



IT Automation Offline Installation

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

Table of contents

- 1. Introduction
 - 1.1 About this guide
- 2. System configuration
 - 2.1 Environment construction
 - 2.2 System requirements (1/3)
 - 2.3 System requirements (2/3)
 - 2.4 System requirements (3/3)
- 3. ITA construction procedure
 - 3.1 Offline installation
 - 3.2 Preparation
 - 3.3 ITA construction flow
 - 3.4 Construction (1/8)
 - 3.5 Construction (2/8)
 - 3.6 Construction (3/8)
 - 3.7 Construction (4/8)
 - 3.8 Construction (5/8)
 - 3.9 Construction (6/8)
 - 3.10 Construction (7/8)
 - 3.11 Construction (8/8)
- 4. ITA Operation check
 - 4.1 Operation check (1/6)
 - 4.2 Operation check (2/6)
 - 4.3 Operation check (3/6)
 - 4.4 Operation check (4/6)
 - 4.5 Operation check (5/6)
 - 4.6 Operation check (6/6)
 - 4.7 Reference

1. Introduction

1.1 About This Guide

About this guide

- This guide describes the procedure to construct ITA server in offline environment.



2. System configuration

2.1 Associated execution function

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 1/3

■ For the system requirement to use ITA

- Please refer to "Exastro-ITA_System configuration/environment construction guide_basics".



2.3 System requirements 2/3

■ Prerequisites for executing the library collection script

- To execute the library collection script, it is necessary to match the build status (OS version, installed packages) of library collection server (online environment)/ITA server (offline environment).
- The library collection server (online environment) must be able to reference the following repositories.
(※ See next page)



2.4 Requirements 3/3

- Repository that need to be referred

| 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

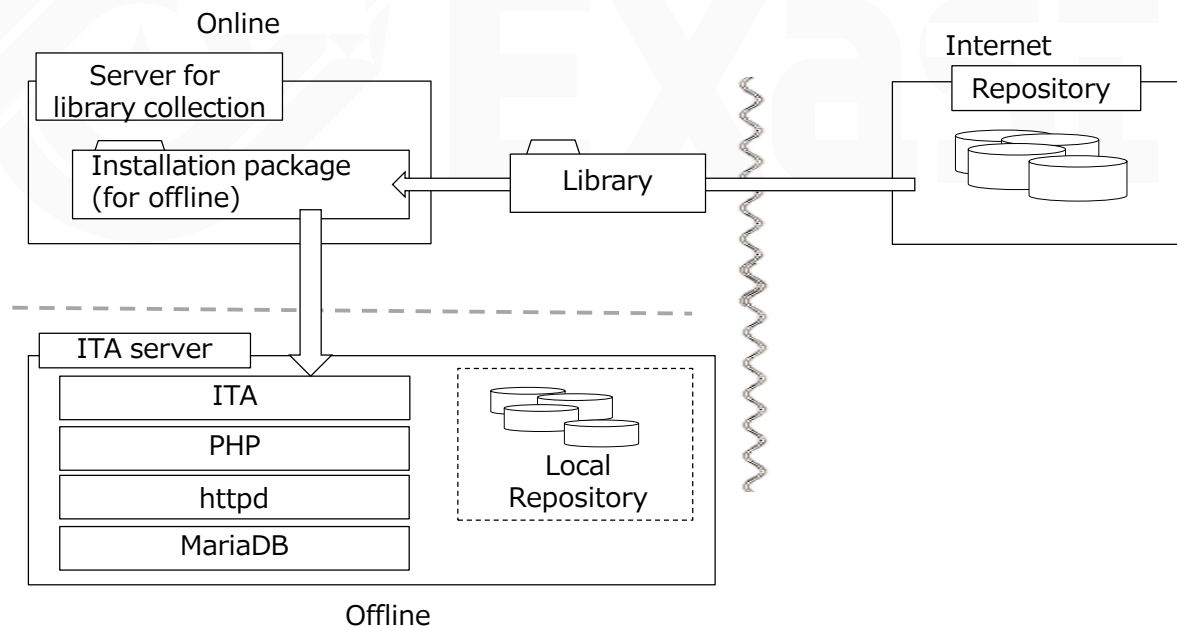
3. ITA construction procedure

3.1 Offline installation

Installation procedure

If the ITA server is in offline environment, follow the following procedure to construct server.

- Collect required library from server for library collection (online) via internet, then compress installation package and libraries in to one installation package(for offline).
- Move installation package (for offline) to ITA server via storage media.
- Create local repository from installation package (for offline), install required library then execute ITA installer.



3.2 Preparation

IT Automation construction tools

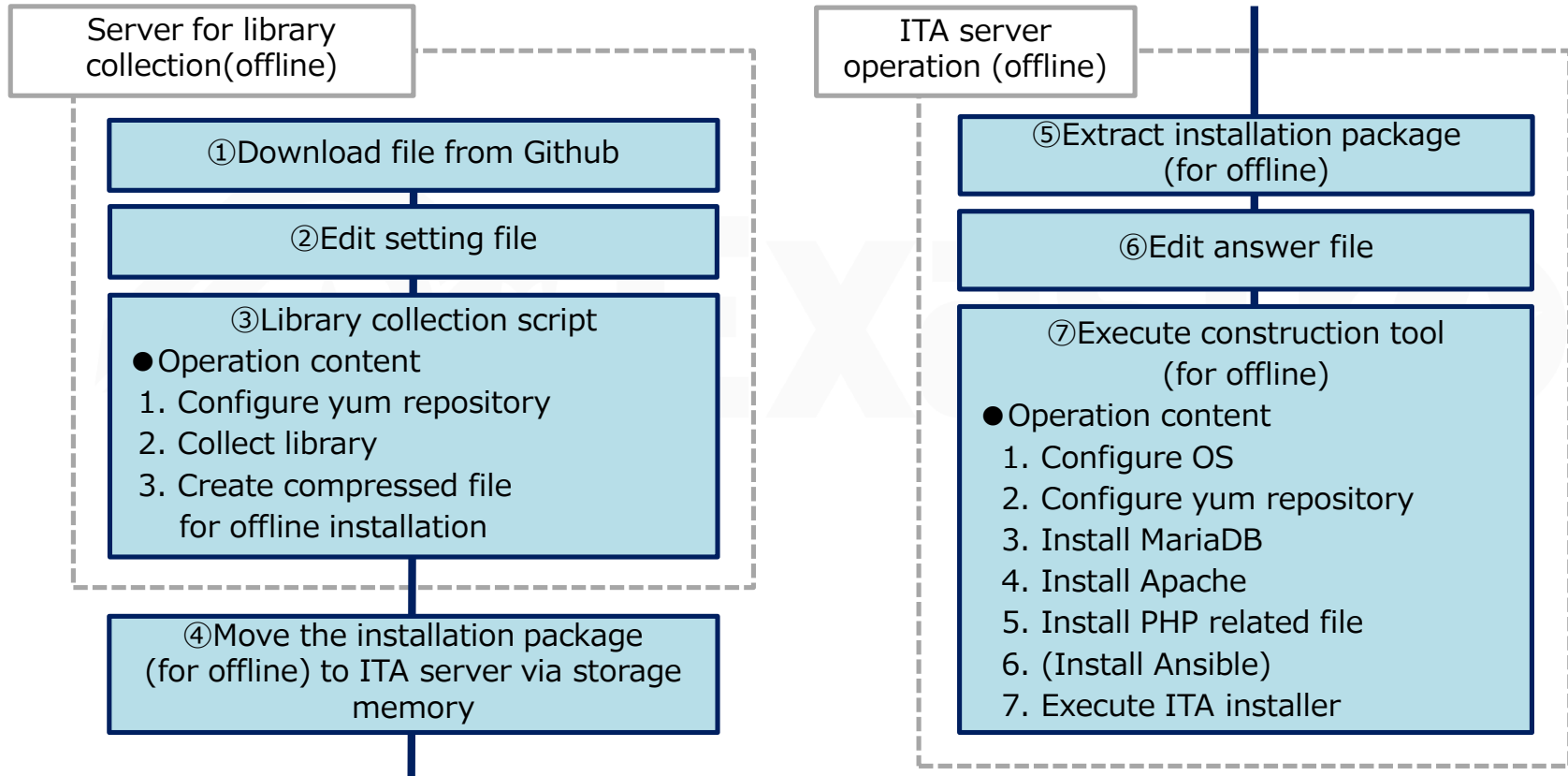
- The following table lists tools for constructing IT Automation.

| Description | File | Storage path |
|---|-------------------------|--|
| Library collection script | ita_gather_library.sh | /(Installation file extract path)/ita_install_package/install_scripts/ |
| Environment construction tool (For offline installation) | ita_builder_offline.sh | /(Installation file extract path)/ita_install_package/install_scripts/ |
| Environment construction tool (For online installation) | ita_builder_online.sh | /(Installation file extract path)/ita_install_package/install_scripts/ |
| Setting file | ita_builder_setting.txt | /(Installation file extract path)/ita_install_package/install_scripts/ |
| ITA installer | ita_installer.sh | /(Installation file extract path)/ita_install_package/install_scripts/ |
| Answer file | ita_answers.txt | /(Installation file extract path)/ita_install_package/install_scripts/ |

3.3 ITA construction flow

Construction flow (offline)

- The construction flow is as follows.



3.4 Construction (1/8)

※Execute in **online environment**

※Execute as root user

Download file from Github

- Download file with the following command

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

※Please install wget command beforehand.

※**Please change the version (x.x.x) according to the file.**

Extract file

- Extract .tar.gz file

```
# tar xzf vx.x.x.tar.gz
```

Change directory

- Switch current directory to the directory where the answer file and shell is located.

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

3.5 Construction (2/8)

Edit setting file

- The following table lists what to be edited in the setting file (ita_builder_setting.txt) for ITA construction.

| Item | Required | Default value | Description |
|----------------------|---|---------------|---|
| linux_os | <input type="radio"/> | - | OS of ITA server ("CentOS7","CentOS8","RHEL7","RHEL8", "RHEL7_AWS", "RHEL8_AWS") *)RHEL7_AWS : RHEL7 on AWS RHEL8_AWS : RHEL8 on AWS |
| redhat_user_name | Required if OS of ITA server is RHEL7 or RHEL8 ※Not required if RHEL is on AWS | - | Username for redhat account |
| redhat_user_password | | - | Password for redhat account |
| pool_id | | - | Pool ID for redhat account |

3.6 Construction (3/8)

Sample of the setting file (ita_builder_setting.txt)

- The sample of setting file (ita_builder_setting.txt) is as follows.

Installation target
OS : RHEL7

```
# 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

3.7 Construction (4/8)

Execute library collection script

- Execute the following script to execute library collection script.

```
# sh ita_gather_library.sh
```

Check operation

- After executing library collection script, the content of operation will be output to ita_gather.log
- Log storage path
/(installation file extract path)/ita_install_package/install_scripts/log/

Move file

- Move installation package (for offline) to ITA server via storage media

※ The following command are executed in ITA server (Offline environment)

Extract installation package(for offline)

- Extract installation package(for offline) on ITA server

```
# tar zxf ita_Verx.x_offline_yyyymmddhhmmss.tar.gz
```

3.8 Construction (5/8)

Edit 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

| Item | Required | Default value | Description |
|------------------|-----------------------|---------------|--|
| install_mode | <input type="radio"/> | Install | Installation mode: Install or Uninstall |
| ita_directory | <input type="radio"/> | – | 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 | <input type="radio"/> | en_US | IT Automation display language: ja_JP (Japanese) or en_US (English) |
| ita_os | <input type="radio"/> | RHEL7 | OS for IT Automation: RHEL7 or RHEL8 |
| db_root_password | <input type="radio"/> | – | Root password for MariaDB |
| db_name | <input type="radio"/> | – | Database name for MariaDB |
| db_username | <input type="radio"/> | – | Database username for MariaDB |
| db_password | <input type="radio"/> | – | Database password for MariaDB |
| ita_base | <input type="radio"/> | yes | Only yes can be specified to install IT Automation. |
| Material | <input type="radio"/> | no | Whether the Management of configuration materials function is to be installed |
| create_param | <input type="radio"/> | yes | Whether the Creation of menus function is to be installed |
| Hostgroup | <input type="radio"/> | yes | Whether the Host grouping function is to be installed |
| ansible_driver | <input type="radio"/> | yes | Whether the Ansible driver is to be installed |
| cobbler_driver | <input type="radio"/> | no | Whether the Cobbler driver is to be installed |
| openstack_driver | <input type="radio"/> | no | Whether the OpenStack driver is to be installed |
| terraform_driver | <input type="radio"/> | no | Whether the Terraform driver is to be installed |

3.9 Construction (6/8)

Sample of 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:ja_JP

# 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

Password of MariaDB is defined in answer file.

※Password that contains symbol may cause error.

3.10 Construction (7/8)

Execute construction tool (for offline)

- Execute the construction tool with the following command.

```
# sh ita_builder_offline.sh
```

Check 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/

3.11 Construction (8/8)

List of libraries installed during construction.

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

| Installed driver | Library overview | Library name |
|------------------|-------------------|---|
| ita_base | Installation tool | yum-utils(*), createrepo(*) |
| ita_base | ITA 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 plugin | php-yaml, HTML_AJAX-beta, PhpSpreadsheet |
| material | Git | Git |
| ansible_driver | Ansible | ansible, sshpass, pexpect, pywinrm, boto3, nmap-ncat, paramiko |

※ RHEL7,CentOS7

4. ITA 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.

Access URL

- Please access the login screen via the following URL.
- URL : [**http:// \(IP address of server\)**](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).


Login

- 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.

4.2 Operation check (2/6)

ITA login screen

- If ITA is installed properly, the following login screen will be displayed.



The image shows the Exastro IT Automation login screen. At the top, there is a blue header with the Exastro logo and the text "Exastro IT Automation". Below the header, the main area is dark gray. In the center, there is a white login box with a blue header labeled "Login". Inside the login box, there are two input fields: "Login ID" with the text "administrator" and "Password" with a masked password "••••••••". Below these fields is an orange "Login" button. At the bottom left of the main area, there is a small orange button labeled "Contact administrator".

Login ID : administrator

Initial password : password

4.3 Operation check (3/6)

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 |

4.4 Operation check (4/6)

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 |

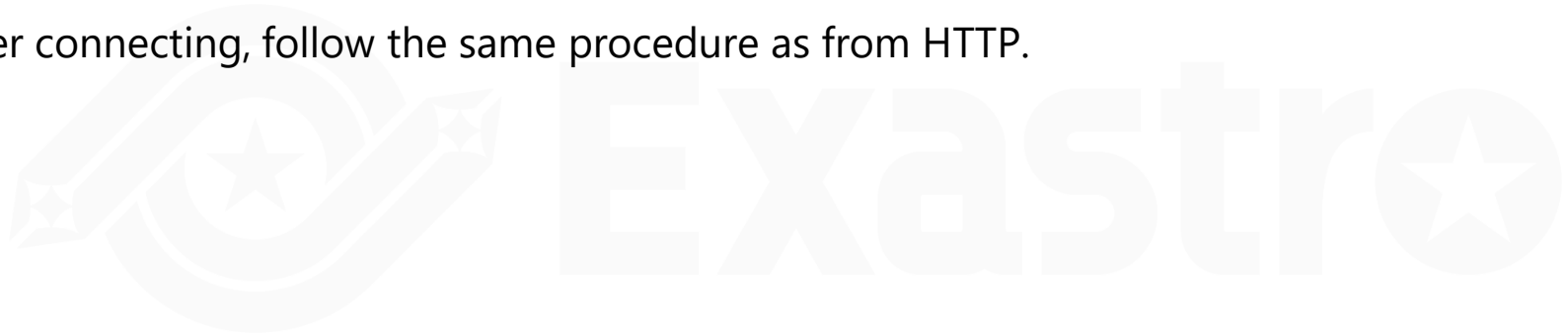
- Import the certificate to a Web browser.
- For Google Chrome, import the certificate as follows.
 1. Start up Google Chrome. Then select **Settings button** in the upper right > **settings**.
 2. Select **Advanced** in the Lower part of browser > **Manage certificates**.
 3. In the **Trusted Root Certification 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.



4.7 Reference

■ Restrict HTTP or HTTPS access

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

- Edit `"/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`



Exastro