



ITA_User instruction manual

OpenStack-driver

— Version 1.5 —

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※「Exastro IT Automation」is written as「ITA」in this document.

Table of contents

Table of contents	2
Introduction	3
1 Overview of OpenStack driver	4
2 Features of OpenStack driver	4
3 Installation related	5
(1) OpenStack driver installation checkout	5
(2) Set the OpenStack interface information	5
(3) Set sudo privilege to the Apache daemon user	5
(4) Version confirmation	5
4 Function description	6
4.1 Web contents	6
4.1.1 Menu/screen list	6
4.1.2 Menu screen component description	6
4.1.3 Screen description	7
(1) Interface information	7
(2) Movement list	8
(3) Substitution value list	10
(4) Execution	12
(5) Check operation status	13
(6) Result list	14
(7) Result details	15
4.1.4 Workflow	16
4.1.5 About stack	17
5 Application operation	18
5.1 Change log level	18
5.2 About the maintenance method	19

Introduction

This document explains the function and the operation method of ITA OpenStack driver (referred to as OpenStack driver hereafter) system.

In addition, please note that the screen examples described in this document may be different from the actual screens.

Please note that the contents of this document are subject to change without prior notice in the future.

1 Overview of OpenStack driver

OpenStack driver works as the optional function of ITA system and uses OpenStack to construct the virtual machine on the construction target server device registered on ITA system.

- System configuration

OpenStack driver is divided into OpenStack ITA function and OpenStack.

The OpenStack ITA function works on the same server with ITA system

OpenStack can work on ITA system server or on a separate server.

Please refer to "System Configuration/Environment Construction Guide - OpenStack-driver" for the operating environment of this system.

2 Features of OpenStack driver

The main function of OpenStack driver is separated into the following categories.

- ① Web

Web content. The ITA system OpenStack driver screen provided on the browser.

- ② BackYard

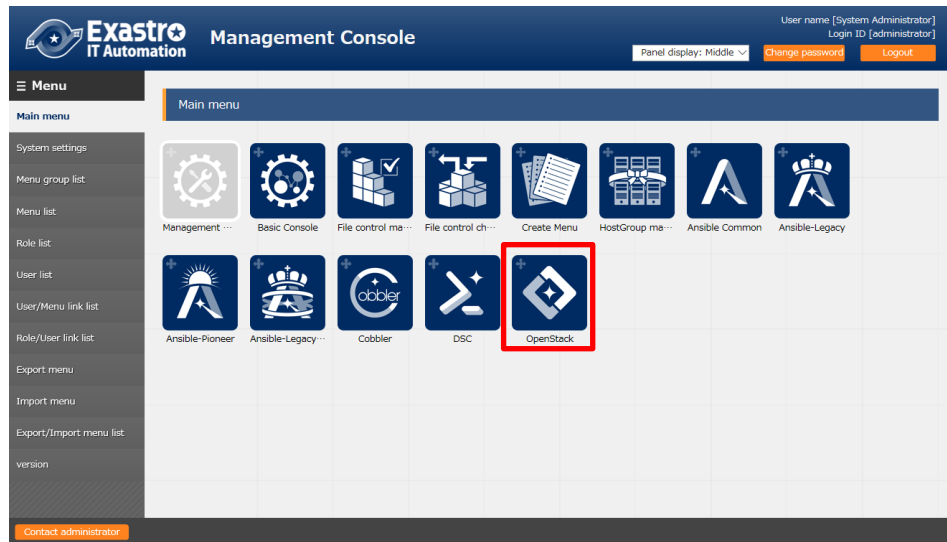
Resident processes that runs on a server independent from the web content.

3 Installation related

Please execute the following procedure as the post-work after finishing the work in the installer.

(1) OpenStack driver installation checkout

The installation is successful if users can access to the ITA system main menu and can move to each screen from the links.



(2) Set the OpenStack interface information

Please set the OpenStack interface information

Please refer to "(1) Interface " on the 8th page for details

(3) Set sudo privilege to the Apache daemon user

Please set sudo privilege to the Apache daemon user in the server where OpenStack is installed.

Setting file: /etc/sudoers.d

Setting content: please add the following description.

```
daemon    ALL=(ALL) NOPASSWD:ALL
```

The configuration is required for OpenStack to execute the command that need sudo privilege

(4) Version confirmation

The version information of OpenStack Driver can be checked with the following procedure.

```
$ cat /{ installation destination directory }/ita-root/libs/release/ita_openstack-driver ↵
```

4 Function description

Explaining the functions (Web) provided by OpenStack driver.

The menu screen provided by Web function includes not only the Web functions but also the screens that are related to authentication such as login.

4.1 Web contents

4.1.1 Menu/screen list

The list of Web menus is as below.

Table 4.1-1 OpenStack driver menu/screen list

No	Menu・Screen	Management target
1	Interface information	The OpenStack server used in ITA system
2	Movement list	The list of work pattern used when constructing virtual machine with OpenStack
3	Substitution value list	Correspondence of operation / work pattern / project / substitution value
4	Execution	Operation plan
5	Result list	Execution status
6	Result details	Execution status of each project

4.1.2 Menu screen component description

Please refer to the "First step guide".

4.1.3 Screen description

(1) Interface information

Update of the server on which OpenStack is installed.

※ Please make sure that only one server is registered.

The screenshot shows the Exastro IT Automation OpenStack interface. The left sidebar has a menu with 'Interface information' highlighted. The main content area has a 'Display filter' section with a table of filters and a 'List/Update' button at the bottom.

Discard	No.	Protocol	Authentication URL	ID	Status monitoring cycle (milliseconds)
Exclude discarded records	~	Search from pulldown	Search from pulldown	Search from pulldown	Search from pulldown

Buttons: Filter, Clear filter, Table setting

Auto-filter checkbox

List/Update button

No.	Protocol	Authentication URL	ID	Password	Status monitoring cycle (milliseconds)	Remarks
1	http	Write the endpoint	dummy		3000	

Column name	Description
Protocol	Enter the protocol (http, etc.) of the server on which OpenStack is installed.
Authentication URL	Enter the URL of the server on which OpenStack is installed
ID	Enter the user ID used to log in to the OpenStack
Password	Enter the password used to log in to the OpenStack
Status monitoring cycle (milliseconds)	Enter the refresh interval of the log displayed in "check operation status" menu. Usually the value around 3000 milliseconds is recommended.
Remarks	Can used to save notes. Can also be registered when discarding/restoring records

(2) Movement list

Register/Update/discard work pattern name from "Movement list".

After referencing each file, please "Upload in advance" before "Register".

For this time, upload the following "heat.tmp" for HEAT template files and "environment_setting_file.txt" to environment setting file then follow the procedure.

The screenshot shows the Exastro OpenStack interface. The sidebar menu on the left includes 'Menu', 'Main menu', 'Interface information', 'Movement list' (highlighted), 'Substitution value list' (highlighted with a red box), 'Execution', 'Check operation status', 'Result list', and 'Result details'. The main content area displays a 'Movement list' table with columns: Discard, Movement ID, Movement name, Orchestrator, HEAT template files, Environment setting file, and Remarks. Below the table are filter buttons ('Filter', 'Clear filter') and an 'Auto-filter' checkbox. At the bottom of the main area is a 'List/Update' button.

The screenshot shows a detailed view of the 'Movement list' table. The row for 'Auto-input' is highlighted with a red box. The columns are: Movement ID (Auto-input), Movement name (empty), HEAT template files (Choose File, No file chosen, Upload in advance button, Upload status:), Environment setting file (Choose File, No file chosen, Upload in advance button, Upload status:), and Remarks (empty).

Column name	Description
Movement name	Enter the name of work pattern.
HEAT template files	Upload the HEAT template file which is the basis for virtual machine construction.
Environment setting file	Upload the environment configuration file which describes the script executed after virtual machine construction.
Remarks	Can used to save notes.

Heat.tmp

```
1 heat_template_version: 2015-04-30 ↓
2 ↓
3 description: Simple template to deploy a single ↓
4 resources: ↓
5   my_instance: ↓
6     type: OS::Nova::Server ↓
7     properties: ↓
8       name: {{ VAR_heat_name }} ↓
9       key_name: {{ VAR_key_name }} ↓
10      image: {{ VAR_image_name }} ↓
11      flavor: {{ VAR_flavor_name }} ↓
12      security_groups: [{{ VAR_security_name }}] ↓
13      user_data: "" ↓
14    association: ↓
15      type: OS::Nova::FloatingIPAssociation ↓
16      properties: ↓
17        floating_ip: {{ VAR_ip_name }} ↓
18        server_id: {get_resource: my_instance} ↓
19    outputs: ↓
20      detail: ↓
21        description: The IP address of the deployed instance ↓
22        value: { get_attr: [my_instance, show] } ↓
```

environment_setting_file.txt

```
1 #!/bin/bash -xv$necho 'hello world' > /root/hello-world.txt
```

(3) Substitution value list

Register/Update/Discard the substitution value of the variable from the "substitution value list" menu

Manage the variable value according to the combination of Operation, work pattern, and project.

The registered substitution value will be assigned to the variables in the HEAT template file.

Column name	Description
Operation	Please select the target operation name from the operation registered in ITA basic console.
Movement	Please select the target work pattern name.
Project	Please select the target OpenStack project name
Specific value	If the "Edit button" is clicked, the substitution value configuration dialog will display. Please configure the substitution values.
Remarks	Can used to save notes. Can also be registered when discarding/restoring records.

If the "Specific value" column is clicked, a specific value registration modal window will be displayed.

代入値を保存する

テンプレートプレビュー

```

heat_template_version: 2015-04-30

description: Simple template to deploy a single
resources:
my_instance:
type: OS::Nova::Server
properties:
name: {{ VAR_heat_name }}
key_name: {{ VAR_key_name }}
image: {{ VAR_image_name }}
flavor: {{ VAR_flavor_name }}
security_groups: [{{ VAR_security_name }}]
user_data: ""
association:
type: OS::Nova::FloatingIPAssociation
properties:
floating_ip: {{ VAR_ip_name }}
server_id: {get_resource: my_instance}
outputs:
detail:
description: The IP address of the deployed instance
value: { get_attr: [my_instance, show] }

```

パラメータ指定

パラメータ	分類	入力値	識別名 / ID
{{ VAR_heat_name }}	カスタム値	ita-dev-demo.novalocal	
{{ VAR_key_name }}	キーペア	key_ita_user	識別名
{{ VAR_image_name }}	イメージ	CentOS-7-x86_64	識別名
{{ VAR_flavor_name }}	フレーバ	ky.tiny-flavor	識別名
{{ VAR_security_name }}	セキュリティグループ	sec	識別名
{{ VAR_ip_name }}	FloatingIP	10.197.19.206	ID

適用

キャンセル

Column name	Description
Parameter	The variable in the HEAT template file is entered automatically.
Classification	Select the category of the input value. The option of input value column will change according to the selected content.
Input value	Select the input value to be assigned to the parameter. (FloatingIP is associated with the IP address in the device list menu of basic console. Please refer to "User instruction manual_basic console" for "Device list" menu.
Symbol name/ID	Select ID if the input value is literal and select symbol name to represent the variable with symbolic name (Error occurs if ID is not selected for FloatingIP)

(4) Execution

Instruct Operation execution. Select the radio button from the Movement list and operation list and click the execution button, the screen will jump to "(5) Check operation status" menu and the operation will be executed.

The screenshot shows the Exastro OpenStack interface. On the left, the 'Menu' sidebar has '作業実行' (Execution) highlighted. The main content area shows the '説明' (Description) section with a 'スケジュールリング' (Scheduling) tab. Below this, there are two tables: 'Movement[フィルタ]' and 'Movement[一覧]'. The 'Movement[一覧]' table has a radio button selected for the first row. Below the movement table is the 'オペレーション[フィルタ]' and 'オペレーション[一覧]' section. The 'オペレーション[一覧]' table also has a radio button selected for the first row. The bottom of the page has a '管理者に連絡' (Contact administrator) button.

MovementID	Movement名	オーケストレータ	HEATテンプレート	環境設定ファイル	備考	最終更新日時	最終更新者
2	OPENST_movement	OpenStack	test1.yml			2019/07/18 10:04:43	システム管理者

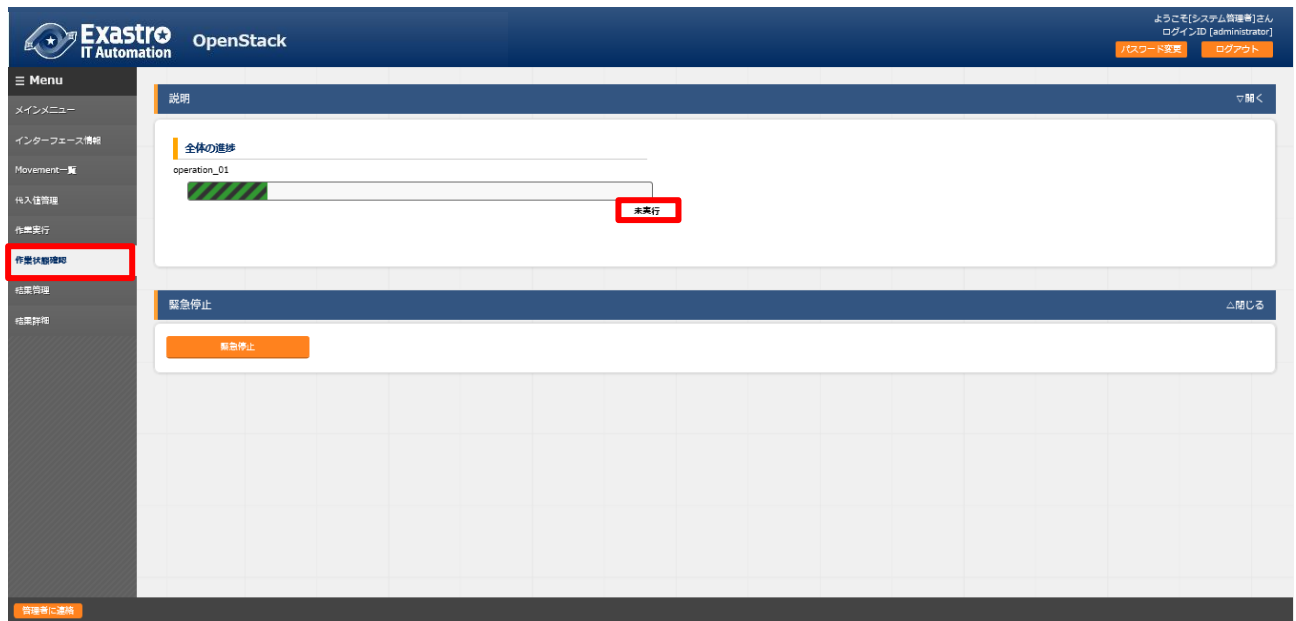
オペレーションID	オペレーション名	実行予定日時	最終実行日時	備考	最終更新日時	最終更新者
1	ope1	2019/07/18 10:03	2019/07/18 13:21		2019/07/18 13:21:02	legacy作業実行プロセス
2	example_operation01	2019/07/18 10:04	2019/07/18 13:20		2019/07/18 13:20:26	legacy作業実行プロセス

Scheduling execution is possible by entering the "scheduled date/time".
(Only future date/time can be registered for the "scheduled date/time")

The screenshot shows the Exastro OpenStack interface with the 'Scheduling' section expanded. It includes a text input for 'Specify the scheduled date/time in (YYYY/MM/DD HH:MM). Immediately execute when blank.' and a date/time picker. The picker shows 'February 2020' with a calendar grid. The time selection dropdown is open, showing options from 11:40 to 12:30. The bottom of the page has a 'Contact administrator' button.

(5) Check operation status

Monitor the operation execution status. Emergency stop is also performed here.



The execution can be stopped by clicking the "Emergency stop" button.

If the operation is scheduled to execute, the "schedule cancellation" button will be displayed.

Status is displayed according to the execution status.

According to the operation execution status and each detailed operation execution status, the following status is displayed.

The status display refresh interval in this menu can be specified in the "Status monitoring cycle (milliseconds)" of "Interface information" menu.

Status according to the execution status of each operation detail

Status	Description
Unexecuted	Unexecuted.
Unexecuted (schedule)	Unexecuted since the time is before scheduled date/time.
Preparing	Preparing for execution.
Executing	During execution.
Emergency stop - processing	Performing emergency stop operation.
Emergency stop - completed	Emergency stop operation is done.
Failure	The operation execution failed.
Completed (partial failure)	Execution completed but some part failed.
Completed	Execution completed.
Schedule cancellation	The schedule is canceled before the scheduled execution date/time.

Status according to the execution status of each operation detail.

Status	Status
Cancel	Execution canceled
Build in progress	During construction
Failure (HEAT error)	Execution failed due to syntax error of HEAT template file
Failure (other errors)	Execution failed due to other errors
Completed	Execution completed

※ About emergency stop

Emergency stop does not stop the operation immediately.

Emergency stop is performed when the process of every row to the target host is done.

(6) Result list

The history of operation can be viewed here.

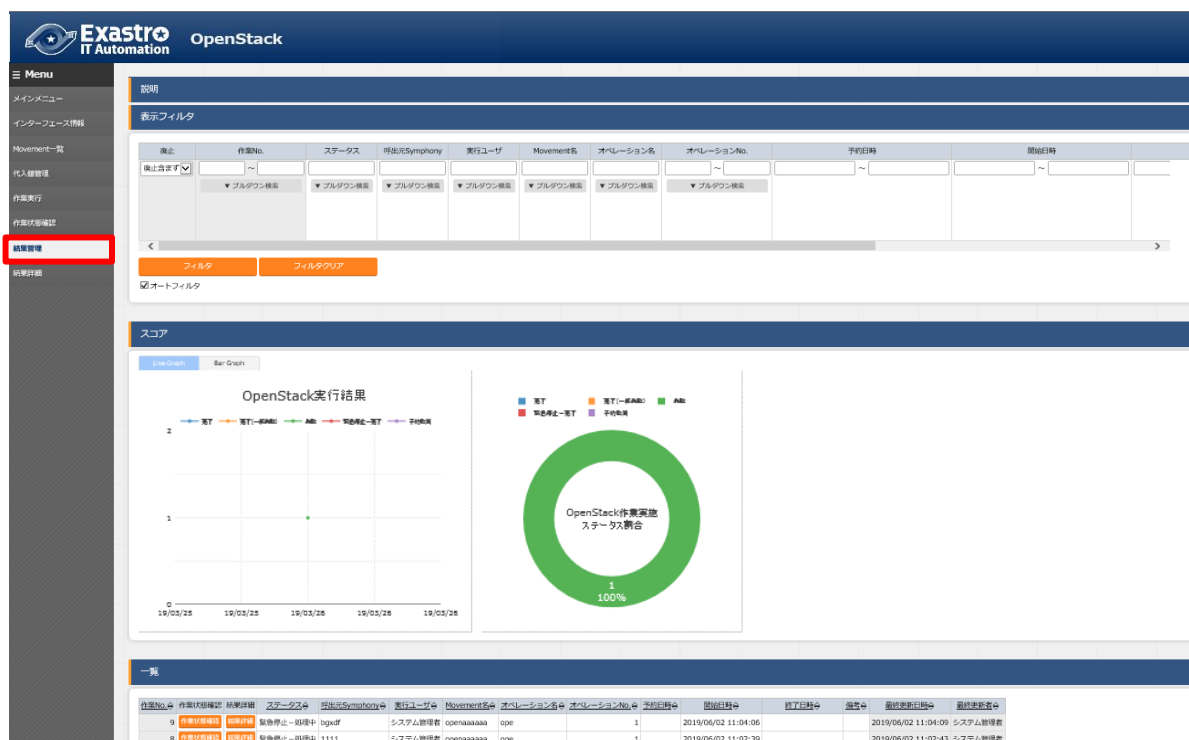
By specifying criteria and clicking the "Filter" button, the operation list table and graph will be displayed.

By hovering the mouse cursor over each graph, the download button of the graph will be displayed.

Users can download the graphs by clicking the displayed graph download button.

Users can view the details of execution status by clicking the "Execution status check" button to jump to the "(5) Execution status check" screen.

Users can view the details of the execution status for each operation by clicking the "Result Details" button to jump to the "(7) Result details" screen.



(7) Result details

Display details of the execution status for each operation.

Since the JSON of request and response during execution can be checked in this menu, please check here if error occurs.

The screenshot shows the Exastro IT Automation OpenStack web interface. On the left is a sidebar menu with options like 'メインメニュー', 'インターフェース情報', 'Movement一覧', '代入値管理', '作業実行', '作業状態確認', '結果管理', and '結果詳細' (highlighted with a red box). The main content area has a top bar with '説明' and '表示フィルタ' tabs. Below is a table with columns: '停止', '項目', '作業No.', 'ステータス', 'プロジェクト', 'リクエストテンプレート', 'レスポンスJSON', and 'メッセージ'. Each column has a search dropdown. Below the table are buttons for 'フィルタ' and 'フィルタクリア', and a checkbox for 'オートフィルタ'. At the bottom, there are links for '一覧', '全件ダウンロード', and '変更履歴', each with a dropdown arrow.

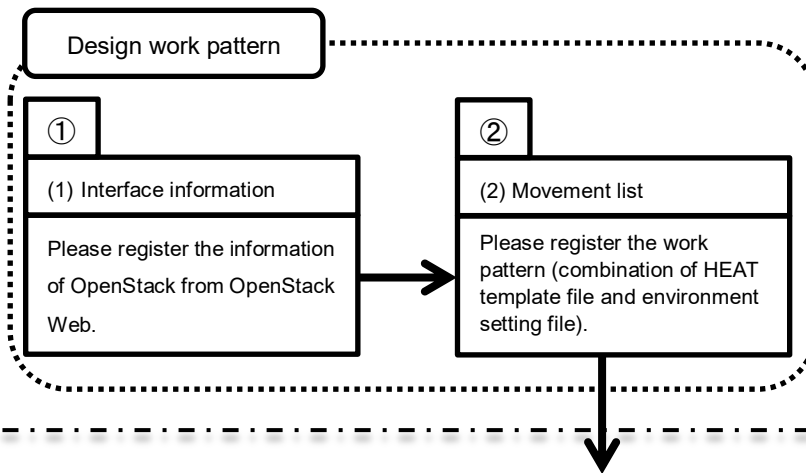
After the operation is completed, users can check if the file set in the directory specified in the environment setting file has been uploaded by logging in the created environment via terminal, etc.

```
[root@test-vm ~]# ll
total 20
-rw-r--r--. 1 root root  12 Jul  3 07:07 hello-world.txt
-rw-r--r--. 1 root root 10273 Sep  5  2016 install.log
-rw-r--r--. 1 root root  3317 Sep  5  2016 install.log.syslog
[root@test-vm ~]#
[root@test-vm ~]# cat hello-world.txt
hello world
[root@test-vm ~]#
```

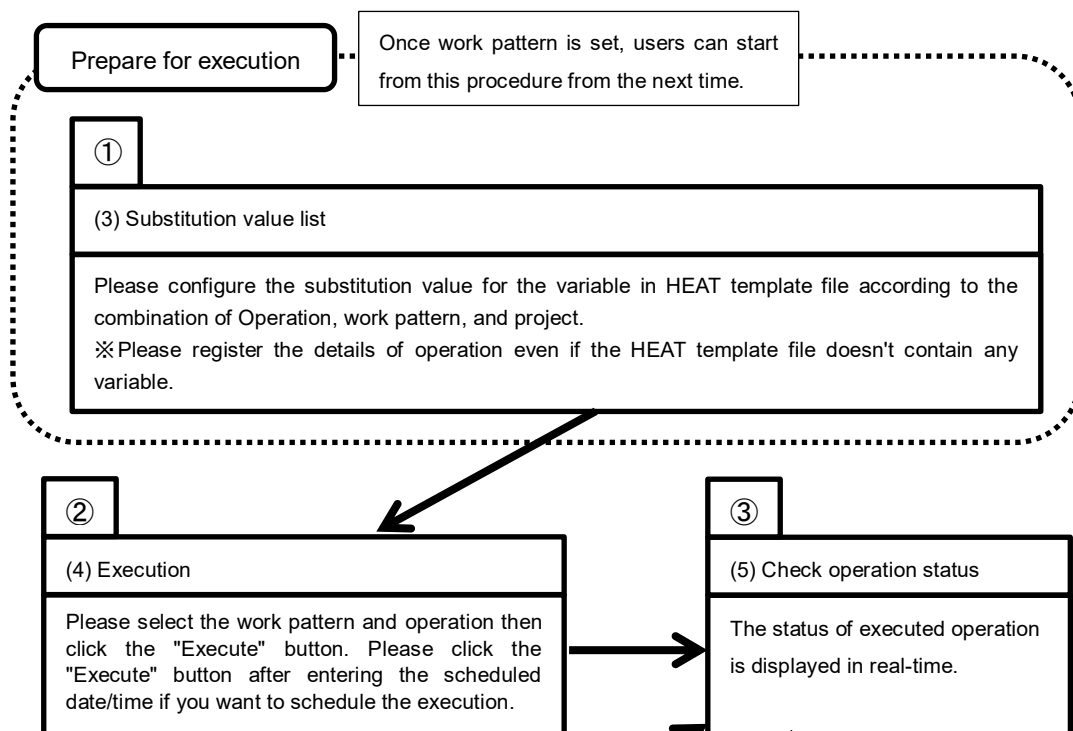

4.1.4 Workflow

The following is the workflow of creating virtual machine instance using OpenStack.

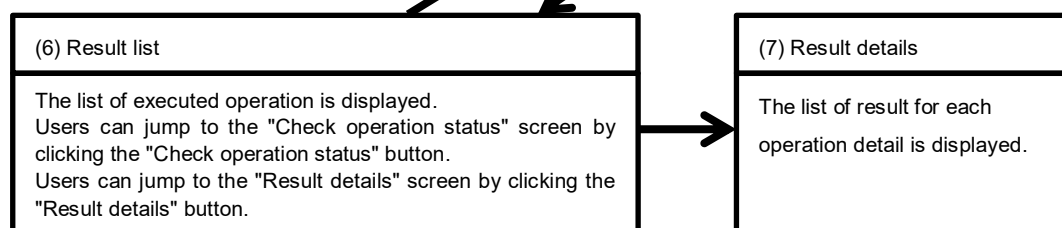
Design operation



Operation execution



Result details



4.1.5 About stack

Log in to OpenStack and check the created stack from the "Stack" menu in "Orchestration".

The screenshot shows the OpenStack dashboard with the 'Orchestration' menu selected. The 'Stacks' overview page displays resource usage and a table of stacks.

概要

利用可能リソース概要

リソース	使用中	最大値
インスタンス	4 中 1 使用中	4
仮想 CPU	4 中 1 使用中	4
メモリー	8GB 中 1GB 使用中	8GB
Floating IP	50 中 4 使用中	50
セキュリティグループ	10 中 2 使用中	10
ボリューム	10 中 0 使用中	10
ボリューム容量	1000GB 中 0B 使用中	1000GB

使用状況の概要

使用状況を照会する期間を選択してください:

2017-06-27 から 2017-06-28 まで 送信 The date should be in YYYY-MM-DD format.

稼働中のインスタンス: 1 使用中のメモリー: 1GB 指定期間中の仮想 CPU 時間: 2.04 指定期間中の GB 時間: 0.00 指定期間中のメモリー時間: 2085.78

使用状況

インスタンス名	仮想 CPU	ディスク	メモリー	作成後経過時間
openstack_test_vm	1	0B	1GB	0 分

1 件表示

If the stack reaches 100 items, no more instance can be created and error occurs during operation execution.

Also, if the stack is deleted, the instance created according to the stack will also be deleted.

It is recommended to delete unnecessary instance periodically.

The screenshot shows the 'Stacks' page in the OpenStack dashboard. It includes a table of stacks and a 'Stacks' section.

スタック

フィルタ Q + スタックの起動 ● スタックのプレビュー ■ スタックの削除 その他のアクション ▼

スタック名	作成時刻	更新日時	ステータス	アクション
test_tenant_02_49_2017-06-28-17-28-49	4 分	なし	作成完了	スタックのチェック ▼

1 件表示

5 Application operation

The operation to utilizing ITA system is not only inputs by user from the browser screen of client PC but also operations according to system operation and maintenance.

The available operation and maintenance are as follows.

- Change log level
- Maintenance

5.1 Change log level

The method to change the log level of ITA system process is as follows.

Open the target file in target directory and modify it as below.

① Change to NORMAL level

Rewrite the 8th line of the following file from “DEBUG” to “NORMAL”.

Log level setting file: <insallation direcotory>/ita-root/confs/backyardconfs/ita_env

② Change to DEBUG level

Rewrite the 8th line of the following file from “NORMAL” to “DEBUG”.

Log level setting file: <installation direcotory>/ita-root/confs/backyardconfs/ita_env

After rewriting the file, **the change takes effect after restarting the process.**

Please refer to next section " 5.2 About the maintenance method" for restart.

Log file output destinaton: <installation directory>/ita-root/logs/backyardlogs

5.2 About the maintenance method

Start/Stop/Restart the OpenStack driver independent process.

Taking ky_openStack_masterSync-workflow for example.

- Start process

```
$ /usr/bin/systemctl start ky_openStack_masterSync-workflow ↵
```

- Stop process

```
$ /usr/bin/systemctl stop ky_openStack_masterSync-workflow ↵
```

- Restart process

```
$ /usr/bin/systemctl restart ky_openStack_masterSync-workflow ↵
```

Similarly, substitute each target file name to start / stop / restart the process.