

# **FUJITSU Software**

## **Enterprise**

### **Service Catalog Manager V16.0.0**

A decorative horizontal band with a red-to-dark-red gradient, featuring abstract, glowing white and red lines that create a sense of motion and depth.

# **Systemwalker Runbook Automation**

## **Integration Guide**

Windows(64)

B1WS-1260-01ENZ0(00)  
February 2016

# Preface

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## Purpose of This Document

This document explains how to install the Systemwalker Runbook Automation integration function of Enterprise Service Catalog Manager V16.0.0.

The purpose of this document is as follows:

- To learn how to install the Systemwalker Runbook Automation integration function of Enterprise Service Catalog Manager.

## Intended Readers

This document is intended for the people who will introduce Systemwalker Runbook Automation integration function.

This document assumes that readers already have the following knowledge:

- Basic knowledge regarding the OSs that will be used
- Basic knowledge of Systemwalker Runbook Automation

## Structure of This Document

This document is structured as follows:

### [Chapter 1 Overview](#)

Explains the overview.

### [Chapter 2 Usage Scenarios](#)

Explains the usage scenarios.

### [Chapter 3 Preparations and Installation Flow](#)

Explains setup of the RB-A integration function.

### [Chapter 4 Setup](#)

Explains the interfaces of the RB-A.

### [Chapter 5 Creating and Publishing Services](#)

Explains unsetup.

### [Chapter 6 Unsetup](#)

Explains operation.

### [Chapter 7 Operation](#)

Explains modification of settings.

### [Appendix A About Interfaces with RB-A](#)

Explains service parameters for the RB-A integration function.

### [Appendix B Service Parameters for the RB-A Integration Function](#)

Explains the Azure integration function.

## Conventions Used in This Document

For information about the names, abbreviations, and notation used in this document, refer to the "Documentation Road Map".

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# Chapter 1 Overview

## 1.1 What is Systemwalker RunBook Automation Integration Function

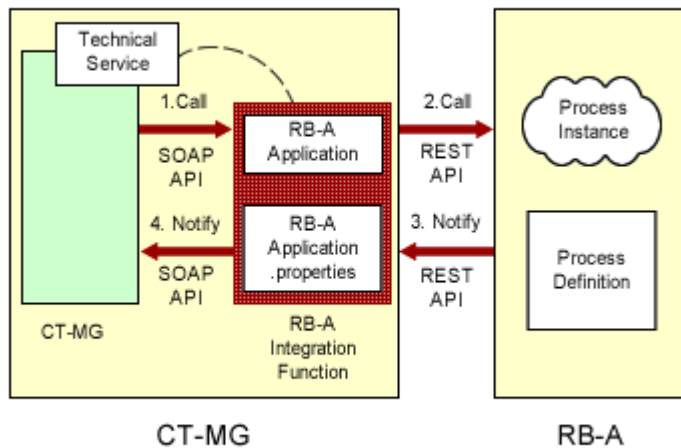
The Systemwalker RunBook Automation (RB-A) integration function provides the RB-A function as a service on Enterprise Service Catalog Manager (CT-MG).

The provided services are based on the typical usage scenarios for the RB-A integration function. The supported scenarios are as follow:

- Subscribing to, unsubscribing from, and modifying the service
- Starting and stopping the service

For details on the usage scenarios, refer to "[Chapter 2 Usage Scenarios](#)".

The RB-A integration function operates as a Java Servlet application (RB-A integration application) on CT-MG. When the RB-A integration application receives requests from CT-MG using SOAP API, it calls the REST API of RB-A and relays the request to RB-A. Using this integration application, it is possible to call a process definition of RB-A from CT-MG.



## 1.2 Operation Conditions of the Systemwalker RunBook Automation Integration Function

The RB-A integration function operates as an application on the domain for CT-MG (bes-domain).

The RB-A integration function can operate in both a standalone configuration and a distributed database configuration. In a distributed database configuration, the RB-A integration function needs to be set up on the server where CT-MG operates.

In order to use the RB-A integration function, install and set up Enterprise Service Catalog Manager in advance.

The RB-A to be integrated with CT-MG must satisfy the following condition:

- Systemwalker RunBook Automation V15.1.3

In order to use the RB-A integration function, install and set up Systemwalker RunBook Automation in advance.

## Chapter 2 Usage Scenarios

This chapter explains the usage scenarios of the RB-A integration function.

### 2.1 Usage Scenarios of the Systemwalker RunBook Automation Integration Function

RB-A is software that automates operation work by registering a series of operations as an "automated operation process (operation flow)" including not only OS/middleware operations but also work performed by people, such as confirmation and determination. For example, creation and deletion of virtual machines and system monitoring operations can be performed automatically by registering them as an automated operation process, which reduces the workload of system operation.

The RB-A integration function is an application that realizes the automated operation processes provided by RB-A as CT-MG services.

Through integration of CT-MG and RB-A, automated operation processes can be used effectively. The customer administrator of CT-MG can execute automated operation processes on RB-A through the services published on the Marketplace of CT-MG.

By configuring the RB-A integration function and technical service definitions on CT-MG, the following usage scenarios become available:

- **Subscription to, unsubscription from, and modification of services:** The scenario for relaying Provisioning requests for subscribing to, unsubscribing from, and modifying of services that are performed by the user from the CT-MG Marketplace, to RB-A. The technology provider and the supplier create technical service definitions and services and publish them on CT-MG. When the Customer administrator uses the published service, the request is relayed to RB-A. When the process on the RB-A side finishes, the RB-A integration function relays the response from RB-A and updates the CT-MG service status.
- **Starting and stopping of services:** The scenario for relaying operation requests such as starting and stopping of services performed by the user from the CT-MG Marketplace to RB-A. The technology provider and the Supplier create technical service definitions and services related to starting and stopping of services and publish them on CT-MG. When the Customer administrator uses the published service, the request is relayed to RB-A. When the process on the RB-A side finishes, the RB-A integration function relays the response from RB-A and updates the CT-MG service status.

### 2.2 About the Microsoft Azure Integration Function

Using the RB-A integration function and the Azure integration function, it is possible to control Microsoft Azure (Azure) virtual machines from the Marketplace of CT-MG.

In order to perform scenarios for the Azure integration function, it is necessary to set up the Azure integration function on RB-A in advance.

For details on the Azure integration function, refer to "[Appendix C Microsoft Azure Integration Function](#)".

# Chapter 3 Preparations and Installation Flow

This chapter explains preparation for using the RB-A integration function and the installation flow.

## 3.1 Preparation Overview

The RB-A integration application supports the APIs necessary for creating CT-MG services. The following APIs are supported:

- Provisioning services
  - Instance Creation (asyncCreateInstance): the API used for subscribing to a service.
  - Parameter Modification (asyncModifySubscription): the API used for modifying a service.
  - Instance Deletion (deleteInstance): the API for unsubscribing from a service.
- Operation services
  - Operation Execution (executeServiceOperation): the API for starting and stopping a service.

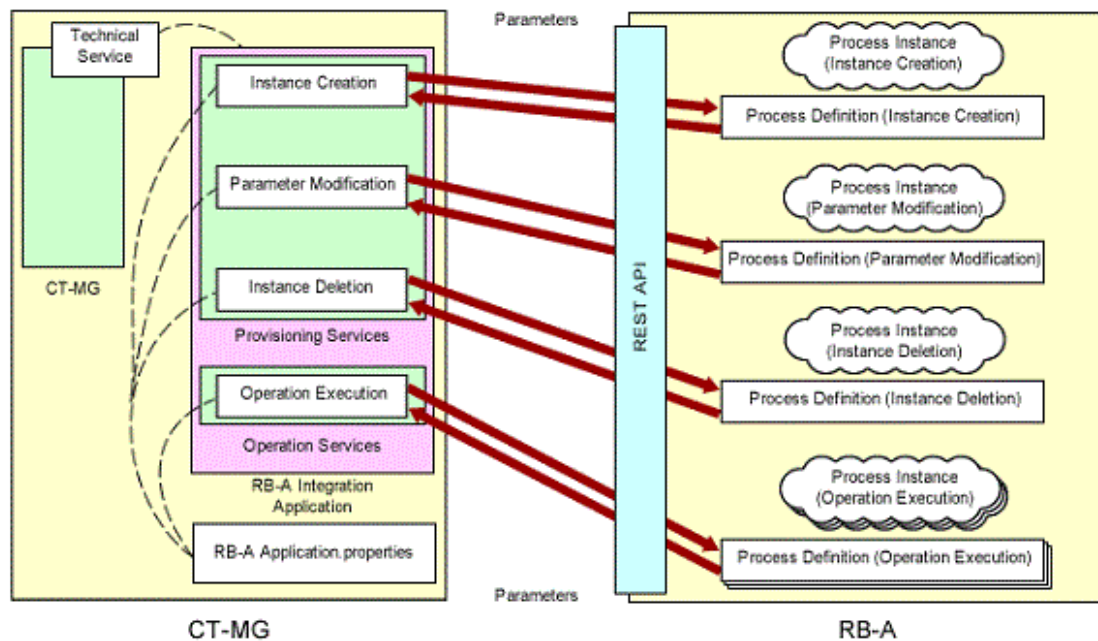
For details of and the timing to call each API, refer to the "Developer's Guide".

In order to link the RB-A integration application with RB-A, it is necessary to create process definitions for corresponding API calls on RB-A. For details on the process definitions that need to be created on RB-A, refer to "3.2 Process Definitions that Need to be Created on RB-A".

The RB-A integration application uses the REST interface of RB-A. Upon request from the RB-A integration application, RB-A creates a process instance from the process definition. At that time, individual parameters for the CT-MG API are passed to the process instance as parameters (UDA). For details on how to create process instances using the REST interface, refer to the "Reference Guide" provided by RB-A.

For sending responses from a process instance of RB-A to an RBA integration application, communication operation components (REST-based communication) are used. For details on communication operation components (REST-based communication), refer to the "Reference Guide" provided by RB-A.

For setting items necessary for performing the above communication with RB-A, refer to the 3.3 CT-MG Settings for Individual APIs



The installation flow of the RB-A integration function is shown below.



1. Set up the RB-A integration function.

For details on how to set up the RB-A integration function after setup is completed, refer to "[Chapter 4 Setup](#)".

2. Create the service on CT-MG.

The RB-A integration function can be published to the Customer by installing the RB-A integration function and then creating the service on CT-MG.

For details on how to set up and publish services, refer to "[Chapter 5 Creating and Publishing Services](#)".

## 3.2 Process Definitions that Need to be Created on RB-A

---

It is necessary to create process definitions for corresponding API calls on RB-A.

For details on how to create process definitions, refer to the "Operation Guide" provided by RB-A.

There are four types of process definitions that need to be created. Create the process definitions corresponding to the services to create.

- Instance creation (required)

The process definition necessary when subscribing to a service and the creation of this process definition is mandatory.

[Process details]

1. The process receives the parameter (UDA) passed from the RB-A integration application according to the interface specifications for `asyncCreateInstance`.
2. It creates the instance for providing the service (service specific process).
3. To give notification of progress during the process, send the progress to the RB-A integration application according to the interface of `updateAsyncSubscription`. This process is not mandatory (It is implemented in the Azure integration sample).
4. The result response is returned.

- a. When the operation is successfully completed

The process sends the response to the RB-A integration application according to the interface specifications of `completeAsyncCreateInstance`.

- b. When the operation has failed

The process sends the response to the RB-A integration application according to the interface specifications of `abortAsyncSubscription`.

- Parameter modification (optional)

When it is not allowed to modify any parameters after starting subscription, creation of this process definition is not necessary.

[Process details]

1. The process receives the parameter (UDA) passed from the RB-A integration application according to the interface specifications for `asyncModifySubscription`.
2. It modifies the parameter (service specific process).
3. The result response is returned.

- a. When the operation is successfully completed

The process sends the response to the RB-A integration application according to the interface specifications for `completeAsyncModifySubscription`.

- b. When the operation has failed

The process sends the response to the RB-A integration application according to the interface specifications for `abortAsyncModifySubscription`.

- Instance deletion (required)

The process definition necessary when unsubscribing from a service and the creation of this process definition is mandatory.

[Process details]

1. The process receives the parameter (UDA) passed from the RB-A integration application according to the interface specifications for deleteInstance.
2. It deletes the instance of the service (service specific process).

\* When deleting instances, the result response to the RB-A integration application is not necessary.

- Operation (Operation) processing (optional)

Create as many process definitions as there are operations to support. When not supporting any operations, creation of process definitions is not necessary.

[Process details]

1. The process receives the parameter (UDA) passed from the RB-A integration application according to the interface specifications for executeServiceOperation.
2. It executes the operation (service specific process).
3. The result response is returned.

The process sends the response to the RB-A integration application according to the interface specifications for updateAsyncOperationProgress.

The same interface is used for notification of success, failure, and progress information. Whether the notification contains success, failure, or progress information is determined from the notified parameter.



**Note**

If the parameter (UDA) passed from the RB-A integration application has not been defined in the process definitions, creation of the process instance fails. For this reason, the parameters passed from the RB-A integration application must be defined, even if they are not used in the process performed by the process instance.

### 3.3 CT-MG Settings for Individual APIs

CT-MG sends requests to RB-A relaying the RB-A integration function and RB-A sends responses to those requests relaying the RB-A integration function. In order to send requests to RB-A and receive responses from RB-A, it is necessary to configure settings on CT-MG.

Setting items to configure on CT-MG are shown below.

Table 3.1 Provisioning Services

No.	API	Setting Items on CT-MG
1	Instance creation	Specify the settings information file for the RB-A integration application.
2	Parameter modification	
3	Instance deletion	
4	Service specific parameter	Configure the <Parameter> element in the CT-MG technical service definition.

Table 3.2 Operation Services

No.	API	Setting Items on CT-MG
1	Operation processing	Configure the <Operation> element in the CT-MG technical service definition.

For details on the setting information file for the RB-A integration application, refer to "[8.1 Modifying Settings for the RB-A Integration Function](#)".

For details on CT-MG technical service definitions, refer to "[5.1 Parameters for Technical Service Definitions](#)".

# Chapter 4 Setup

This chapter explains the operations necessary for setting up the RB-A integration function.



Execute the procedure explained in this chapter as the OS administrator. In addition, execute the procedure as the platform operator who installed CT-MG.

## 4.1 Pre-setup Operations

The RB-A integration function operates on the same server as CT-MG. Confirm the following items in advance:

- Installation and setup of CT-MG have been completed.
- The domain for CT-MG has been started.
- The user name and password of the administrator of the environment used to execute the JavaEE in the domain for CT-MG, which were specified during setup of CT-MG
- The RB-A integrated application name that was specified during setup of CT-MG is not being the same as the application (such as fujitsu-bss) on the domain for CT-MG or an application name already registered with the RB-A integration function.

Refer to the "Installation Guide" and the "Operator's Guide" for details.

## 4.2 Setup

This section explains the procedure to setup the RB-A integration function.

### Execute the setup command

Perform the following procedure:

1. Log in as the OS administrator.  
Log in as the OS administrator on the server where the RB-A integration function is being set up.
2. Open the command prompt.
3. Execute the setup command for the RB-A integration function.

[Windows]

```
%FSCTMG_HOME%\setup\fsctmg_setupRBAInteg <APPLICATION_NAME> <AS_ADMIN_USER> <AS_ADMIN_PASSWORD>  
<AS_ADMIN_PORT> <ctmg.host> <ctmg.port> <ctmg.service.user.key> <ctmg.service.user.password>  
<rba.rest.url> <rba.userid> <rba.password> <rba.appid> <rba.pdname.createInstance>  
<rba.pdname.deleteInstance> <rba.pdname.modifySubscription>
```

Character strings enclosed by <> are parameters. Enter all parameters in the following table, starting with No.1. Enter a space between parameters.

Table 4.1 Parameters for the Setup Command of the RB-A Integration Function

No.	Parameter Name	Required	Description
1	APPLICATION_NAME	Yes	The name of the RB-A integrated application to be deployed. Specify a character string that begins with "Rba" and contains alphanumeric characters, excluding spaces. Example: RbaAdapter
2	AS_ADMIN_USER	Yes	The user name of the administrator of the environment used to execute the JavaEE in the domain for CT-MG.

No.	Parameter Name	Required	Description
			Specify a character string containing alphanumeric characters and the symbols "_", "-", or ".". Example: Administrator
3	AS_ADMIN_PASSWORD	Yes	The password of the administrator of the environment used to execute the JavaEE in the domain for CT-MG. Specify a character string containing eight or more alphanumeric characters and the symbols "_", "-", or ".". Example: User1234
4	AS_ADMIN_PORT	Yes	The port for managing the environment used to execute the JavaEE in the domain for CT-MG. Specify a number between 1 and 65535. Example: 8048
5	ctmg.host	Yes	The host name used by the PB-A integration application to access the CT-MG domain. This host name needs to match the host name that appears in the CN of the certificate of the domain for CT-MG. Example: server01
6	ctmg.port	Yes	The HTTPS port used by the RB-A integrated application to access the CT-MG domain. Specify a number between 1 and 65535. Example: 8081
7	ctmg.service.user.key	Yes	The technical service developer's user key used by the RB-A integrated application to access CT-MG. Specify 1000 or a larger number. It is also used as the authentication information of REST communication from RB-A. Example: 10000
8	ctmg.service.user.password	Yes	The technical service developer's password used by the RB-A integrated application to access CT-MG. Specify a character string containing six or more characters. It is also used as the authentication information of REST communication from RB-A. Example: User5678
9	rba.rest.url	Yes	The URL of the REST API of PB-A. Example: http://<Admin server>:<Port>/rba/server/ProcessInstances
10	rba.userid	Yes	User ID for the RB-A admin server. When RB-A calls the REST API, the value is added to the header of the HTTP BASIC authentication. Example: swrbaadmin
11	rba.password	Yes	User password for the RB-A admin server. When RB-A calls the REST API, the value is added to the header of the HTTP BASIC authentication. Example: User9012
12	rba.appid	Yes	Automated operation process group ID. Example: ctmg
13	rba.pdname.createInstance	Yes	The definition name of the Azure integration process on the RB-A called when creating a process instance. Example: rba_create

No.	Parameter Name	Required	Description
14	rba.pdname.deleteInstance	Yes	The definition name of the Azure integration process on the RB-A called when deleting a process instance. Example: rba_delete
15	rba.pdname.modifySubscription	Yes	The definition name of the Azure integration process on the RB-A called when modifying a process instance. Example: rba_modify

Example:

[Windows]

```
%FSCTMG_HOME%\setup\fsctmg_setupRBAInteg RbaAdapter Administrator User1234 8048 server01 8081 10000
User5678 http://rba_server:8080/rba_server/ProcessInstances swrbaadmin User9012 ctmg rba_create
rba_delete rba_modify
```

### Confirm execution

The message for confirming execution of the setup operation is displayed.

Type "y" to execute the operation or "n" to stop the operation, and then press the Enter key.

```
fsctmg_setup: INFO: 180: Are you sure you want to setup Enterprise Service Catalog Manager RBA
Integration? (y/n)
```

### Start the setup

When setup is started, the following message is displayed:

```
fsctmg_setup: INFO: 181: Enterprise Service Catalog Manager RBA Integration setup start
```

### Check the setup status

During the setup operation, the following messages are displayed:

```
fsctmg_setup: INFO: 107: Check if Input parameters are available.
```

```
fsctmg_setup: INFO: 108: Edit configuration setting files.
```

```
fsctmg_setup: INFO: 188: Deploy application.
```

### Confirm completion

When setup is completed, the following message is displayed:

```
fsctmg_setup: INFO: 183: Enterprise Service Catalog Manager RBA Integration setup end.
```



#### Note

It may take several minutes for the setup operation of the RB-A integration function to be completed. During setup, do not close the command prompt or terminal session or perform any other operation that terminates the command.



#### Information

If execution of the setup command for the RB-A integration function fails, take corrective action referring to the message displayed in the command prompt and the following log file:

- Storage location of the setup log:

[Windows]

```
%FSCTMG_HOME%\logs\fsctmg_setupRBAInteg.log
```

When the setup command for RB-A integration function is executed, the RB-A integrated application and the setting information file are deployed to the CT-MG installation folder (configured for the environment variable "FSCTMG\_HOME" on Windows).

- Storage location of the RB-A integrated application

[Windows]

```
%FSCTMG_HOME%\glassfish3\glassfish\domains\bes-domain\applications\<RB-A integrated application name>
```

- Storage location of the setting information file

[Windows]

```
%FSCTMG_HOME%\rba\<RB-A integrated application name>.properties
```

The execution log for the RB-A integration function is shared with CT-MG. The execution log for the RB-A integration function starts with the name of the RB-A integration application when output, for identification purposes. Take corrective action referring to the message displayed in the command prompt and the following log file:

- Storage location of the execution log

[Windows]

```
%FSCTMG_HOME%\glassfish3\glassfish\domains\bes-domain\logs\server.log
```

---

## 4.3 Post-setup Operations

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For details on how to modify the settings for the RB-A integration function after setup is completed, refer to "[Chapter 8 Modifying Settings](#)".

For details on the configuration procedure for using the RB-A integration function, refer to "[Chapter 5 Creating and Publishing Services](#)".

# Chapter 5 Creating and Publishing Services

This chapter explains technical service definitions necessary for using the RB-A integration function.

## 5.1 Parameters for Technical Service Definitions

In order to execute the scenarios, the supplier needs to create the technical services in CT-MG.

1. When using a sample of the Azure integration function, create technical services and import them as the technology provider. Or, send the created technical services to the technology provider.

For necessary parameters and basic and detailed information of the settings, create them referring to the following technical service definition:

- Storage folder of technical service definitions:

[Windows]

```
%FSCTMG_HOME%\rba\samples\AzureService.xml
```

For details on service parameters, refer to "[Appendix B Service Parameters for the RB-A Integration Function](#)".

2. Define marketable services as the supplier of CT-MG using created technical services and then publish them to the Marketplace Portal, so that subscription to and unsubscription from the services become possible.

Refer to the "Installation Guide" and the "Operator's Guide" for details.



When using a sample of the Azure integration function, configure the charge that includes the subscription fee and operation cost of the Azure virtual machine to be deployed, on the services of the RB-A integration function.

# Chapter 6 Unsetup

This chapter explains the operations necessary for unsetup of the RB-A integration function.



Execute the procedure explained in this chapter as the OS administrator. In addition, execute the procedure as the platform operator who installed CT-MG.

## 6.1 Pre-unsetup Operations

The RB-A integration function operates on the same server as CT-MG. Confirm the following items in advance:

- Installation and setup of CT-MG have been completed.
- The domain for CT-MG has been started.
- Confirm the user name and password of the administrator of the environment used to execute the JavaEE in the domain for CT-MG that was specified during setup of CT-MG.
- Confirm the RB-A integrated application name that is registered.
- Back up the setting information file *<RB-A integrated application name>.properties*.
- If the Azure integration function is operating on the same server, perform unsetup of the Azure integration function before unsetup of the RB-A integration function.

Refer to the "Installation Guide" and the "Operator's Guide" for details.

## 6.2 Unsetup

This section explains the procedure to unsetup the RB-A integration function.

### Execute the unsetup command

Perform the following procedure:

1. Log in as the OS administrator.  
Log in as the OS administrator on the server on which unsetup of the RB-A integration function is to be performed.
2. Open the command prompt.
3. Execute the unsetup command for the RB-A integration function.

[Windows]

```
%FSCTMG_HOME%\setup\fsctmg_unsetupRBAInteg <APPLICATION_NAME> <AS_ADMIN_USER>  
<AS_ADMIN_PASSWORD> <AS_ADMIN_PORT>
```

Character strings enclosed by <> are parameters. Enter all parameters in the following table, starting with No.1. Enter a space between parameters.

Table 6.1 Parameters for the Unsetup Command of the RB-A Integration Function

No.	Parameter Name	Required	Description
1	APPLICATION_NAME	Yes	The name of the RB-A integrated application to be deployed. Specify a character string that begins with "Rba" and contains alphanumeric characters, excluding spaces. Example: RbaAdapter
2	AS_ADMIN_USER	Yes	The user name of the administrator of the environment used to execute the JavaEE in the domain for CT-MG. Specify a character



No.	Parameter Name	Required	Description
			string containing alphanumeric characters and the symbols "_", "-", or ".". Example: Administrator
3	AS_ADMIN_PASSWORD	Yes	The password of the administrator of the environment used to execute the JavaEE in the domain for CT-MG. Specify a character string containing eight or more alphanumeric characters and the symbols "_", "-", or ".". Example: User1234
4	AS_ADMIN_PORT	Yes	The port for managing the environment used to execute the JavaEE in the domain for CT-MG. Specify a number between 1 and 65535. Example: 8048

Example:

[Windows]

```
%FSCTMG_HOME%\setup\fsctmg_setupRBAInteg RbaAdapter Administrator User1234 8048
```

### Confirm execution

The message for confirming execution of the unsetup operation is displayed.

Type "y" to execute the operation or "n" to stop the operation, and then press the Enter key.

```
fsctmg_unsetup: INFO: 184: Are you sure you want to unsetup Enterprise Service Catalog Manager RBA Integration? (y/n)
```

### Start the unsetup

When unsetup is started, the following message is displayed:

```
fsctmg_unsetup: INFO: 185: Enterprise Service Catalog Manager RBA Integration unsetup start.
```

### Confirm completion

When unsetup is completed, the following message is displayed:

```
fsctmg_unsetup: INFO: 187: Enterprise Service Catalog Manager RBA Integration unsetup end.
```



### Note

It may take several minutes for the unsetup operation of the RB-A integration function to be completed. During unsetup, do not close the command prompt or terminal session or perform any other operation that terminates the command.

# Chapter 7 Operation

This chapter explains operation of the RB-A integration function.

## 7.1 Enabling and Disabling the RB-A Integration Function

This section explains how to enable and disable the RB-A integration function.

### 7.1.1 Enabling the RB-A Integration Function

This section explains how to enable the RB-A integration function.

Perform the following procedure:

1. Log in as the OS administrator.  
Log in as the OS administrator on the server on which the RB-A integration function is to be started.
2. Open the command prompt.
3. Execute the command to enable the RB-A integration function.

[Windows]

```
%FSCTMG_HOME%\glassfish3\bin\asadmin -p <AS_ADMIN_PORT> -u <AS_ADMIN_USER> enable <APPLICATION_NAME>
```

Table 7.1 Parameters for Enabling the RB-A Integration Function

No.	Parameter Name	Required	Description
1	AS_ADMIN_PORT	Yes	The port for managing the environment used to execute the JavaEE in the domain for CT-MG. Specify a number between 1 and 65535. Example: 8048
2	AS_ADMIN_USER	Yes	The user name of the administrator of the environment used to execute the JavaEE in the domain for CT-MG. Specify a character string containing alphanumeric characters and the symbols "_", "-", or ".". Example: Administrator
3	APPLICATION_NAME	Yes	The name of the RB-A integrated application to be started. Specify a character string that begins with "Rba" and contains alphanumeric characters, excluding spaces. Example: RbaAdapter

Example:

[Windows]

```
%FSCTMG_HOME%\glassfish3\bin\asadmin -p 8048 -u Administrator enable RbaAdapter
```

1. The password of the administrator of the environment used to execute the JavaEE.



#### Note

When CT MG is restarted after disabling of the RB-A integration function, the RB-A integrated application remains disabled.

The RB-A integration function is not automatically enabled when CT-MG is restarted. For this reason, if the RB-A integrated application is disabled, enable it using the above procedure.

## 7.1.2 Disabling the RB-A Integration Function

This section explains how to disable the RB-A integration function.

1. Log in as the OS administrator.

Log in as the OS administrator on the server where the RB-A integration function is to be stopped.

2. Open the command prompt.
3. Execute the startup command for the RB-A integration function.

[Windows]

```
%FSCTMG_HOME%\glassfish3\bin\asadmin -p <AS_ADMIN_PORT> -u <AS_ADMIN_USER> disable <APPLICATION_NAME>
```

Table 7.2 Parameters for Disabling the RB-A Integration Function

No.	Parameter Name	Required	Description
1	AS_ADMIN_PORT	Yes	The port for managing the environment used to execute the JavaEE in the domain for CT-MG. Specify a number between 1 and 65535. Example: 8048
2	AS_ADMIN_USER	Yes	The user name of the administrator of the environment used to execute the JavaEE in the domain for CT-MG. Specify a character string containing alphanumeric characters and the symbols "_", "-", or ".". Example: Administrator
3	APPLICATION_NAME	Yes	The name of the RB-A integrated application to be stopped. Specify a character string that begins with "Rba" and contains alphanumeric characters, excluding spaces. Example: RbaAdapter

Example:

[Windows]

```
%FSCTMG_HOME%\glassfish3\bin\asadmin -p 8048 -u Administrator disable RbaAdapter
```

1. The password of the administrator of the environment used to execute the JavaEE.



When CT-MG is stopped, the RB-A integration function cannot be used, but it is not disabled.

When disabling the RB-A integration function, perform the above procedure before stopping CT-MG.

## 7.2 Customizing Text

This section explains how to customize text when using the RB-A integration function.

### 7.2.1 Text Related to the RB-A Integration Function

The text related to the RB-A integration displayed in the Marketplace can be modified as necessary. For details, refer to the "IaaS Integration Guide".

For details on how to customize text, refer to the "Marketplace Owner's Guide".

# Chapter 8 Modifying Settings

This chapter explains how to modify the settings of the RB-A integration function.

## 8.1 Modifying Settings for the RB-A Integration Function

This section explains the procedure to modify the settings for the RB-A integration function.

To modify the settings, modify the setting information file stored in the CT-MG installation folder (configured for the environment variable "FSCTMG\_HOME" on Windows).

The setting information file *<RB-A integration application name>.properties* is stored in the following folder:

[Windows]

```
%FSCTMG_HOME%\rba\RbaAdapter.properties
```

- *<RB-A integrated application name>.properties*: The file in which the information regarding the access settings with the RB-A application setup is recorded.

To modify the parameter values, enter the values just after "*<parameter name>=*". Parameter names must not be changed. Also, enter a line break between each parameter. As for the parameters to modify in this property file, please refer the following table written in step 4 in this section.

Example:

```
ctmg.host=server01
...
rba.pdname.modifySubscription=rba_modify
```

1. Create a backup of each setting information file in case modification is necessary.
2. Save the files in the storage location of each setting information file.
3. Open the target file in a text editor.
4. Modify the values for the item for which the setting needs to be modified, based on the actual environment.

Parameters of which the values can be edited are shown below.

Table 8.1 Parameters for the Setting Information Files of the RB-A Integration Function

No.	Parameter Name	Required	Description
1	ctmg.host	Yes	Host name or IP address of CT-MG (bes-domain) used when calling the API to CT-MG. As the API uses HTTPS for communication, the host name must match the cn of the certificate for CT-MG.
2	ctmg.port	Yes	Port number for HTTPS communication of CT-MG (bes-domain).
3	ctmg.service.port	Yes	Port number for the Web service of CT-MG. When the authentication mode is INTERNAL, specify BASIC (default). When the authentication mode is CLIENTCERT or SAML_SP, specify STS.
4	ctmg.service.user.key	Yes	User key and password of the technology provider who provides the technical service (RB-A integration function) * Also used as the authentication information of REST communication from RB-A.
5	ctmg.service.user.password	Yes	
6	ctmg.service.user.id	-	User ID used when the ctmg.service.port is STS. Not required when the ctmg.service.port is something other than STS.

No.	Parameter Name	Required	Description
7	rba.rest.url	Yes	The URL of the REST API of PB-A. Example: http://<Admin server>:<Port>/rbaserver/ProcessInstances
8	rba.userid	Yes	Authentication information used for calling the REST API of RB-A (authentication information for the RB-A admin server). * Used for the header of HTTP BASIC authentication.
9	rba.password	Yes	
10	rba.appid	Yes	Automated operation process group ID.
11	rba.pdname.createInstance	Yes	The definition name of the Azure integration process on the RB-A called when creating a process instance.
12	rba.pdname.deleteInstance	Yes	The definition name of the Azure integration process on the RB-A called when deleting a process instance.
13	rba.pdname.modifySubscription	Yes	The definition name of the Azure integration process on the RB-A called when modifying a process instance.

## Appendix A About Interfaces with RB-A

The RB-A integration function relays communications between CT-MG and RB-A. As the communication from CT-MG uses SOAP API, the RB-A integration function maps those communications to the REST API and relays them to RB-A.

This section explains interfaces with RB-A.

### A.1 Starting Process Instances of RB-A (Common)

The RB-A integration function starts process instances using the REST API of RB-A for coordination.

Table A.1 Request Parameters

No.	Parameter Name	Specification	Description
1	appid	Required	Automated operation process group ID. The value can be set using the definitions and environment settings of the integration functions on the RB-A side. A single value is defined for each service and the same value is used regardless of the type of Provisioning requests and Operation requests.
2	pdname	Required	Name of the process definition. The value can be set using the definitions and environment settings of the integration functions on the RB-A side. It is possible to set a different process definition name for each type of Provisioning request and Operation request.
3	pdversion	Unnecessary	Version of the process definition. Always omit.

### A.2 Provisioning Requests

This section explains the interface with RB-A used when performing Provisioning requests.

This interface relays provisioning requests from CT-MG to RB-A via the RB-A integration function.

#### Instance creation request (asyncCreateInstance)

Called when the user subscribes to a service at the Marketplace of CT-MG.

It creates an instance on Azure based on the parameter information.

The result (success/failure) can be confirmed based on which response is returned: "[Success response for instance creation \(completeAsyncSubscription\)](#)" or "[Failure response for instance creation \(abortAsyncSubscription\)](#)".

Table A.2 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "asyncCreateInstance", and not change.
2	subscription_id	Required	Subscription ID specified by the applicant.
3	default_locale	Required	Default locale of the organization to which the applicant belongs. Example: ja
4	login_url	Required	URL for logging into the application.
5	organization_id	Required	ID of the organization that the applicant belongs to. Example: a1b2c3d4
6	organization_name	Required	ID of the organization that the applicant belongs to. Example: FUJITSU Limited
7	user_id	Required	User ID of the applicant. Example: fujitsu
8	user_application_id	Required	User ID generated by the application.

No.	Parameter Name	Specification	Description
9	user_email	Required	Email address of the applicant. Example: fujitsu-taro@jp.fujitsu.com
10	user_locale	Required	Locale of the applicant. Example: ja
11	user_last_name	Optional	Last name of the applicant. Example: Fujitsu
12	user_first_name	Optional	First name of the applicant. Example: Taro
13	param_xxxx	Optional	Service specific parameter. It is possible to define the parameters to be variable (the parameters that the user would specify or select on the CT-MG portal when subscribing to a service) when starting a process on RB-A, for each service. "param_" of "param_xxxx" is fixed. For "xxxx", arbitrary content can be defined according to the parameter content. Customize it using CT-MG settings (technical service definitions) according to the process specifications defined in RB-A.

### Instance deletion request (deleteInstance)

Called when a user unsubscribes from a service at the Marketplace of CT-MG.

It deletes the instance on Azure based on the parameter information.

As CT-MG is not notified of the result, when the process fails, the system administrator must be notified of the failure by email or another method.

Table A.3 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "deleteInstance", and not change.
2	ctmg_instance_id	Required	ID that was set by RB-A during creation of the instance.
3	instance_id	Required	ID for compatibility (the same value as ctmg_instance_id should be notified).
4	organization_id	Required	ID of the organization that the applicant belongs to. Example: a1b2c3d4
5	user_id	Required	User ID of the applicant. Example: fujitsu
6	user_application_id	Required	User ID generated by the application.
7	user_email	Required	Email address of the applicant. Example: fujitsu-taro@jp.fujitsu.com
8	user_locale	Required	Locale of the applicant. Example: ja
9	user_last_name	Optional	Last name of the applicant. Example: Fujitsu
10	user_first_name	Optional	First name of the applicant. Example: Taro

### Instance modification request (asyncModifySubscription)

Called when the user modifies a service at the Marketplace of CT-MG.

It modifies settings of the instance on Azure based on the parameter information.

The result (success/failure) can be confirmed based on which response is returned: "[Success response for instance modification \(completeAsyncModifySubscription\)](#)" or "[Failure response for instance modification \(abortAsyncModifySubscription\)](#)".

Table A.4 Request Parameters

No.	Parameter Name	Specification	Description	Modification
1	method	Fixed	Specify "asyncModifySubscription", and not change.	N/A
2	subscription_id	Required	Subscription ID specified by the applicant.	Possible
3	ctmg_instance_id	Required	ID that was set by RB-A during creation of the instance.	N/A
4	instance_id	Required	ID for compatibility (the same value as ctmg_instance_id should be notified).	
5	organization_id	Required	ID of the organization that the applicant belongs to. Example: a1b2c3d4	
6	user_id	Required	User ID of the applicant. Example: fujitsu	
7	user_application_id	Required	User ID generated by the application.	
8	user_email	Required	Email address of the applicant. Example: fujitsu-taro@jp.fujitsu.com	
9	user_locale	Required	Locale of the applicant. Example: ja	
10	user_last_name	Optional	Last name of the applicant. Example: Fujitsu	
11	user_first_name	Optional	First name of the applicant. Example: Taro	
12	param_xxxx	Optional	Service specific parameter. It is possible to define the parameters to be variable (the parameters that the user would specify or select on the CT-MG portal when subscribing to a service) when starting a process on RB-A, for each service. "param_"of "param_xxxx" is fixed. For "xxxx", arbitrary content can be defined according to the parameter content. Customize it using CT-MG settings (technical service definitions) according to the process specifications defined in RB-A.	Possible

## A.3 Provisioning Responses

This section explains the interface with RB-A when performing Provisioning responses.  
This interface relays responses from RB-A to CT-MG via the RB-A integration function.

### HTTP communication parameters (common)

Specify the parameters common to the REST communication components of RB-A.

Table A.5 Request Parameters

No.	Parameter Name	Specification	Description
1	hostname	Required	Host name or IP address of the destination. Specify the value based on the settings of CT-MG.
2	port	Required	Destination port number. Specify the value based on the settings of CT-MG.
3	resourcepath	Required	The path of the resource. Example: <RB-A integration application name>/SubscriptionService
4	basicusername	Required	User name for BASIC authentication. Specify the value based on the settings of the integration function. * Specify the user key of the technology provider in CT-MG.



No.	Parameter Name	Specification	Description
5	basicpassword	Required	Password for BASIC authentication. Specify the value based on the settings of the integration function. * Specify the password of the technology provider in CT-MG.
6	protocoltype	Required	Protocol type (http or https). Specify the value based on the settings of the integration function.
7	methodname	Required	HTTP method name. Example: PUT
8	param	Unnecessary	Resource argument and its value. Specification is unnecessary.
9	element	Unnecessary	Address of the element name for analyzing REST responses. Specification is unnecessary.
10	proxy	Required	Proxy server address. Configure based on the network environment.
11	proxyport	Required	Proxy server port number. Configure based on the network environment.
12	requestxml	Required	Parameter for the REST communication. Specify the request in text format. Use UTF-8 for the character code.
13	contenttype	Unnecessary	Data format used for the REST communication (MIME type). Specification is unnecessary.
14	accepttype	Unnecessary	Data format that can be received by the REST communication (MIME type). Specification is unnecessary.
15	timeout	Required	Period of time that is allowed for the process to be completed. Specify the value based on the environment.
16	retry	Required	The number of start retries. Specify the value based on the environment.
17	retry_timeout	Required	Retry interval. Specify the value based on the environment.

### Notification of instance creation progress (updateAsyncSubscriptionProgress)

Gives notification of the progress of "[Instance creation request \(asyncCreateInstance\)](#)".

Sending of this notification is not mandatory. Use this as necessary, for example, when it takes a long time to create instances on Azure.

Table A.6 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	updateAsyncSubscriptionProgress
2	processInstance_id	Required	Process ID of the instance creation process of RB-A.
3	subscription_id	Required	Subscription name specified by the applicant. Specify the value informed in the instance creation request (asyncCreateInstance).
4	organization_id	Required	ID of the organization that the applicant belongs to. Specify the value informed in the instance creation request (asyncCreateInstance).
5	progress_en	Required	Configure the state of progress of the instance creation request (asyncCreateInstance). The value specified here is displayed on the CT-MG portal.

No.	Parameter Name	Specification	Description
6	progress_ja	Required	Configure the state of progress of the instance creation request (asyncCreateInstance). The value specified here is displayed on the CT-MG portal.

### Success response for instance creation (completeAsyncSubscription)

Gives notification that processing of "Instance creation request (asyncCreateInstance)" was successfully completed.

Table A.7 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "updateAsyncSubscriptionProgress", and not change.
2	processInstance_id	Required	Process ID of the instance creation process of RB-A.
3	subscription_id	Required	Subscription name specified by the applicant. Specify the value informed in the instance creation request (asyncCreateInstance).
4	organization_id	Required	ID of the organization that the applicant belongs to. Specify the value informed in the instance creation request (asyncCreateInstance).
5	ctmg_instance_id	Required	The value used by RB-A to identify the instance. This value is informed from CT-MG when an instance modification request (asyncModifySubscription) or an instance deletion request (deleteInstance) is made.
6	instance_id	Required	ID for compatibility (this value can be used instead of ctmg_instance_id).
7	base_url	Unnecessary	Not supported. Specification is unnecessary.
8	login_path	Unnecessary	Not supported. Specification is unnecessary.
9	info_xxxx	Optional	Access information specific to the service. Use this parameter to inform CT-MG of the information necessary for the user to access the instance on Azure. "info_" of "info_xxxx" is fixed. For "xxxx", define arbitrary content in RB-A according to the content of corresponding instance. The RB-A integration function notifies CT-MG of this information as the AccessInfo information. When doing so, notification is made using the "xxxx: <value>" format, excluding "info_". (When there are multiple "info_xxxx" parameters, they are separated into multiple lines).

### Failure response for instance creation (abortAsyncSubscription)

Gives notification that processing of "Instance creation request (asyncCreateInstance)" failed.

Table A.8 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "updateAsyncSubscriptionProgress", and not change.
2	processInstance_id	Required	Process ID of the instance creation process of RB-A.
3	subscription_id	Required	Subscription name specified by the applicant. Specify the value informed in the instance creation request (asyncCreateInstance).
4	organization_id	Required	ID of the organization that the applicant belongs to. Specify the value informed in the instance creation request (asyncCreateInstance).
5	reason_en	Required	Configure the reason or cause of the failure. The applicant of the service is informed of the value specified here by CT-MG.

No.	Parameter Name	Specification	Description
6	reason_ja	Required	Configure the reason or cause of the failure. The applicant of the service is informed of the value specified here by CT-MG.

### Instance deletion response

The "[Instance deletion request \(deleteInstance\)](#)" does not require any response.

### Success response for instance modification (completeAsyncModifySubscription)

Gives notification that processing of "[Instance modification request \(asyncModifySubscription\)](#)" was successfully completed.

Table A.9 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "updateAsyncSubscriptionProgress", and not change.
2	processInstance_id	Required	Process ID of the instance creation process of RB-A.
3	subscription_id	Required	Subscription name specified by the applicant. Specify the value informed in the instance creation request (asyncCreateInstance).
4	organization_id	Required	ID of the organization that the applicant belongs to. Specify the value informed in the instance creation request (asyncCreateInstance).
5	ctmg_instance_id	Required	The value used by RB-A to identify the instance. This value is informed from CT-MG when an instance modification request (asyncModifySubscription) or an instance deletion request (deleteInstance) is made.
6	instance_id	Required	ID for compatibility (this value can be used instead of ctmg_instance_id).
7	base_url	Unnecessary	Not supported. Specification is unnecessary.
8	login_path	Unnecessary	Not supported. Specification is unnecessary.
9	info_xxxx	Optional	Access information specific to the service. Use this parameter to inform CT-MG of the information necessary for the user to access the instance on Azure. "info_" of "info_xxxx" is fixed. For "xxxx", define arbitrary content in RB-A according to the content of corresponding instance. The RB-A integration function notifies CT-MG of this information as the AccessInfo information. When doing so, notification is made using the "xxxx: <value>" format, excluding "info_". (When there are multiple "info_xxxx" parameters, they are separated into multiple lines).

### Failure response for instance modification (abortAsyncModifySubscription)

Gives notification that processing of "[Instance modification request \(asyncModifySubscription\)](#)" failed.

Table A.10 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "updateAsyncSubscriptionProgress", and not change.
2	processInstance_id	Required	Process ID of the instance creation process of RB-A.
3	subscription_id	Required	Subscription name specified by the applicant. Specify the value informed in the instance creation request (asyncCreateInstance).

No.	Parameter Name	Specification	Description
4	organization_id	Required	ID of the organization that the applicant belongs to. Specify the value informed in the instance creation request (asyncCreateInstance).
5	reason_en	Required	Configure the reason or cause of the failure. The applicant of the service is informed of the value specified here by CT-MG.
6	reason_ja	Required	Configure the reason or cause of the failure. The applicant of the service is informed of the value specified here by CT-MG.

## A.4 Operation Requests

This section explains the interface with RB-A used when performing Operation requests.

This interface relays provisioning requests from CT-MG to RB-A via the RB-A integration function.

### Operation execution request (executeServiceOperation)

Called when the user performs an operation of a service at the Marketplace of CT-MG.

It performs the operation related to the instance on Azure based on the parameter information.

The result (success/failure) can be confirmed using the "[Operation execution response \(updateAsyncOperationProgress\)](#)".

Table A.11 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "executeServiceOperation", and not change.
2	user_id	Required	User ID of the user who made the request. Example: fujitsu
3	ctmg_instance_id	Required	ID that was set by RB-A during creation of the instance.
4	instance_id	Required	ID for compatibility (the same value as ctmg_instance_id should be notified).
5	transaction_id	Required	ID that indicates the transaction of the operation. Specify this ID when notifying CT-MG of the result.
6	operation_id	Required	ID that indicates the operation type. Example: START_SERVER CT-MG supports multiple operations for each service. This parameter indicates the operation selected by the user. Define the operation_id for each of the operations that are implemented in the process definitions of RB-A and then register them in the service definition file (technical service definition file) of CT-MG.
7	param_xxxx	Optional	Operation specific parameter. Example: param_snapshot_name=initial It is possible to define the parameters to be variable (the parameters that the user would specify or select on the CT-MG portal when performing the operation) when starting a process on RB-A, for each operation. "param_" of "param_xxxx" is fixed while "xxxx" is variable, depending on the parameter content. This part can be customized using CT-MG settings (technical service definitions) according to the process specifications defined in RB-A.

### Operation parameter acquisition request (getParameterValues)

Called when (before) the service user performs an operation at the Marketplace of CT-MG.

Create a list of the values that can be specified for each parameter for the operation type of the instances on the specified Azure.

The result (success/failure) can be confirmed according to the "[Operation parameter acquisition response \(getParameterValuesReply\)](#)".

Table A.12 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "executeServiceOperation", and not change.
2	user_id	Required	User ID of the user who made the request. Example: fujitsu
3	ctmg_instance_id	Required	ID that was set by RB-A during creation of the instance.
4	instance_id	Required	ID for compatibility (the same value as ctmg_instance_id should be notified).
5	operation_id	Required	ID that indicates the operation type. Example: START_SERVER CT-MG supports multiple operations for each service. This parameter indicates the operation selected by the user. Define the operation_id for each of the operations that are implemented in the process definitions of RB-A and then register them in the service definition file (technical service definition file) of CT-MG.

## A.5 Operation Responses

This section explains the interface with RB-A when performing Operation responses.

This interface relays responses from RB-A to CT-MG via the RB-A integration function.

### Operation execution response (updateAsyncOperationProgress)

Gives notification of the response (status or result) to the "[Operation execution request \(executeServiceOperation\)](#)".

Table A.13 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Fixed	Specify "updateAsyncOperationProgress", and not change.
2	processInstance_id	Required	Process ID of the Operation execution request process of RB-A.
3	transaction_id	Required	ID that indicates the transaction of the operation. Specify the value passed by executeServiceOperation.
4	status	Required	ID that indicates the execution status or result of the operation. Specify one of the following values (character strings): COMPLETED: The operation was completed successfully ERROR: Error RUNNING: The operation is in progress. * Use this value when returning the execution status.
5	progress_en	Required	The character string that explains the execution result, error details, or execution status. Displayed for the users at the CT-MG portal.
6	progress_ja	Required	The character string that explains the execution result, error details, or execution status. Displayed for the users at the CT-MG portal.

### Operation parameter acquisition response (getParameterValuesReply)

Gives notification of the response to the "[Operation parameter acquisition request \(getParameterValues\)](#)".

Table A.14 Request Parameters

No.	Parameter Name	Specification	Description
1	method	Required	Specify "getParameterValuesReply", and not change.
2	processInstance_id	Required	Process ID of the Operation parameter acquisition process of RB-A.

No.	Parameter Name	Specification	Description
3	user_id	Required	User ID of the applicant. The value notified by getParameterValues is returned.
4	ctmg_instance_id	Required	ID that was set by RB-A during creation of the instance. The value notified by getParameterValues is returned.
5	instance_id	Required	ID for compatibility (this value can be used instead of ctmg_instance_id). List the parameter names and specifiable value for each parameter. When there are multiple values that can be specified, the same parameter name can be used for those values. Example: param_snapshot_name=initial ..param_snapshot_name=20150101
6	operation_id	Required	ID that indicates the operation type. The value notified by getParameterValues is returned.
7	param_xxxx	Optional	Operation specific parameter. Example: param_snapshot_name=initial It is possible to define the parameters to be variable (the parameters that the user would specify or select on the CT-MG portal when performing the operation) when starting a process on RB-A, for each operation. "param_" of "param_xxxx" is fixed while "xxxx" is variable, depending on the parameter content. This part can be customized using CT-MG settings (technical service definitions) according to the process specifications defined in RB-A.

# Appendix B Service Parameters for the RB-A Integration Function

This appendix explains the parameters for the technical service processed by the RB-A integrated application.

## B.1 Parameters Used for Provisioning Request/Response

### provisioningUrl

provisioningUrl=http://localhost:8080/RbaAdapter/ProvisioningService?wsdl

Specify the URL of the WSDL for the provisioning service of the RB-A integration service. Both HTTP and HTTPS can be used. When using HTTPS, the host name needs to match the cn of the certificate for CT-MG (bes-domain).

### provisioningType

provisioningType=ASYNCHRONOUS

For *<provisioningType>*, specify "ASYNCHRONOUS" (fixed value).

### loginPath

loginPath=*<unnecessary>*

*<loginPath>* is not necessary due to user access.

### baseUrl

baseUrl=*<unnecessary>*

*<baseUrl>* is not necessary due to user access.

### accessType

accessType=USER

For *<accessType>*, specify "USER" (fixed value).

## B.2 Parameters Used for Operation Requests/Responses

### id

id=*<Process instance name>*

Specify the name of the process instance with Operation implemented.

### actionURL

actionURL=http://localhost:8080/RbaAdapter/OperationService?wsdl

Specify the URL of the WSDL of the Operation service provided by the RB-A integration function. Both HTTP and HTTPS can be used. When using HTTPS, the host name needs to match the cn of the certificate for CT-MG (bes-domain).

### OperationParameter

OperationParameter=param\_*<id value>*

A service specific parameter. The id is converted to "param\_*<id value>*" and RB-A is notified.

# Appendix C Microsoft Azure Integration Function

This appendix explains the Azure integration function.

## C.1 Overview of the Microsoft Azure Integration Function

### C.1.1 What is the Microsoft Azure Integration Function

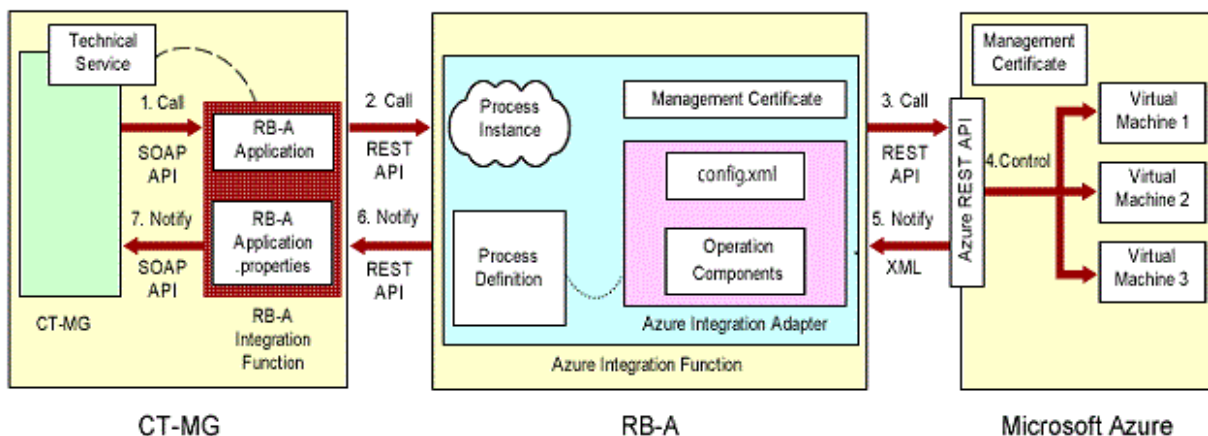
The Microsoft Azure (Azure) integration function provides definitions of the processes that operate on RB-A and operation components for controlling Azure. Control of Azure virtual machines from process instances of RB-A is possible.

The provided services are based on the typical usage scenarios for the Azure integration function. The supported scenarios are as follows:

- Creation of virtual machines
- Starting and stopping of virtual machines
- Modification of virtual machines
- Deletion of virtual machines

For details on the usage scenarios, refer to "[C.2 Usage Scenarios](#)".

The Azure integration function operates as a process instance on RB-A. When the process instance receives requests from CT-MG using REST API, it performs control of virtual machines. The process instance of RB-A can be used as a CT-MG service by using the RB-A integration function.



The installation flow for a process instance of RB-A to become available as a CT-MG service using the Azure integration function and RB-A integration function is shown below.

1. Set up the Azure integration function.

For details, refer to "[C.3 Setup of the Azure Integration Function](#)".

2. Set up the RB-A integration function.

For details, refer to "[Chapter 4 Setup](#)".

3. Create the service on CT-MG.

The Azure integration function can be published for the Customer by installing the Azure integration function and the RB-A integration function and then creating the service on CT-MG. For details, refer to "[Chapter 5 Creating and Publishing Services](#)".



4. Configure the parameters to specify for the technical services of the Azure integration function.

For details, refer to "[C.6 Service Parameters for the Azure Integration Function](#)".

## C.1.2 Prerequisites

---

The Azure integration function that links with Azure conforms to the following library specifications:

- Ruby 2.1.5
- azure-sdk-for-ruby 0.6.4

In addition, as the Azure integration function operates on RB-A, the following conditions must be satisfied.

### Required software

- A Windows Server OS and Red Hat Enterprise Linux 6 (for Intel 64) supported by the RB-A admin server

When the OS is RedHat Enterprise Linux 6 (for Intel 64), the following software provided with the OS is also necessary:

- nss-softokn-freebl (64-bit version)
- glibc (64-bit version)
- zlib (64-bit version)
- readline (64-bit version)
- ncurses-libs (64-bit version)
- libffi (64-bit version)
- openssl (64-bit version)

### Exclusive software

- The same as for the RB-A admin server

## C.2 Usage Scenarios

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This section explains usage scenarios of the Azure integration function.

### C.2.1 Usage Scenarios of the Microsoft Azure Integration Function

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The Azure integration function is an application that realizes the functions that utilize ICT resources effectively and improve the efficiency of their operation and management that are provided by RB-A, on Azure environments. As automated operation processes can be created using combinations of operation components and flows on RB-A, providing resources based on requests from service users is possible. In addition, it is also possible to create, delete, and modify virtual machines dynamically upon request.

By integrating CT-MG and RB-A, Azure resources can be used efficiently. The Customer administrator of CT-MG can subscribe for and use virtual machines through the services published on the Marketplace of CT-MG.

By using the Azure integration function on RB-A, the following usage scenarios become available.

- **Creation of virtual machines:** The scenario for creating a virtual machine using Azure integration process definitions created in advance on RB-A. The RB-A administrator registers the Azure integration process definitions on RB-A. When the Customer administrator subscribes to a service published using CT-MG, the process instance is created on RB-A and it creates the virtual machine. When virtual machine creation is completed, a new virtual machine becomes available to the Customer.
- **Starting and stopping of virtual machines:** The scenario for starting and stopping of virtual machines subscribed to by the Customer. Once the Customer subscribes to services based on the scenario for creation of virtual machines and then allocates users to the subscription, the users can start performing starting and stopping of virtual machines from the service portal of CT-MG. The process instance on RB-A starts and stops virtual machines on Azure.
- **Modification of virtual machines:** The scenario for modifying the end point information, number of data disks, and instance size of virtual machines subscribed to by the Customer. When the Customer administrator modifies parameters of the service being used, the

process instance modifies the settings for the virtual machine. When modification of settings is completed, the virtual machine can be used by the Customer, with the settings modified based on the modified parameters.

- **Deletion of virtual machines:** The scenario for deleting virtual machines subscribed by the Customer. When the Customer administrator unsubscribes from a service, the process instance deletes the virtual machine. The subscription is cancelled regardless of whether or not this deletion process is successfully completed.

If a problem occurs on the Azure side when performing operations such as creation and deletion of a virtual machine, the process instance of RB-A notifies the responsible technology provider organization by email.

RB-A manages the virtual machine created based on the information provided when subscribing to the CT-MG service, in the same way as for the other virtual machines. Therefore, standard RB-A tools can be used for displaying and monitoring these environments.

## C.3 Setup of the Azure Integration Function

---

This section explains the preparation for setup and the setup procedure of the Azure integration function.



### Note

Execute the procedure explained in this chapter as the OS administrator. In addition, execute the procedure as the platform operator who installed RB-A.

### C.3.1 Pre-setup Operations

---

The Azure integration function operates on the same server as RB-A. Configure the following items in advance:

#### Configuration at the Azure admin portal

Perform the following procedure:

1. Login to the Azure admin portal of the Azure subscription to use.
2. Confirm that the x.509 certificate has been uploaded.
3. Create the following resources (skip this if they have already been created) and then note the information necessary for setting parameters (such as the name) in CT-MG.
  - A generalized image (This will be used for virtual machine creation)
  - A storage account with an arbitrary redundancy option specified
  - A cloud service
  - A virtual network
  - An availability set name
4. When assuming Linux for virtual machines and using the SSL certificate for SSH login, confirm that the fingerprint of the certificate which was uploaded on the cloud service can be checked. The acceptable format of the certificate is .cer or .pfx. For details, refer to the following URL:
  - <http://azure.microsoft.com/en-us/documentation/articles/virtual-machines-linux-use-ssh-key/>

#### Configuration in CT-MG

Perform the following procedure:

1. Reflect the information that was confirmed during "[Configuration at the Azure admin portal](#)" on CT-MG so that it can be used as parameters when issuing the REST API from CT-MG to RB-A.  
Refer to the "Operator's Guide" for details.
2. Confirm that communication between CT-MG and RB-A is possible.

## Configuration in the RB-A environment

Perform the following procedure before installing the Azure integration adapter:

1. Log in as the OS administrator.

Log in to the RB-A admin server as the OS administrator.

2. Create the following folder:

[Windows]

```
<Arbitrary drive>:\FSCTMG\Adapter
```

[Linux]

```
/opt/FJSVctbss/Adapter
```

3. In Windows environments, configure the system environment variable "%CTMG\_AZURE\_ADAPTER\_HOME%".

[Windows]

```
<Arbitrary drive>:\FSCTMG\Adapter\azure
```

4. Copy the Azure integration adapter (azure.zip) stored in the sdk folder where the product DVD is mounted to the created folder.

[Windows]

```
<Arbitrary drive>:\FSCTMG\Adapter\azure.zip
```

[Linux]

```
/opt/FJSVctbss/Adapter/azure.zip
```

## C.3.2 Setup

This section explains the procedure to set up Azure process definitions.

### Setting up the Azure integration adapter

Perform the following procedure:

1. Log in as the OS administrator.

Log in to the RB-A admin server as the OS administrator.

2. Place the Azure integration adapter on the RB-A admin server.

Decompress the compressed file of the Azure integration adapter stored in the following folder:

[Windows]

```
<Arbitrary drive>:\FSCTMG\Adapter\azure.zip
```

[Linux]

```
/opt/FJSVctbss/Adapter/azure.zip
```

3. When the OS of the RB-A admin server is Linux, create the following folders:

[Linux]

```
/var/opt/FJSVctbss/adapter/log
```

```
/etc/opt/FJSVctbss/adapter/certificate/from_ctmg
```

```
/etc/opt/FJSVctbss/adapter/certificate/to_azure
```

```
/etc/opt/FJSVctbss/adapter/config
```

4. Create the environment setting file "config.xml".

For details on the environment setting file, refer to "C.5.1 Configuration of the Environment Setting File".

### Creation and configuration of automated operation process groups

Perform the following procedure:

1. Create a space for an automated operation process group in RB-A.

For details, refer to the "Operation Guide" provided by RB-A.

Table C.1 Parameters for the Setup Command of the RB-A Integration Function

No.	Item	Description
1	Process Group ID	Specify an arbitrary process group ID. Example: ctmg
2	Process Group Owner Group	Specify the owner group and user to be used for authentication of the RB-A admin server. Example: swrbaadmin

2. Register the process definitions stored in the following folder to RB-A.

Use the RB-A management console or commands to register process definitions. "ctmg\_en.bar" file shows the descriptions of process definitions in English.

For details, refer to the "Operation Guide" or "Reference Guide" provided by RB-A.

[Windows]

```
<Deployed directory of azure.zip>\rba\process\ctmg.bar
```

```
<Deployed directory of azure.zip>\rba\process\ctmg_en.bar
```

[Linux]

```
/opt/FJSVctbss/adapter/rba/process/ctmg.bar
```

```
/opt/FJSVctbss/adapter/rba/process/ctmg_en.bar
```

3. Register the operation components stored in the following folder to RB-A.

Use the RB-A management console or commands to register operation components.

For details, refer to the "Operation Guide" provided by RB-A.

[Windows]

```
<Deployed directory of azure.zip>\rba\component\*.zip
```

[Linux]

```
/opt/FJSVctbss/adapter/rba/component/*.zip
```

4. Place the automated operation process group that was created online.

For details, refer to the "Operation Guide" provided by RB-A.

5. Configure the schedule definition for deleting logs of RB-A.

Refer to the process definition "azure\_log\_clean" from the RB-A management console and then create the schedule definition from process definition details. Configuration of user definition attributes that is performed when creating schedule definitions is not necessary.

For details, refer to the "Operation Guide" provided by RB-A.

Table C.2 Parameters for Schedule Definition Creation (General Settings)

No.	Item	Description
1	Name	Name of the schedule definition.
2	Process Definition	Process definition that configures the schedule definition. Specify the process definition "azure_log_clean".
3	Scheduled Execution Time	Expected time to execute the process. Specify "10 minutes".
4	Execute Multiple Processes Concurrently	Select whether or not simultaneous execution is allowed when starting the process from the schedule definition. Specify "Do not allow".
5	Memo	Explanation of the schedule definition.

## C.4 Unsetup of the Azure Integration Function

This section explains the preparation for unsetup and the unsetup procedure of the Azure integration function.



### Note

Execute the procedure explained in this chapter as the OS administrator. In addition, execute the procedure as the platform operator who installed RB-A.

### C.4.1 Pre-unsetup Operations

The Azure integration function operates on the same server as RB-A. Ensure the following procedures are performed in advance:

- Export the automated operation process groups that have been registered.
- Export the registered process definitions.
- Export the registered operation components.
- Export the registered schedule definitions.

For details, refer to the "Operation Guide" provided by RB-A.

- Back up "config.xml", the environment setting file of the Azure integration adapter.
- Back up the certificate.
- If the Azure integration function is operating on the same server as CT-MG, perform unsetup of the Azure integration function first.

#### Configuration in CT-MG

Perform the following procedure:

1. Delete the Marketplace where the services published in CT-MG exist to deactivate the services.  
Refer to the "Operator's Guide" for details.

#### Configuration at the Azure admin portal

Perform the following procedure:

1. Login to the Azure admin portal of the Azure subscription to use.
2. Delete the uploaded x.509 certificate.
3. Delete unnecessary resources.
  - A generalized image (This will be used for virtual machine creation)
  - A storage account with an arbitrary redundancy option specified

- A cloud service
- A virtual network
- An availability set name

## C.4.2 Unsetup

---

This section explains the procedure to unsetup Azure process definitions.

### Deletion of automated operation process groups

Perform the following procedure:

1. Delete the schedule definition for deleting logs of RB-A.

Delete the schedule definitions with the process definition "azure\_log\_clean" specified, from the RB-A management console. For details, refer to the "Operation Guide" provided by RB-A.

2. Place the automated operation process group that was created offline.

From the RB-A management console, place the automated operation process group of the Azure integration function which is online. For details, refer to the "Operation Guide" provided by RB-A.

3. Delete the registered operation components.

Delete the operation components of the Azure integration function from the RB-A management console. For details, refer to the "Operation Guide" provided by RB-A.

4. Delete the registered process definitions.

Use the RB-A management console or commands to delete the process definitions for the Azure integration function. For details, refer to the "Operation Guide" or "Reference Guide" provided by RB-A.

5. Delete the automated operation process group that was created.

Delete the automated operation process group of the Azure integration function from the RB-A management console. For details, refer to the "Operation Guide" provided by RB-A.

### Deletion of the Azure integration adapter

Perform the following procedure:

1. Log in as the OS administrator.

Log in to the RB-A admin server as the OS administrator.

2. Delete the folders in which the Azure integration adapter is stored.

Delete the following folders in which the compressed file of the provided Azure integration adapter were decompressed:

[Windows]

```
<Arbitrary drive>:\FSCTMG\Adapter
```

[Linux]

```
/opt/FJSVctbss/Adapter
```

```
/var/opt/FJSVctbss/adapter/log
```

```
/etc/opt/FJSVctbss/adapter
```

3. In Windows environments, delete the system environment variable "%CTMG\_AZURE\_ADAPTER\_HOME%".

## C.5 Settings of the Azure Integration Function

This appendix explains the settings of the Azure integration function.

### C.5.1 Configuration of the Environment Setting File

Configure the environment setting file for the Azure integration function.

Perform the following procedure:

1. Log in as the OS administrator.  
Log in to the RB-A admin server as the OS administrator.
2. Create the environment setting file "config.xml" in the following folders.

[Windows]

```
%CTMG_AZURE_ADAPTER_HOME%\etc\config\azure\config.xml
```

[Linux]

```
/etc/opt/FJSVctbss/adapter/config/azure/config.xml
```

For necessary parameters and basic and detailed information of the settings, create them referring to the following sample file. "config.xml.en.sample" explains the description in English:

[Windows]

```
%CTMG_AZURE_ADAPTER_HOME%\etc\config\azure\config.xml.sample
```

```
%CTMG_AZURE_ADAPTER_HOME%\etc\config\azure\config.xml.en.sample
```

[Linux]

```
/etc/opt/FJSVctbss/adapter/config/azure/config.xml.sample
```

Table C.3 Parameters for the Azure Integration Adapter

No.	Xpath	Description
1	/Adapter/Azure/ManagementAPI/Proxy/Host	The host of the proxy server for communication with Azure. Example: proxy.sample.com
2	/Adapter/Azure/ManagementAPI/Proxy/Port	The port of the proxy server for communication with Azure. Example: 8080
3	/Adapter/Azure/ManagementAPI/Proxy/UserName	The user name of the proxy server for communication with Azure. When "@" is contained in the user name, enter "%40". Example: user01
4	/Adapter/Azure/ManagementAPI/Proxy/Password	The password for the user name of the proxy server for communication with Azure. Example: pass01
5	/Adapter/Azure/ErrorMail/hostname	The host name or IP address of the outgoing mail (SMTP) server. Up to 1024 characters. Example: mailhost.com
6	/Adapter/Azure/ErrorMail/fromaddress	The source address of the email. Up to 1024 characters. Example: a@b.c.com

No.	Xpath	Description
7	/Adapter/Azure/ErrorMail/toaddress	The destination address of the email. Up to 1024 characters. Example: z@b.c.com
8	/Adapter/Azure/ErrorMail/subject	The subject of the email. Up to 1024 characters. Example: ErrorReport from Azure Adapter
9	/Adapter/Azure/ErrorMail/ccaddress	The carbon copy (CC) address of the email. When specifying multiple CC addresses, use a semicolon (";") as the delimiter. Up to 1024 characters can be specified. When not using an address, specify a blank space. Example: b@b.c.com;c@b.c.com
10	/Adapter/Azure/ErrorMail/smtpusername	The user name used for STMP authentication with the host of the outgoing mail (SMTP) server. When omitted, SMTP authentication is not used for email transmission. Up to 1024 characters can be specified. Example: user02
11	/Adapter/Azure/ErrorMail/smtppassword	The password for the user name used for STMP authentication with the host of the outgoing mail (SMTP) server. When omitted, SMTP authentication is not used for email transmission. Up to 1024 characters can be specified. Example: pass02
12	/Adapter/Azure/ErrorMail/port	The TCP port number for connection to the outgoing mail (SMTP) server. Specify a TCP port number between 0 and 65535. When left blank, 25 is specified. Example: 25
13	/Adapter/Azure/ErrorMail/timeout	Period of time allowed for email transmission (seconds). A value in the range from 300 to 86,400 (one day) can be specified. Example: 300
14	/Adapter/Azure/ErrorMail/retry	The number of mail sending retries. A value in the range from 0 to 5 can be specified. Example: 1
15	/Adapter/Azure/ErrorMail/retry_interval	Retry interval of email transmission (seconds). A value in the range from 1 to 14400 can be specified. Example: 600
16	/Adapter/Azure/Notify/Host	The host of the notification destination. Example: sample.com
17	/Adapter/Azure/Notify/Port	The port of the notification destination. Example: 8080
18	/Adapter/Azure/Notify/UserName	User name of the server at the notification destination. Example: user01



No.	Xpath	Description
19	/Adapter/Azure/Notify/Password	The password for the user name of the server at the notification destination. Example: pass01
20	/Adapter/Azure/Notify/Protocol	https or http. Example: http
21	/Adapter/Azure/Notify/Proxy/Host	Host of the proxy server for communication with the notification destination. When authentication information is necessary, enter it in the following format: user:password:host Example 1: proxy.sample.com Example 2: hogemura.hogehiro%40jp.fujitsu.com :1234567890@ proxy.fujitsu.com
22	/Adapter/Azure/Notify/Proxy/Port	Port of the proxy server for communication with the notification destination. Example: 8080
23	/Adapter/Azure/Notify/Proxy/UserName	User name of the proxy server for communication with the notification destination. Example: user01
24	/Adapter/Azure/Notify/Proxy/Password	The password for the user name of the proxy server for communication with the notification destination. Example: pass01
25	/Adapter/Azure/Notify/Create/HttpMethod	HTTP method for notification of creation to the notification destination. Example: PUT
26	/Adapter/Azure/Notify/Create/HttpPath	HTTP URI path for notification of creation to the notification destination. Example: /aaa
27	/Adapter/Azure/Notify/Create/HttpParam	HTTP URI parameter for notification of creation to the notification destination. Example: hoge=foo&var=baz
28	/Adapter/Azure/Notify/Create/HttpParamSuccessMethod	Parameter character string used when notifying CT-MG of success of virtual machine creation. Example: completeAsyncSubscription
29	/Adapter/Azure/Notify/Create/HttpParamFailureMethod	Parameter character string used when notifying CT-MG of failure of virtual machine creation. Example: abortAsyncSubscription
30	/Adapter/Azure/Notify/Create/ContentType	HTTP header used when notifying CTMG of failure of virtual machine creation. Example: application/xml
31	/Adapter/Azure/Notify/Create/AcceptType	HTTP header used when notifying CTMG of failure of virtual machine creation. Example: test/plain
32	/Adapter/Azure/Notify/Create/Timeout	A period of time allowed for execution of the operation components to be completed when sending notification to the destination (seconds). Example: 300

No.	Xpath	Description
33	/Adapter/Azure/Notify/Create/Retry	The number of notification retries. Example: 3
34	/Adapter/Azure/Notify/Create/RetryTimeout	Retry interval of notification to the destination (seconds), performed when creating an instance. Example: 300
35	/Adapter/Azure/Notify/Delete/RetryTimeout	Retry interval of notification to the destination (seconds), performed when deleting an instance. Example: 300
36	/Adapter/Azure/Notify/Change/RetryTimeout	Retry interval of notification to the destination (seconds), performed when modifying an instance. Example: 300
37	/Adapter/Azure/Notify/StartStop/RetryTimeout	Retry interval of notification to the destination (seconds), performed when starting or stopping an instance. Example: 300

## C.5.2 Configuration of Certificates

When the process instance on RB-A issues the REST API to Azure by executing commands, the certificate (path phrase) corresponding to the Azure subscription ID is necessary. For this reason, place the certificate and the path phrase file in the Azure integration adapter.

Perform the following procedure:

1. Log in as the OS administrator.

Log in to the RB-A admin server as the OS administrator.

2. Place the certificate (in .pem or .pfx format).

Place the certificate in the following folder:

[Windows]

```
%CTMG_AZURE_ADAPTER_HOME%\etc\certificate\to_azure\
```

[Linux]

```
/etc/opt/FJSVctbss/adapter/certificate/to_azure
```

The file name of the certificate to be placed must be <Azure subscription number>.pfx or <Azure subscription number>.pem.

- Example of the file name:

```
3b6eb515-ad07-4474-bd33-e15bb5de9962.pfx
```

3. Place the path phrase file corresponding to the certificate.

Place the path phrase file in the following folder:

[Windows]

```
%CTMG_AZURE_ADAPTER_HOME%\etc\certificate\to_azure\passphrase
```

[Linux]

```
/etc/opt/FJSVctbss/adapter/certificate/to_azure/passphrase
```

The file name of the path phrase file to be placed must be <Azure subscription number>.txt.

- Example of the file name:

```
3b6eb515-ad07-4474-bd33-e15bb5de9962.txt
```

Ensure that the path phrase file contains the path phrase and EOF, excluding linefeed codes.

## Note

When placing the certificate and the path phrase file corresponding to the Azure subscription ID, note the following:

- When only one certificate and path phrase file exist

As the file name of the certificate is treated as the Azure subscription ID, the Azure subscription ID can be omitted.

- When multiple certificates are placed and the Azure subscription ID is not specified in the environment setting file

The placed certificate files are sorted in ascending order, and the one that is listed first is used as the Azure subscription ID.

## C.6 Service Parameters for the Azure Integration Function

This section explains the parameters used by the Azure integration function.

### C.6.1 Parameters for Provisioning Requests

Modify the values for the items that can be used in the Provisioning requests of the Azure integration function, based on the actual environment.

The parameters that can be used are shown below:

Table C.4 Parameters for Provisioning Requests

No.	Parameter Name	Required	Description
1	param_subscription_id	-	Windows Azure subscription ID. When only one piece of subscription information is registered on the RB-A admin server, this parameter can be omitted. When multiple pieces of subscription information are registered, this parameter must be specified. If omitted even when multiple pieces of subscription information are registered, subscription IDs are sorted and the one that is listed first will be used. Once created, the value cannot be changed.
2	param_vm_name	Yes	The name of the virtual machine to be created. Acceptable characters conform to the specifications of Azure. Once created, the setting cannot be changed.
3	param_vm_user	Yes	Initial logon user to be configured for the virtual machine to be created. This parameter is ignored when using a specialized (without sysprep) image. Once created, the setting cannot be changed.
4	param_vm_password	No	The password for the initial logon user to be configured for the virtual machine to be created. This parameter is ignored when using a specialized (without sysprep) image. When using a certificate for login authentication on Linux OS, it is not necessary to specify this parameter. If omitted in any other case, a random password will be created by the Azure integration process. Once created, the setting cannot be changed.
5	param_vm_image	Yes	Image name used as the deployment source to be created. Specify the name of the image registered in Azure. Once created, the setting cannot be changed.
6	param_location	-	The location of the datacenter where the virtual machine is to be created. When "param_affinity_group_name" or "param_virtual_network_name" is specified, this parameter can be omitted. When not specifying either of them, this parameter is mandatory. Once created, the setting cannot be changed. Example: "Japan West", "Japan East"

No.	Parameter Name	Required	Description
7	param_affinity_group_name	-	The name of the affinity group in which the virtual machine is to be placed. When "param_location" or "param_virtual_network_name" is specified, this parameter can be omitted. When not specifying either of them, this parameter is mandatory. Once created, the setting cannot be changed.
8	param_storage_account_name	No	Storage account name to be used. When omitted, a storage account with the same name as the virtual machine is automatically created and used. Once created, the setting cannot be changed.
9	param_cloud_service_name	No	The name of the cloud service in which the virtual machine is to be placed. When omitted, the storage account with the same name as the virtual machine is automatically created and used. The cloud service name must be unique on Azure. Once created, the setting cannot be changed.
10	param_deployment_name	No	Deployment name of the virtual machine. When omitted, the same name as the cloud service is used.
11	param_tcp_endpoints	No	TCP ports to be published on the virtual machine. Specify the private port and the public port in the format of "<public port>:<private port>". For example, when "80:8080" is specified, private port "8080" and public port "80" are published. The public port can be omitted by specifying the parameter in the format of ":<private port>". In this case, the public port number corresponding to the private port "8080" is selected automatically by Azure. It is also possible to specify multiple port combinations by separating them using commas. Duplicate public ports cannot be used for each cloud service. Do not specify the same port number as the one specified for param_endpoints_with_acl. If you do, creation will fail. When omitted, this parameter is configured as follows: For Windows OS: :5986,:3389 * PowerShell and RemoteDesktop are published by selecting ports automatically For Linux OS: 22:22 * SSH is published with a fixed port This can be changed after creation. Example: 80:8080,443:8081,:5986,:3389
12	param_endpoints_with_acl	No	End point setting to be published on the virtual machine. Unlike tcp_endpoints, in addition to the TCP port setting, it is possible to configure a public UDP port and access control (ACL). Specify the value in the format of "<public port>:<private port>:[tcp udp]::[:order]:[action]:[subnet]...". Duplicate public ports cannot be used for each cloud service. Do not specify the same port number as the one specified for param_tcp_endpoints. If you do, creation will fail. When omitted, nothing is configured. This can be changed after creation. Example: 80:8080:tcp:1:permit:10.0.0.0/24:2:deny:10.1.0.0/24,443:8081:tcp:1:permit:10.0.0.0/24:2:deny:10.1.0.0/24
13	param_certificate_fingerprint	No	The fingerprint of the certificate that has been uploaded on the cloud service. This parameter is given priority over "ssh_private_key_file" and "ssh_certificate_file". Once created, the setting cannot be changed.
14	param_ssh_private_key_file	No	The file path containing the private key placed on the local disk of the RB-A admin server. Use this parameter when using a certificate for login authentication

No.	Parameter Name	Required	Description
			(SSH) to a Linux-based virtual machine. When "certificate_fingerprint" is specified, it is given priority over this parameter. Once created, the setting cannot be changed.
15	param_ssh_certificate_file	No	The path of the file (in .cer or .pfx format) placed on the local disk of the RB-A admin server. When "certificate_fingerprint" is specified, it is given priority over this parameter. Once created, the setting cannot be changed.
16	param_ssh_port	No	Public port used for SSH communication on Linux OS. When omitted, "22", which is the default SSH port, is used. This can be changed after creation.
17	param_winrm_transport	No	Transport protocol used by WinRM on Windows OS. Specify "http" or "https". When specifying multiple values, separate them using commas. When omitted, "https" is configured. This can be changed after creation.
18	param_winrm_http_port	No	Port number for http communication supported by WinRM on Windows OS. Valid only when http is specified for "winrm_transport". When omitted, the default value in the internal environment setting file of the application is configured. This can be changed after creation.
19	param_winrm_https_port	No	Port number for https communication supported by WinRM. Valid only when https is specified for "winrm_transport". When omitted, the default value in the internal environment setting file of the application is configured. This can be changed after creation.
20	param_vm_size	No	Size of the virtual machine. When omitted, the default value (Standard_A1) is used. This can be changed after creation. When changed, restarting of the virtual machine is required.
21	param_availability_set_name	No	Availability set name. When omitted, the availability set is not selected. This can be changed after creation.
22	param_provision_guest_agent	No	The setting for enabling or disabling the VM agent. Specify "true" or "false". When omitted, "true" is configured. This can be changed after creation.
23	param_reserved_ip_name	No	Reserved IP address name. Specify a reserved IP address. When omitted, reserved IP address is not used. Once created, the setting cannot be changed.
24	param_public_ips	No	Public IP information and timeout value of TCP idle connection (minutes). Specify in the format of "<public IP name>[:integer between 4 and 30]". When the timeout value is omitted, "4" (minutes) is configured on the Azure side. This can be changed after creation. Example: public01:20
25	param_static_virtual_network_ip_address	No	Specification of a static IP address. When specifying this parameter, it is necessary to specify "param_subnet_name". The first four IP addresses and the last IP address in the specified subnet cannot be used. This can be changed after creation.
26	param_virtual_network_name	-	Virtual network name. Required when specifying "param_subnet_name". In order to use a virtual network, configuration of this parameter is required when

No.	Parameter Name	Required	Description
			creating it. In any other cases, it is not necessary to specify. Once created, the setting cannot be changed.
27	param_subnet_name	-	Subnet name. When "param_static_virtual_network_ip_address" is specified, it is necessary to also specify this parameter. In any other cases, it is not necessary to specify. This can be changed after creation.
28	param_account_type	No	Storage redundancy option configured for the storage account that is automatically generated when a storage account is not specified. This is an Azure specification with which a redundancy option is decided using an alphabetical character string that follows the underscore ("_"). "Premium_LRS" is the function for the preview version. When omitted, "Standard_GRS" is configured. <a href="https://msdn.microsoft.com/en-us/library/azure/hh264518.aspx">https://msdn.microsoft.com/en-us/library/azure/hh264518.aspx</a>
29	param_data_disk_num	No	The number of data disks connected to the VM. The number of data disks that can be connected differs depending on the VM size. When omitted, no data disks are created (the same result as when "0" is specified). This can be changed after creation. When the number of data disks is decreased, deletion of disks is performed starting with the disks that were created most recently.

## C.6.2 Parameters for Provisioning Responses

Parameters notified by Provisioning responses of the Azure integration function are shown below.

Table C.5 Parameters for Provisioning Responses

No.	Parameter Name	Description
1	info_cloud_service_name	Cloud service name.
2	info_data_disk_0001	Information of the first data disk.
3	info_data_disk_000N	Information of the <i>N</i> th data disk.
4	info_data_disk_num	The number of data disks.
5	info_deploy_name	Deployment name.
6	info_endpoint_0001	Setting information of the first end point.
7	info_endpoint_000N	Setting information of the <i>N</i> th end point.
8	info_endpoint_num	The number of end points.
9	info_instance_name	Instance name.
10	info_location	Location.
11	info_storage_account_name	Storage account name.
12	info_virtual_ip_address	Virtual IP address.
13	info_virtual_network_name	Virtual network name.
14	info_init_password	Initial password. Note: Only notified when creating a virtual machine. It is not notified when parameters of a virtual machine are modified.

## C.6.3 Parameters for Operation Requests

It is not necessary to specify parameters for Operation requests of the Azure integration function.

## **C.6.4 Parameters for Operation Responses**

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There are no parameters notified by Operation responses of the Azure integration function.