IT Automation

Online Installation

※ In this document, “Exastro IT Automation” is described as “ITA".

Version 1.5

Exastro developer

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1. Introduction

Exastro

About this guide

- This guide describes how to set up IT Automation in an all-in-one configuration by using its installer and external repositories.

2. System Configuration

About associated execution function

- IT Automation supports the tools for the following functions:

Driver	Tool name (orchestrator)	Function name	Description	Installable with the IT Automation configuration tool	To be installed through this guide
Material	Git	Management of configuration materials	This function allows you to “Check out” and “Check in” configuration materials registered in the standard configuration tools and to manage the versions of the materials via Git.	Yes	No
Create_param	-	Creation of menus	This function allows you to create menus.	-	Yes
Hostgroup	-	Host grouping	This function allows you to group hosts into logical units (functions and roles) and to manage the parameters to be applied.	-	Yes
Ansible driver	Ansible	System construction	A Red Hat-provided OSS tool for setting up a platform. For a networked device, this tool allows you to install software, configure various settings, transfer files, and apply patches, based on an IaC called Playbook.	Yes	Yes
	Ansible Tower	System construction	A management platform to enhance Ansible with such functions as access control, job scheduling, and task visualization.	No	
Cobbler driver	Cobbler	OS installation	An OSS tool for automating installation. For a networked device, this tool allows you to install an OS, based on a prepared template.	No	No
OpenStack driver	OpenStack	Virtual system construction	An OSS tool for setting up a cloud environment. This tool allows you to set up virtual machines, storages, and networks.	No	No
Terraform driver	Terraform	System construction	Terraform is an orchestration tool provided by HashiCorp, Inc. that improves the efficiency of infrastructure process. The construction is executed after the execution plan is generated based on the infrastructure configuration coded in HCL(HashiCorp Configuration Language). Furthermore, with Policy as Code, it's also possible manage access policy in code.	No	No

2.2 System Requirements

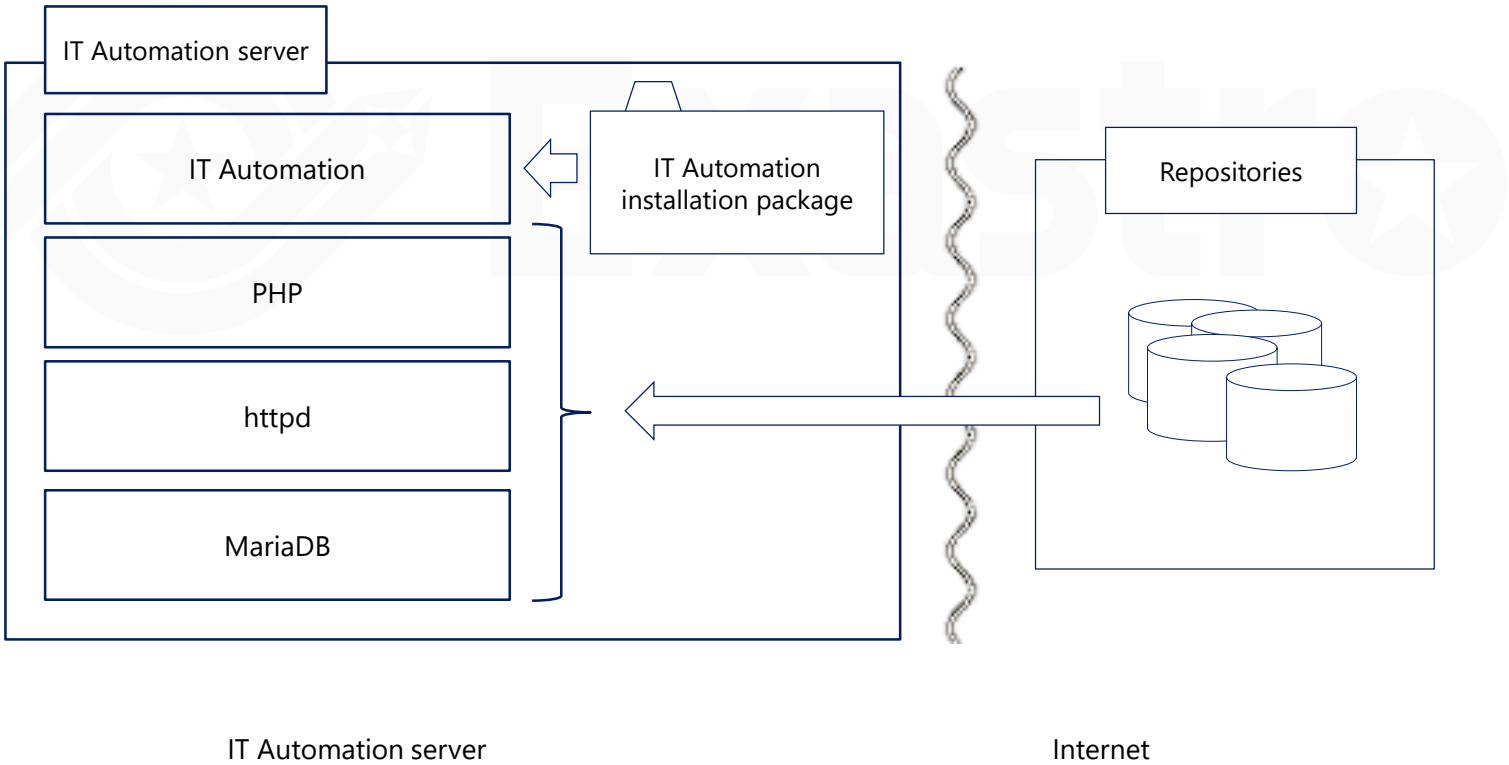
The followings are the system requirements to use IT Automation:

- We are preparing a manual for Exastro-ITA system configuration and environment construction.

3. IT Automation Construction Procedure

Installation procedure

- When the IT Automation server has an internet-connection, install necessary libraries via the Internet and execute the IT Automation installer to perform configuration.



3.2 Preparation (1/2)

Enabling repositories (only for online installation)

- Depending on your OS version, enable the following repositories:

OS	Repository
RHEL7	https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
	https://downloads.mariadb.com/MariaDB/mariadb_repo_setup
	http://rpms.remirepo.net/enterprise/remi-release-7.rpm
	rhel-7-server-optional-rpms
RHEL8	https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
	codeready-builder-for-rhel-8-xxxxxx-rpms
CentOS7	epel-release
	https://downloads.mariadb.com/MariaDB/mariadb_repo_setup
	http://rpms.remirepo.net/enterprise/remi-release-7.rpm
CentOS8	epel-release
	PowerTools
RHEL7_AWS	https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
	https://downloads.mariadb.com/MariaDB/mariadb_repo_setup
	http://rpms.remirepo.net/enterprise/remi-release-7.rpm
	rhui-rhel-7-server-rhui-optional-rpms
RHEL8_AWS	https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
	codeready-builder-for-rhel-8-rhui-rpms

＊) RHEL7_AWS : RHEL7 on AWS
RHEL8_AWS : RHEL8 on AWS

xxxxxx:architecture

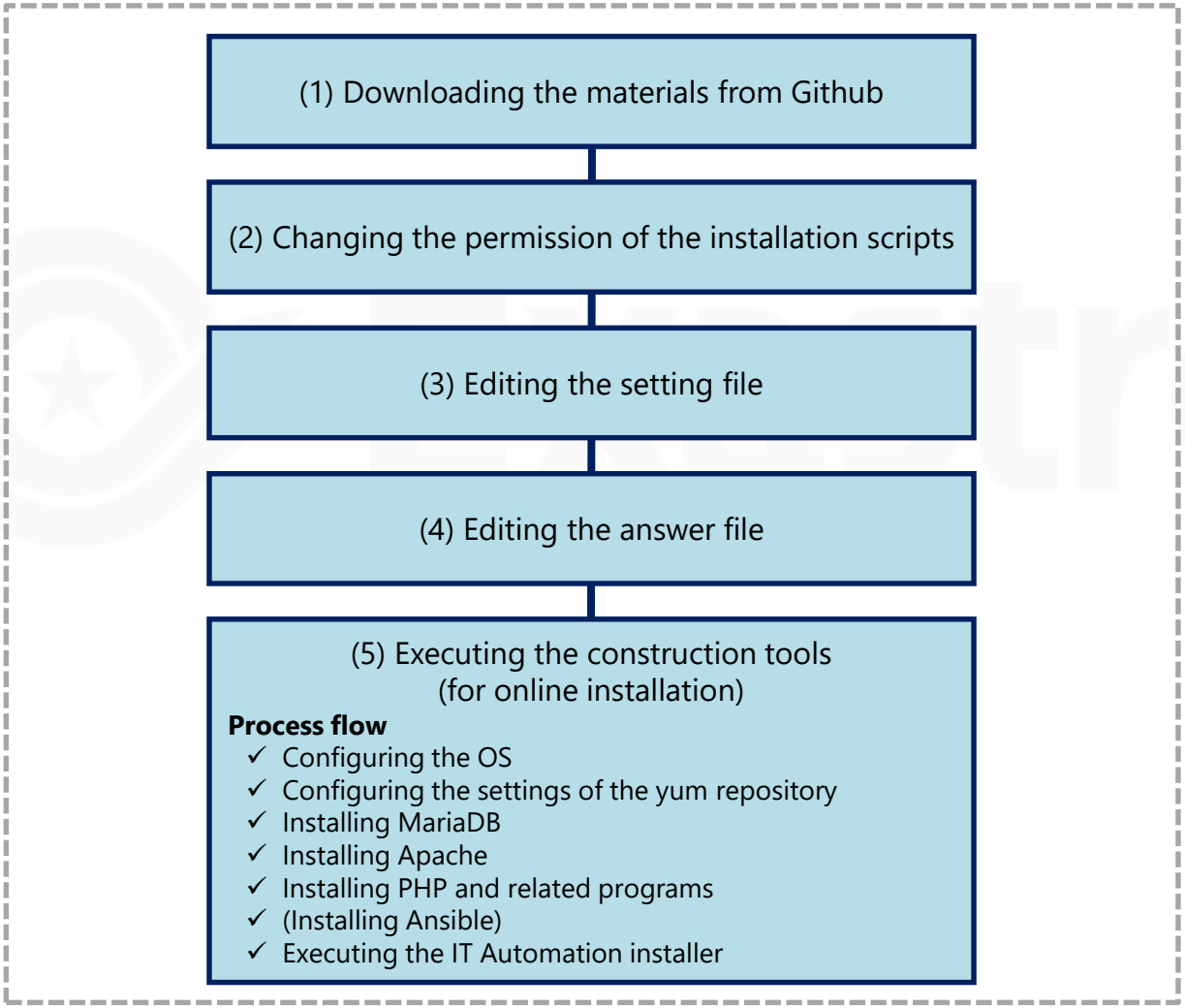
IT Automation construction tools

- The following table lists tools for configuring IT Automation:

Description	File	Path location
Library collection script	ita_gather_library.sh	/(Extract path)/ita_install_package/install_scripts/
Configuration tool (for offline installation)	ita_builder_offline.sh	/(Extract path)/ita_install_package/install_scripts/
Configuration tool (for online installation)	ita_builder_online.sh	/(Extract path)/ita_install_package/install_scripts/
Setting file	ita_builder_setting.txt	/(Extract path)/ita_install_package/install_scripts/
IT Automation installer	ita_installer.sh	/(Extract path)/ita_install_package/install_scripts/
Answer file	ita_answers.txt	/(Extract path)/ita_install_package/install_scripts/

Construction flow (online)

- The configuration flow is as follows:



3.5 Construction (1/7)

*Environment building users must be root users.

Downloading the materials from Github

- Download the materials with the following command:

  # wget https://github.com/exastro-suite/it-automation/releases/download/vx.x.x/exastro-it-automation-x.x.x.tar.gz

  *The wget command needs to be installed in advance.
  *Change the (x.x.x) for the version to be installed.

Deploying the materials.

- Unzip the .tar.gz file.

  # tar zxf exastro-it-automation-x.x.x.tar.gz

Changing the directory

- Move to the directory where the setting file and the shell are stored for configuration.

  # cd it-automation-x.x.x/ita_install_package/install_scripts

Editing the setting file

- The following table lists what to be edited in the setting file (ita_builder_setting.txt) for IT Automation configuration:

Item	Required	Initial value	Description
linux_os	Yes (for all OS)	-	OS of the IT Automation server ("CentOS7","CentOS8","RHEL7","RHEL8“, "RHEL7_AWS“,“RHEL8_AWS") *)RHEL7_AWS : RHEL7 on AWS RHEL8_AWS : RHEL8 on AWS
redhat_user_name	For RHEL OS other than on AWS	-	Username for the Red Hat account
redhat_user_password		-	Password for the Red Hat account
pool_id		-	Pool ID for the Red Hat account

Sample of the setting file (ita_builder_setting.txt)

- The following shows an example of the setting file (ita_builder_setting.txt):

OS of the installation target server: RHEL 7

```
# Select Operation System. ("CentOS7","CentOS8","RHEL7","RHEL8","RHEL7_AWS","RHEL8_AWS")

# Select Operation System. ("CentOS7,"CentOS8","RHEL7","RHEL8")
# e.g) linux_os:RHEL8
linux_os: RHEL7

############################################################
#Only when you select linux_os with RHEL7 or RHEL8

# Enter the Red Hat user name and user password
# e.g) redhat_user_name:sample
redhat_user_name:sample

# e.g) redhat_user_password:sample_password
redhat_user_password: sample_password

# e.g) pool_id:samplePoolID
pool_id: samplePoolID
```

POINT

Required if OS is RHEL

Editing the answer file (ita_answers.txt)

- Edit the answer file for IT Automation installation in advance.
- For **ita_base**, **ansible_driver**, **create_param**, and **Hostgroup**, each of the initial values is set to **yes**. Change the value to **no** if the corresponding installation is not necessary.

Item	Required	Default value	Description
install_mode	Yes	Install	Installation mode: **Install** or **Uninstall**
ita_directory	Yes	–	Specify the absolute path to the directory where IT Automation will be installed. If the directory does not exist, it will be newly created.
ita_language	Yes	en_US	IT Automation display language: **ja_JP** (Japanese) or **en_US** (English)
ita_os	Yes	RHEL7	OS for IT Automation: **RHEL7** or **RHEL8**
db_root_password	Yes	–	Root password for MariaDB
db_name	Yes	–	Database name for MariaDB
db_username	Yes	–	Database username for MariaDB
db_password	Yes	–	Database password for MariaDB
ita_base	Yes	yes	Only **yes** can be specified to install IT Automation.
Material	Yes	no	Whether the **Management of configuration materials** function is to be installed
create_param	Yes	yes	Whether the **Creation of menus** function is to be installed
Hostgroup	Yes	yes	Whether the **Host grouping** function is to be installed
ansible_driver	Yes	yes	Whether the Ansible driver is to be installed
cobbler_driver	Yes	no	Whether the Cobbler driver is to be installed
openstack_driver	Yes	no	Whether the OpenStack driver is to be installed
terraform_driver	Yes	no	Whether the Terraform driver is to be installed

Sample of the answer file (ita_answers.txt)

- The following shows an example of the answer file (ita_answers.txt):

```
#Select install mode. ("Install" or "Uninstall")
# e.g) install_mode:Install
install_mode:Install

#Enter install directory.
# e.g) ita_directory:/exastro
ita_directory:/exastro

# Select language. ("en_US" or "ja_JP")
# e.g) ita_language:en_US
ita_language:en_US

# Select Operation System. ("RHEL7" or "RHEL8")
# e.g) ita_os:RHEL8
ita_os:RHEL7

# Enter the MariaDB root user's password
# e.g) db_root_password:sample_root_password
db_root_password: sample_root_password

# Decide the database name, username, and password for ITA.
# e.g) db_name:sample_db_name
db_name:sample_db_name
# e.g) db_username:sample_db_username
db_username:sample_db_username
# e.g) db_password:sample_db_password
db_password:sample_db_password

# Select the target you need to install.
# yes : need
# no  : no need
ita_base:yes
material:no
createparam:yes
hostgroup:yes
ansible_driver:yes
cobbler_driver:no
openstack_driver:no
terraform_driver:no
```

POINT

With the answer file, define the password for MariaDB.

※ Password that contains symbol may cause error.

3.10 Construction (6/7)

Executing the configuration tool (for online installation)

- Execute the configuration tool with the following command:

```
# sh ita_builder_online.sh
```

Checking the process

- The content of process executed by construction tool is output to ita_builder.log and ita_installer.log
- Log storage path

  /(Installation file extract path)/ita_install_package/install_scripts/log/

List of libraries installed during construction.

- The following table lists the libraries installed through the execution of the configuration tool:

Installation driver	Library type	Library name
ita_base	Installation tool	yum-utils(*), createrepo(*)
ita_base	IT Automation common	zip, telnet, mailx, unzip, sudo, crontabs
ita_base	MariaDB	MariaDB, MariaDB-server, expect
ita_base	httpd	httpd, mod_ssl
ita_base	php	php, php-bcmath, php-cli, php-ldap, php-mbstring, php-mcrypt, php-mysqlnd, php-pear, php-pecl-zip, php-process, php-snmp, php-xml, php-json, php-gd, Python3, php-devel, libyaml, libyaml-devel, make
ita_base	php plug-in	php-yaml, HTML_AJAX-beta, PhpSpreadsheet
material	git	Git
ansible_driver	Ansible	ansible, sshpass, pexpect, pywinrm, boto3, nmap-ncat, paramiko

* only RHEL7,CentOS7

4. IT Automation Operation Check

4.1 Operation Check (1/6)

Checking the main menu

- After completing the installation, take the following steps with a Windows PC client to access the main menu of IT Automation and to check that the IT Automation and all the drivers are shown properly.

Accessing the login screen

- Access the login screen with the following URL:
- URL: http://(IP address of server)

※ After installation, access from both HTTP and HTTPS are possible.
Since HTTP is insecure, accessing from HTTPS is recommended.
For the method to access from HTTPS, please refer to operation check (4/6).

Logging in

- When the IT Automation login screen is displayed, enter the given login ID and initial password and then click the **Login** button.
  - Login ID : administrator
  - Initial password : password

- If you have logged in for the first time after the installation, you will be prompted to change the password.
- Please change the initial password.

IT Automation login screen

- Having been successfully installed, IT Automation displays the following login screen:

Checking the content by displaying the menus

- After logging in, check that the following menus are shown properly:

Function	Menu
IT Automation (main body)	Management Console
	Basic Console
	Export/Import
	Symphony
	Conductor
Creating menus	Create menu
Hostgroup	HostGroup management
Ansible driver	Ansible Common
	Ansible-Legacy
	Ansible-Pioneer
	Ansible-LegacyRole

Preparation for accessing from HTTPS

- Specify the IP address and host name of the IT Automation server in the hosts file of the Windows client.

- For Windows 10, the hosts file is located at the following path:

```
C:¥Windows¥System32¥drivers¥etc¥hosts
```

- Add the following settings to host file:

```
“IP address of ITA server”    exastro-it-automation

e.g.)
192.168.0.3    exastro-it-automation
```

4.5 Operation Check (5/6)

- Import the certificate into the operating device(Windows).
  The certificate is stored in the following directory of the IT Automation installation package.
- Use a tool (such as FFFTP and WinSCP) to download to the client.

OS of the IT Automation server	File path	File name
RHEL 7, CentOS 7	/(extract path)/ita_install_package/ext_files_for_CentOS7.x/etc_pki_tls_certs/	exastro-it-automation.crt
RHEL 8, CentOS 8	/(extract path)/ita_install_package/ext_files_for_CentOS8.x/etc_pki_tls_certs/	exastro-it-automation.crt

- Import the certificate to a Web browser.
- For Google Chrome, import the certificate as follows.

1. Start up Google Chrome. Then select **Settings button** in the upper right > **settings**.
2. Select **Advanced** in the Lower part of browser > **Manage certificates**.
3. In the **Trusted Root Certification Authorities** tab click the **Import** button in the lower left.
4. When the certificate import wizard appears, click **Next**.
5. Specify the name of the file to be imported. Then click **Next**.
6. Make sure that the **Place all certificates in the following store** option is selected.
7. Select **Trusted Root Certification Authorities** and click **Next**.
   ※If not selected, select **Trusted Root Certification Authorities** from **Reference** on the right.
8. Click **Finish**.

4.6 Operation Check (6/6)

Accessing the login screen from HTTPS

- Access the login screen with the following URL:
- URL: https:// exastro-it-automation
  * It is possible to access with the IP address of server instead of host name.

After connecting, follow the same procedure as from HTTP.

Restrict HTTP or HTTPS access

Please perform the following procedure to restrict HTTP or HTTPS access.

- Edit file ”/etc/httpd/conf.d/vhosts_exastro-it-automation.conf”.

To restrict HTTP access, please comment out(#) the section from 「<VirtualHost *:80 >」to「</VirtualHost>」

To restrict HTTPS access, please comment out(#) the section from 「<VirtualHost *:443 >」to「</VirtualHost>」

- Restart Apache with the following command.
  systemctl restart httpd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