the displayed information, close the Execution result dialog box.

9. Click the 🖒 (Update) button to update the information displayed in the Checking the status dialog box.

This updates the information displayed in the Checking the status dialog box, including the update date and time.

🔆 Checking the status					10	). ×
TEST01				9. 3/21/201	9 10:43:08 PM Update	Ċ
Start time	End time	Status	Retry		Stop	
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally	F	Retry	Stop	
			_			
Command execution		Unit na	ame	Command exe	cution	
		Status	(Return code)	Ended normall	y (0)	_
		Start ti	me	3/21/2019 10:3	88:28 PM	_
		End tin	ne	3/21/2019 10:3	38:28 PM	
					Execution resu	lt

10. Click the  $\times$  (Close) button.

After you check the updated information, close the Checking the status dialog box.

For details on job status and action status, see the manual for Client Process Automation, which is listed in *B.1 Related publications*.

### 2.3.1 Rerunning a job

CPA enables you to rerun a finished job. To do this, open the Checking the status dialog box from the Job Design View.

#### Procedure

1. Start the Job Design View, and then select the Exec. on time tab.

When you select a job, the  $\mathbf{N}$  (Checking the status) button appears.



2. Click the  $\mathbf{\overline{M}}$  (Checking the status) button.

The Checking the status dialog box appears.

3. In the job list in the **Checking the status** dialog box, click the **Retry** button. A message dialog box appears for confirmation.

Checking the status				~
TEST01			3/2	21/2019 10:44:39 PM Update 🕑
Start time	End time	Status	Retry	Stop
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally	3. Retry	Stop
Command execution	KNAQ4100-	-1 Are you sure you want to execu 4. OK End tir	x Ite [Retry]? Cancel me	Execution result

4. Click the **OK** button.

A message dialog box appears.

5. Check the information in the message dialog box, and then click the **OK** button. Now the rerun starts.

Checking the status				6
TEST01			3/21,	/2019 10:44:39 PM Update
Start time	End time	Status	Retry	Stop
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally	Retry	Stop
	KNAO4101-I		;	×
	It was compl button.	eted successfully.Please make s	ure to press the update	
Command execution			5.	
			ОК	
		Start t	ime	
		End ti	me	
				Execution result
		_		

- 6. Click the 🖒 (Update) button to update the information displayed in the Checking the status dialog box.
- 7. Check the information displayed in the **Checking the status** dialog box.

A new line is added to the job list. The results of rerun jobs are indicated by the suffix (Rerun) on the state name.

😒 Checking the status				×
TEST01			3/21/201	9 10:49:00 PM Update
7. art time	End time	Status	Retry	Stop
3/21/2019 10:47:33 PM	3/21/2019 10:47:36 PM	Ended normally(Rerun)	Retry	Stop
3/21/2019 10:38:27 PM	3/21/2019 10:38:28 PM	Ended normally	Retry	Stop
		_		
		Unit na	me	
		Status (	(Return code)	
		Start tir	ne	
		End tim	ne	
				Execution result

For details on how to check the execution results of jobs, see 2.3 Checking job status.

### 2.3.2 Forcibly terminating a job

To terminate a running job forcibly, open the **Checking the status** dialog box from the Job Design View. You can terminate a job forcibly only when it is in the Executing state.

This procedure assumes that a job is in the Executing state.

#### Procedure

1. Start the Job Design View, and then select the Exec. on time tab.

When you select a job, the  $\mathbf{N}$  (Checking the status) button appears.

Client Process Automation				- 🗆	×
Client Process A	utomation				
1. Exec. on time	0 Exec. on event	Items	Calendar	. 🔂 🕅	0
Execute on decided date and	d time				
Exec. on time	Details				
TEST01	Hello Output		[		

- 2. Click the 🔀 (Checking the status) button to open the Checking the status dialog box.
- 3. In the job list in the **Checking the status** dialog box, click the **Stop** button. A message dialog box appears for confirmation.

😒 Checking the status					×
TEST01			3.	/21/2019 10:50:30 PM Update	Ċ
Start time	End time	Status	Retry	3	
3/21/2019 10:50:10 PM		Executing	Retry	Stop	
Command execution	KNAO4100	-I Are you sure you want to execu 4. OK Start ti End tin	Ke [Stop]?	Execution res	ult

#### 4. Click the **OK** button.

A message dialog box appears.

5. Check the information in the message dialog box, and then click the **OK** button. Now the job is terminated forcibly.

📀 Checking the status				×
TEST01			3/21/20	6. 19 10:50:30 PM Update
Start time	End time	Status	Retry	Stop
3/21/2019 10:50:10 PM		Executing	Retry	Stop
Command execution	KNAO4101-I It was comple button.	ted successfully.Please make su Start tir End tirr	X Ire to press the update 5. OK me ne	Execution result

- 6. Click the 🖒 (Update) button to update the information displayed in the Checking the status dialog box.
- 7. Check the information displayed in the Checking the status dialog box.

You can confirm that the status is set to Ended abnormally (Cancel), indicating that the job was forcibly terminated.

<sup>2.</sup> Automating Applications by Using CPA

(	🔆 Checking the status							×
	TEST01					3/21/201	19 10:52:48 PM Update	<b>Č</b>
	7. <sub>art time</sub>	End time	Status		Retrv		Stop	
	3/21/2019 10:50:10 PM	3/21/2019 10:52:04 PM	Ended abnormally(Ca	incel)		Retry	Stop	
								. 1
								. 1
								- 1
				_	_			
	Command execution			Unit nar	ne	Command exe	ecution	
				Status (I	Return code)	Ended abnorm	nally(Cancel) (-1)	
				Start tim	1e	3/21/2019 10:5	50:10 PM	
				End time	e	3/21/2019 10:5	52:04 PM	
							Execution rest	ult
								. 1
								-

If you want to suspend a job or to stop monitoring whether an execution condition of a job executed on event is satisfied, use the cpajobstop command. For details on the cpajobstop command, see the manual for Client Process Automation, which is listed in *B.1 Related publications*.

### 2.4 Creating an action flow

You can create a job that contains action flows. This section describes how to combine standard provided action items to create an action flow that executes three actions: (1) creates an executable file, (2) checks whether the file exists, and (3) displays Success! when the file exists or Failure! when the file does not exist.

The following figure shows the processing flow of a job that contains an action flow.





The first action creates a file named hello.txt by using the echo command (cmd.exe /c echo "hello" >c:\temp\hello.txt).

The second action checks the file by using the if command (cmd.exe /c if not exist c:\temp\hello.txt exit 1). This command will end with the return value of 1 when the file does not exist. Subsequently, when the file does not exist, the action displays a message dialog box by using the msg command (msg.exe console /w Failure!). Then the action ends with the return value of 1.

The third action displays a message dialog box by using the msg command (msg.exe console /w Success!).

#### Procedure

1. Start the Job Design View, and then select the Action flow tab.

Client Process Automation		-		×
Client Process Automatio	n			
Jobs	on event Calendar	#	8	?
Jobs				
Combine items and execute application				
Exec. on time	Execute on decided date and time			
DE Exec. on event	Events to start execution			
Items				
Create when required to define jobs				
🛋 Action flow	Create when multiple actions continuously executed			
Calendar	Create when execution is performed on the basis of open days and cl	osed da	ys	

2. Click the 🕂 (New) button.

The Action flow dialog box appears.

Client Process Automation				- 0	]	×
Client Process A	utomation					
Jobs		Items			11	?
Exec. on time	DE Exec. on event	Retion flow	Calendar	ſ	2	
Create when multiple actions	s continuously executed			E		
Action flow	Details					

3. Enter the item name and description.

Example

Item name: Hello Check

Details: Check whether the file hello.txt exists.

C Action flow					×
Select item	Acti	on flow		*are	mandatory fields
Action	ltem name* Details	Hello Check Check whether the file hello.txt exists.			
Command execution	Set icon				Browse
Command execution by list					
Command execution with recovery option	Flow ma	P			
Command execution in window					
Send mail					
View the explanation of relected item					
			Save as file	Register	Cancel

4. Create the first action to create a file.

In the Action tab, select the Command execution item, and then drag the item to the Flow map area. When the item is placed in the Flow map area, the Unit dialog box appears.

S Action flow		×
Select item	Action flow	*are mandatory fields
	Item name* Hello Check	
4. Action Event monitor	Details	
Command execution	Set icon	Browse
Command execution by Net	Flow map	
Command execution with recovery option		<u>^</u>
Command execution in window		
Send mail	Command execution	
Events command		
Execute command.		
		V
	Save as file Register	Cancel

5. Enter the unit name, execution command, parameter and virtual user name of the action, and then click the **OK** button. Note that unit names must be unique in an action flow.

Example

Unit name: make file
Execution command: cmd.exe
Parameter: /c echo hello! >c:\temp\hello.txt
Virtual user name: Virtual user name<sup>#</sup>

#

If you want to execute the command as a specific Windows user, specify the name of a virtual user associated with that Windows user. If this is omitted, the command is executed with the account for the CPA job execution

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service. For details on the virtual user name, see the manual JP1/Client Process Automation Configuration and Administration Guide.

Unit name* mai	ke file	
tems		
Item name	Command execution	
Details	Execute command.	
Execution command*	cmd.exe	Browse
Parameter	/c echo hello! > c:\temp\hello.txt	
Virtual user name		

6. Create the second action to check the file.

In this step, use an item that can run a recovery execution command when the execution command fails.

Drag the **Command execution with recovery option** item to the **Flow map** area in the same way as in step 4. When the item is placed in the **Flow map** area, another **Unit** dialog box appears.

S Action flow			×
Select item	Action flow	*are mandatory fields	0
	Item name* Hello Check		
Action Event monitor	Details Check whether the file hello.txt exists.		
Command execution	Set icon		lrowse
6. Command execution by list	Flow map		
command execution with recovery			^
Command execution in window			
Send mail	Command execution with recovery		
	make file		
			-1
Execute recovery execution command			
when command is abnormally ended			
			~
	Save as file Register	Cancel	

7. Enter the unit name, execution command, parameter and virtual user name of the action, and then click the **OK** button. Example

Unit name: check file Execution command: cmd.exe Parameter: /c if not exist c:\temp\hello.txt exit 1 Recovery execution command: cmd.exe Parameter for recovery execution command: /c msg.exe console /w Failure! & exit 1<sup>#1</sup> Virtual user name: *Virtual user name*<sup>#2</sup> #1

If you want to run the recovery execution command in a 64-bit operating system, specify the parameter for the command as follows.

When the installation path of the Windows system is C:\Windows: /c c:\Windows\sysnative\msg.exe console /w Failure! & exit 1

#2

If you want to execute the command as a specific Windows user, specify the name of a virtual user associated with that Windows user. If this is omitted, the command is executed with the account for the CPA job execution service. For details on the virtual user name, see the manual *JP1/Client Process Automation Configuration and Administration Guide*.

Unit name* che	ck file
ltems	
Item name	Command execution with recovery option
Details	Execute recovery execution command when command is abnormally ended
Execution command*	cmd.exe Browse
Parameter	/c if not exist c:\temp\hello.txt exit 1
Recovery execution <sub>*</sub> command	cmd.exe Browse
Parameter for recovery execution command	/c msg.exe console /w Failure! & exit 1
Virtual user name	

8. Create the third action to complete the file.

Drag the **Command execution** item to the **Flow map** area in the same way as in step 6. When the item is placed in the **Flow map** area, another **Unit** dialog box appears. Enter the unit name, execution command, parameter and virtual user name of the action, and then click the **OK** button.

Example

Unit name: complete Execution command: msg.exe<sup>#1</sup>

Parameter: console /w Success!

**Virtual user name**: *Virtual user name*<sup>#2</sup>

#1

If you want to execute the command on a 64-bit operating system, specify the command as follows. When the installation path of the Windows system is C:\Windows:

C:\Windows\sysnative\msg.exe

#2

If you want to execute the command as a specific Windows user, specify the name of a virtual user associated with that Windows user. If this is omitted, the command is executed with the account for the CPA job execution service. For details on the virtual user name, see the manual *JP1/Client Process Automation Configuration and Administration Guide*.

8. Unit name* <sup>con</sup>	plete	
ltems		
Item name	Command execution	
Details	Execute command.	
Execution command*	msg.exe	Browse
Parameter	console /w Success!	
Virtual user name		
		_

9. Draw a relation line between two units to define the order in which the actions will run. Click the first unit make file, and then click the second unit check file.

C Action flow		×
Select item	Action flow	*are mandatory fields
	Item name* Hello Check	
Action Event monitor	Check whether the file hello.txt exists.	
Command execution	Set icon	Browse
Command execution by list	finance	
Command execution with recovery option	riow map	
Command execution in window		
Send mail	make file	
	Click	
Execute command.		
	Save as the Register	Cancer

10. Draw a relation line between the second unit check file and the third unit complete.

Draw a relation line in the same way as in step 9, and then click the **Register** button. A message appears, indicating that registration is completed.

C Action flow				×
Select item	🛋 Acti	on flow	*are mandatory fields	?
Action Event monitor	ltem name* Details	Hello Check Check whether the file hello.txt exists.		7
Command execution	Set icon			rowse
Command execution by list	Flow ma			^
Send mail		make file check file complete		
Execute command.				~
		Save as file Register	Cancel	

 Check the information in the message dialog box, and then click the OK button. Now the action flow is created. Next, let's register a job.

For details on how to register a job, see 2.2 Creating a job.



12. Return to the Job Design View, and open the Job exe. on time dialog box.Under Select item, you find that the Action tab contains the Hello Check item you created.

S Job exec. on time	×
Select item	Job exec. on time
Eter. date         Exec. time         Calendar	Job name* Details
Hello Check	Execute action
Command execution	Action* Select from item list Clear
Command execution by list	Schedule ( 📕 Execute immediately after finishing register)
Command execution with recovery option	Exec. date Select a date 15 - Select a date 15
Command execution in window	One day only ~
Send mail	Exec. time
	Calendar Select from item list Clear
View the explanation of selected item	
	Save job file Register Cancel

#### 13. Enter the job name and description.

#### Example

Job name: TEST02 Details: Hello Check

S Job exec. on time	×
Select item	Job exec. on time
	Job name" TEST02
Action Exec. date Exec. time lendar	Hello Check Details
Hello Check	Execute action
Command execution	Action* Hello Check Clear
Command execution by list	Schedule ( Execute immediately after finishing register)
Command execution with recovery option	Exec. date Select a date 15 - Select a date 15
Command execution in window	One day only v
Send mail	Exec. time 🔍 :
	Calendar Select from item list Clear
KNAO4018-I	×
Check whether the file Job [TEST02] was register	ed.
<u>16.</u>	
	<b>1</b>
	Save job file Register Cancel

14. Select the item, and then click the **Apply** button. This sets **Execute action** to the item.

#### 15. Click the **Register** button.

A message appears indicating the completion of the registration.

16. Click the **OK** button. Now the job is registered.

### 2.4.1 Checking action status

To see the execution results of actions, open the Checking the status dialog box from the Job Design View.

A status is assigned to each of the action flow (Hello Check) contained in the job and the actions (make file, check file, and complete) defined in the action flow.

Figure 2-3: Overview of the status transition of a job



### (1) Checking actions

In this example, the action make file created the c:\temp\hello.txt file and thus the action check file ended normally. The normal end caused the third action to display a message dialog box containing the message Success!.

#### Procedure

1. In the Job Design View, click the Exec. on time tab.

When you select a job, the  $\mathbf{N}$  (Checking the status) button appears.

Client Process Automation				- 🗆	×
Client Process A	utomation				
1. <sup>s</sup>		Items		🔂 🕄	
Exec. on time	🕖 Exec. on event	E Action flow	Calendar		
Execute on decided date and	l time			Ć	÷
Exec. on time	Details				
TEST01	Hello Output			_	
TEST02	Hello Check		l	2. 2	

2. Click the 🔀 (Checking the status) button.

The Checking the status dialog box appears.

3. Check the status of the job.

The upper area of the **Checking the status** dialog box displays a job list, including the job's start time, end time, and status.

6	Checking the status								×
F	555T02					3/21/201	9 11:14:15	PM Update	Ċ
	Start time	End time	Status	1	Retry		Stop		
	3/21/2019 11:09:39 PM	3/21/2019 11:09:45 PM	Ended normally			Retry		Stop	
	2								
				Jnit nam	e				
				Status (Re	eturn code)				
				Start time					
									-
			P	ind time					_
								Execution resu	lt
									. 1

4. In the job list, select a job.

A unit list appears in the lower left area of the dialog box.

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Checking the status					;
TEST02				3/21/2019 11:14:	15 PM Update 🙆
4. t time	End time	Status	Retrv	Stop	
3/21/2019 11:09:39 PM	3/21/2019 11:09:45 PM	Ended normally	F	letry	Stop
		·			
5		6.			
Hello Check		Unit n	ame	Hello Check	
		Status	(Return code)	Ended normally	
		Start ti	me	3/21/2019 11:09:40 PM	I
		End tir	ne	3/21/2019 11:09:45 PM	1
					Execution result

### Note

In the job list and unit list shown in steps 3 and 4, a job or unit is displayed in red font if the job or unit ended abnormally. For details on how abnormally-ended jobs and units are displayed, see 2.4.1(3) *Checking for abnormal end.* 

- 5. In the unit list, select a unit.
- 6. The lower right area of the dialog box displays the information of the unit, including the unit's status, the start time, and the end time.
- 7. In the unit list, click the triangle mark to the left of the unit name. Units in the action flow appear in a tree view.

Checking the status						×
TEST02				3/21/2019	11:14:15 PM Update	Ċ
Start time	End time	Status	Retry		Stop	
3/21/2019 11:09:39 PM	3/21/2019 11:09:45 PM	Ended normally		Retry	Stop	
						- 1
						- 1
						. 1
						- 1
7.						
▲ Hello Check		Unit	name	Hello Check		
check file		Statu	s (Return code)	Ended normally		
complete		Start	time	3/21/2019 11:09	:40 PM	
		End	ime	3/21/2019 11:09:	:45 PM	
					Execution resu	lt
						- 1
						- 1
						_

8. Select the check file unit.

😒 Checking the status							×
TEST02				3/21/2019	9 11:14:15 PM	Update	Ċ
Start time	End time	Status	Retry		Stop		
3/21/2019 11:09:39 PM	3/21/2019 11:09:45 PM	Ended normally		Retry		Stop	
8. Ilo Check		Unit	name	check file			
check file		State	ıs (Return code)	Ended normally	r (0)		
complete		Start	time	3/21/2019 11:0	9:40 PM		
		End	time	3/21/2019 11:0	9.		
					Exe	cution result	

- 9. Click the **Execution result** button in the lower right of the dialog box. The **Execution result** dialog box appears.
- 10. Check the execution command, standard output, and standard error output. You find that the check file action ended normally.



### (2) Testing the recovery execution command

Let's test the recovery execution command in the check file action.

Firstly, delete the hello.txt file that you initially created.

#### Procedure

- 1. In the Job Design View, click the **Action flow** tab.

2. Select the action flow Hello Check, and then click the 📝 (Edit) button. A dialog box appears for the action flow Hello Check. 3. Right-click the icon of the unit make file and select Edit from the menu. Alternatively, double-click the icon of the unit make file.

A dialog box appears for the unit make file.

C Action flow		×
Select item	Action flow	re mandatory fields
	Item name* Hello Check	
Action Event monitor	Check hello.txt file Details	
Hello Check	Set icon	Browse
Command execution		
Command execution by list	Flow map	
Command execution with recovery option		^
Command execution in window		
Send mail	make Edit check file complete	
	Delete	
View the explanation of selected item		
		~
	Save as file Register	Cancel

4. Change the parameter from /c echo hello!! >c:\temp\hello.txt to /c del c:\temp\hello.txt, and then click the OK button.

🕑 Unit		×
Unit name* <sup>ma</sup>	ke file	
Items		
ltem name Details	Command execution Execute command.	
Exect 4. command*	cmd.exe	Browse
Parameter	/c del c:\temp\hello.txt	
Virtual user name		
	ОК	Cancel

5. Click the **Register** button to register the action flow Hello Check.

A message appears, asking whether you really want to overwrite the action flow.

S Action flow		×
Select item	Action flow	*are mandatory fields
	Item name" Hello Check	
Action Event monitor	Check hello.txt file	
Hello Check	Set icon	Browse
Command execution		
Command execution by list	Flow map	
Command execution with recovery option		^
Command execution in window		
Send mail	make file check file complete	
View the explanation KNAO4009-1	×	
There is already a     want to overwrite	n item with the same name. Are you sure you	
	Салсе! 5.	~
	Save as file Register	Cancel

6. Click the **OK** button.

The Job Design View appears again. In the Exec. on time tab, select the job TEST02.

7. Click the 📝 (Edit) button.

A dialog box appears for the job TEST02.

Client Process Automation				-	<
Client Process Au	utomation				
Jobs		Items		🔐 🕅 🕜	D
Exec. on time	🕖 Exec. on event	E Action flow	Calendar		
Execute on decided date and	l time			6	
Exec. on time	Details				
TEST01	Hello Output				1
TEST02	Hello Check		<mark>7</mark> .		

8. Click the **Register** button to register the job.

A message appears, asking whether you really want to overwrite the job.

🕑 Job exec. on time	
Select item	*are mandatory fields
Action Exec. date Exec. time Calendar	Job name* TEST02 Details Hello Check
Hello Check	Execute action
Command execution	Action* Hello Check Clear
Command execution by list	Schedule ( Execute immediately after finishing register)
Command execution with recovery option	Exec. date Select a date 5 - Select a date 15
Command execution in window	One day only v
Send mail	Exec. time v : v
	Calendar Select from item list Clear
KNAO4017-I	×
view the exp	ame name. Are you sure you
	OK Cancel 8.
	Save job file Register Cancel

9. Click the **OK** button.

### (3) Checking for abnormal end

The following figure shows the status transition of the action flow (Hello Check) contained in the job and the actions (make file, check file, and complete) contained in the action flow. The second action (check file) ended abnormally (ENDE). This caused the subsequent action (complete) not to run and the status of both the action flow and the job, which are containers of the second action, to be set to Ended abnormally (ENDE).

Figure 2-4: Status transition in a job with an abnormally-ended action



In this example, the action make file deleted the c:\temp\hello.txt file and thus the if statement in the action check file returned true. This caused the execution command (cmd.exe) ended abnormally. The abnormal end, in turn, caused the recovery execution command to run to display a dialog box containing the message Failure!.

<sup>2.</sup> Automating Applications by Using CPA

#### Procedure

1. Open the **Checking the status** dialog box. From the job list, select an abnormally-ended job, which is displayed in red font.

Checking the status						×
TEST02				3/21/2019	9 11:24:03 PM Update	Ċ
1. art time	End time	Status	Retry		Stop	
3/21/2019 11:23:38 PM	3/21/2019 11:23:47 PM	Ended abnormally		Retry	Stop	
3/21/2019 11:09:39 PM	3/21/2019 11:09:45 PM	Ended normally		Retry	Stop	
			_			
2. make file		Unit n	ame	check file		
check file complete		Status	(Return code)	Ended abnorm	ally (1)	_
		Start t	me	3/21/2019 11:2	3:38 PM	_
		End tir	ne	3/21/2019 11:2	3	
					Execution res	ult
	_	_	_			

- 2. Select the unit check file, which is displayed in red font.
- 3. Click the **Execution result** button.

The Execution result dialog box appears.

4. Check the execution command, standard output, and standard error output. You find that the execution command in check file ended abnormally.



5. Additionally, confirm that the recovery execution command run has ended.

C Execution result	—		×
check file			
Execution command			
"c:\program files (x86)\hitachi\jp1cpa\bin\cpaactexec.exe" -s "cmd.exe" -r "cmd.exe" -	c <b>O</b>		
Standard output NVAO2221-1 Execution command will now start. [ c. (windows (system 52)cmd.exe / c- temp\hello.txt exit 1) 5. NAO22222 Execution of the execution command has ended (1)	morex	ust c;	^
KNAO2223-I Recovery execution command will now start. ("C:\Windows\system32\cm \windows\sysnative\msg.exe console /w Failure! & exit 1) KNAO2224-I Execution of the recovery execution command has ended. (1)	d.exe" /	/c c:	~
Standard error output			
KNAO2002-E cpaactexec command failed. (1)			

### 2.5 Setting a schedule

The previous example in 2.2 Creating a job creates a job and runs it immediately. In addition to it, you can set a schedule to run a job at a desired time.

This example configures a job to run three minutes after the current time. You close the Job Design View after registering a job and wait until the job runs.

#### Procedure

1. In the Job Design View, click the **Exec. on time** tab.

Select the job TEST01.

Client Process Automation				– 🗆 X
Client Process A	Automation			
Jobs		Items		🔐 🕅 🔞
Exec. on time	🕖 Exec. on event	E Action flow	Calendar	
Execute on decided date ar	nd time			6 🕂
1. ec. on time	Details		2	
TEST01	Hello Output		l	
1ES102	Hello Check			

2. Click the 📝 (Edit) button.

The Job exec. on time dialog box appears.

3. Specify the job execution time.

Specify the execution time by adding three minutes to the current time. For example, specify 16:30 if the current time is 16:27.

S Job exec. on time	×
Select item	Job exec. on time
Action Exec. date Exec. time Calendar	Job name" TEST01 Details Hello Output
Hello Check	Execute action
Command execution	Action* Command execution Clear
Command execution by list	Execution command* msg.exe Browse
Command execution with recovery option	Parameter comsole /w hello!!
Command execution in window	Virtual user name
Send mail	Schedule ( Execute immediately after finishing register)
	Exec. date Select a date 15 - Select a date 15
	3. One day only ~
	Exec. time 16 v : 30 v
KNAO4017-I	X Calendar Select from item list Clear
There is already an item with the same name. Are you swant to overwrite?	sure you 4.
	Save job file Register Cancel

#### 4. Click the **Register** button.

A message appears, asking whether you really want to overwrite the job.

5. Click the **OK** button.

The Job Design View appears again. Wait until the time you specified in step 3.

Check that the job displays a message dialog box containing the message hello! at the specified time (16:30 in this example).

### 2.6 Registering a job executed on event

The example in 2.2 Creating a job runs a job immediately and the example in 2.5 Setting a schedule runs a job at a specified time. In addition to them, you can configure a job to run when a specified event occurs.

This example configures a job to monitor a file event and then copy the file when the file is created.

Specifically, when the text file c:\temp\test.txt is created, the job copies it to c:\temp\backup.txt.

#### Procedure

1. In the Job Design View, click the Exec. on event tab.

Client Process Automation			-	- 🗆	×
Client Process Automat	ion				
Jobs 1.	Items			🔂 បឹ	
Exec. on time	ec. on event	Action flow	Calendar	ſ	2.
Events to start execution				C	
Exec. on event Details +					

- 2. Click the + (New) button.The Job exec. on event dialog box appears.
- 3. Enter the job name and description.

Example Job name: TEST01 Details: File Copy

C Job exec. on event			>
Select item	3. Job exec. on event	*ari	e mandatory fields
Action Exec. Condition	Details File Copy Execute action		
Command execution	Action* Select from item I	ist	Clear
Command execution by list	Event		
Command execution with recovery option	Exec. Condition* Select from item I	ist	Clear
Command execution in window			
Send mail			
View the explanation of selected item			
	Save job file	Register	Cancel

4. Under Select item, select the Action tab.

S Job exec. on event	×
ect item	Job exec. on event
	Job name* TEST03
Action Exec. Condition	Details File Copy
5. Hello Check	Execute action
Command execution Apply	6. Action* Command execution Clear
Command execution by list	Execution command* Cmd.exe Browse
Command execution with recovery option	Parameter //c copy c:\temp\test.txt c:\temp\backup.txt
Command execution in window	Virtual user name
Send mail	Event
	Exec. Condition* Select from item list Clear
Execute command.	
	Save job file Register Cancel

- 5. Select the **Command execution** item, and then click the **Apply** button.
- 6. Enter the execution command, the parameter and the virtual user name.

Example

Execution command: cmd.exe
Parameter: /c copy c:\temp\test.txt c:\temp\backup.txt
Virtual user name: Virtual user name#

#

If you want to execute the command as a specific Windows user, specify the name of a virtual user associated with that Windows user. If this is omitted, the command is executed with the account for the CPA job execution service. For details on the virtual user name, see the manual *JP1/Client Process Automation Configuration and Administration Guide*.

7. Under Select item, select the Exec. Condition tab.

S Job exec. on event			×
Select iter	Job exec. on ev	*are many	latory fields
	Job name* TEST03		_
8. Action Exec. Condition 9.	Details File Copy		
Apply Apply	Execute action		
Event monitoring for receiving mail	Action*	Command execution	Clear
Monitor any event	Execution command*	cmd.exe	Browse
Monitor the linkage from JP1AJS3	Parameter	/c copy c:\temp\test.txt c:\temp\backup.txt	
Monitor Windows event	Virtual user name		
6	0. <sup>rent</sup>		
	Exec. Condition*	Monitor file event	Clear
KNAQ4018-I	File name to be, monitored	c:\temp\test.txt	Browse
	Monitoring condition*	Create	~
Job executes wh	Virtual user name		
<mark>12.</mark>		_	
	s	ave job file Register	Cancel

- 8. Select the Monitor file event item.
- 9. Click the **Apply** button.
- 10. Enter the name of the file you want to monitor, the monitoring condition and virtual user name.

#### Example

File name to be monitored: c:\temp\test.txt Monitoring condition: Create Virtual user name: Virtual user name<sup>#</sup>

#

If you want to monitor the file as a specific Windows user, specify the name of a virtual user associated with that Windows user. If this is omitted, the command is executed with the account for the CPA job execution service. For details on the virtual user name, see the manual *JP1/Client Process Automation Configuration and Administration Guide*.

11. Click the **Register** button.

A message appears indicating the completion of the registration.

12. Click the **OK** button.

Now the job executed on event is registered.

Create the test file c:\temp\test.txt, and then check whether the file is copied.

# Appendixes

### A. Version Changes

This appendix describes the changes made in the manuals for each version.

### A.1 Changes in version 13-00

- Windows 11 was added as an applicable operating system.
- The following operating systems are no longer supported:
  - Windows 7
  - Windows 8
  - Windows 8.1

### A.2 Changes in version 12-50

- Added an item for specifying a virtual user name as an execution user name in the item definition.
- Changed how the product name is expressed in this manual.

### A.3 Changes in version 12-10

• Design modifications were made to each icon in the windows.

### A.4 Changes in version 12-01

There are no modifications.

This appendix provides reference information, including various conventions, for this manual.

### **B.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):

- JP1 Version 13 JP1/Client Process Automation Configuration and Administration Guide (3021-3-L56(E))
- JP1 Version 13 JP1/Client Process Automation Messages (3021-3-L57(E))

### **B.2 Conventions: Abbreviations for product names**

This manual uses the following abbreviations for product names:

Abbreviation	Full name or meaning
CPA	JP1/Client Process Automation

### **B.3 Conventions: Acronyms**

This manual also uses the following acronyms:

Acronym	Full name or meaning
GUI	Graphical User Interface
NTFS	New Technology File System
OS	Operating System

### B.4 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<sup>2</sup> bytes.
- 1 GB (gigabyte) is 1,024<sup>3</sup> bytes.
- 1 TB (terabyte) is 1,024<sup>4</sup> bytes.

B. Reference Material for This Manual

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