OASE Operation Autonomy Support Engine

Offline Installation

※In this document, "Operation Autonomy Support engine" will be written as "OASE".

Ver 1.2
Exastro developer

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Exastro

1. Introduction

About this document

- This document serves as a guide on how to construct an OASE Server in an offline environment.

2. System construction

Environment necessary to use OASE.

- For details regarding the environment needed in order to use OASE, please refer to the "Exastro-OASE_Environment_Construction_manual_Basics"

Prerequisites for gathering libraries.

- When gathering libraries, the server for gathering libraries (online environment / OASE server (Offline environment both needs to have the same specs (OS Version and installed packages).

- The server for library gathering (online environment) must be able to reference the following repositories.

Pre-requisites if you want to collect libraries.

- Repository references

OS	Repository
RHEL7	https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
	https://downloads.mariadb.com/MariaDB/mariadb_repo_setup
	epel
	rhel-7-server-optional-rpms
	rhel-server-rhscl-7-rpms
RHEL8	https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
	https://downloads.mariadb.com/MariaDB/mariadb_repo_setup
	rabbitmq_rabbitmq-server
CentOS7	https://downloads.mariadb.com/MariaDB/mariadb_repo_setup
	epel
	epel-release

3.   OASE Environment Construction Procedure

Installation procedure

If the OASE server is in an offline environment, please follow the procedure below.

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

```
Server for              Online                              Internet
library collection
                                                            Repository
Installation packages          Library
(for offline)

OASE server

        OASE
JAVA(openJDK)、JBoss、
Python(uWSGI)、 Django
RabbitMQ Server、MariaDB        Local
Server、Apache                  Repository
   RHDM、   Maven

                    Offline
```
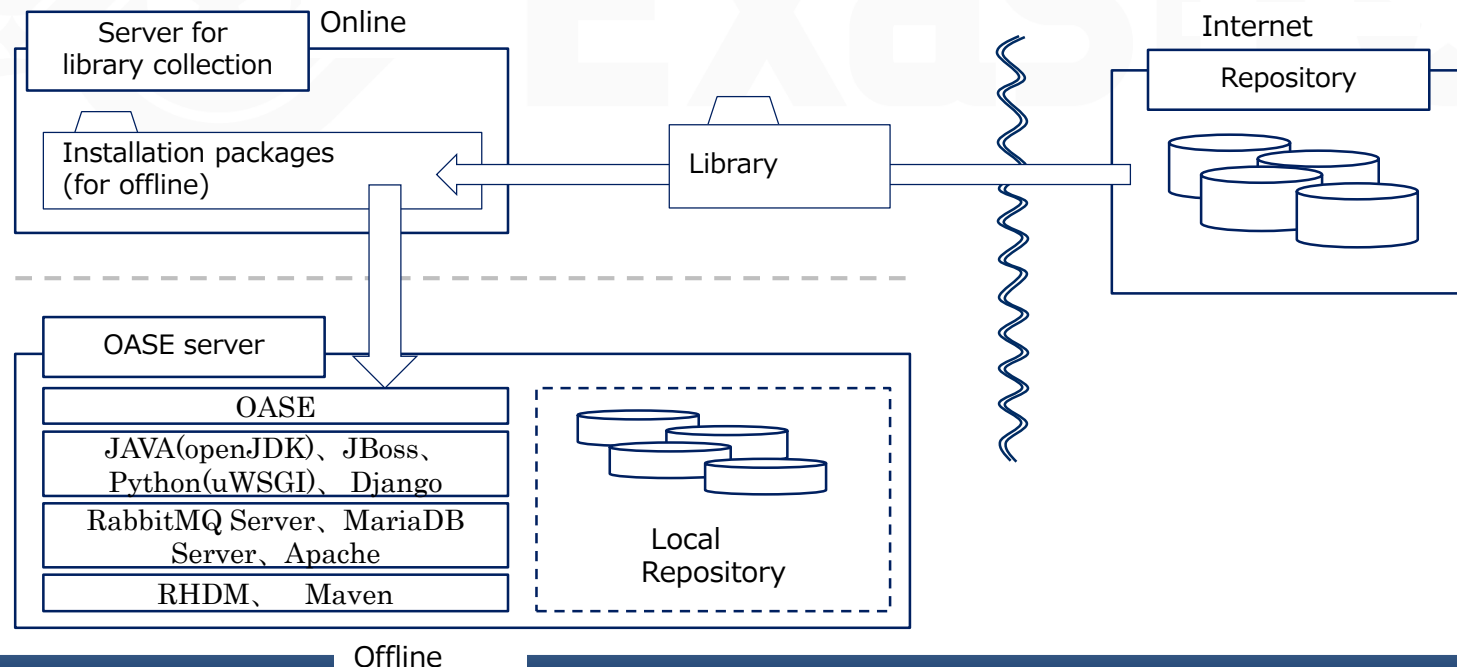
3.2　Preparation

OASE Environment construction tools

- The following table lists the tools used for construction OASE.

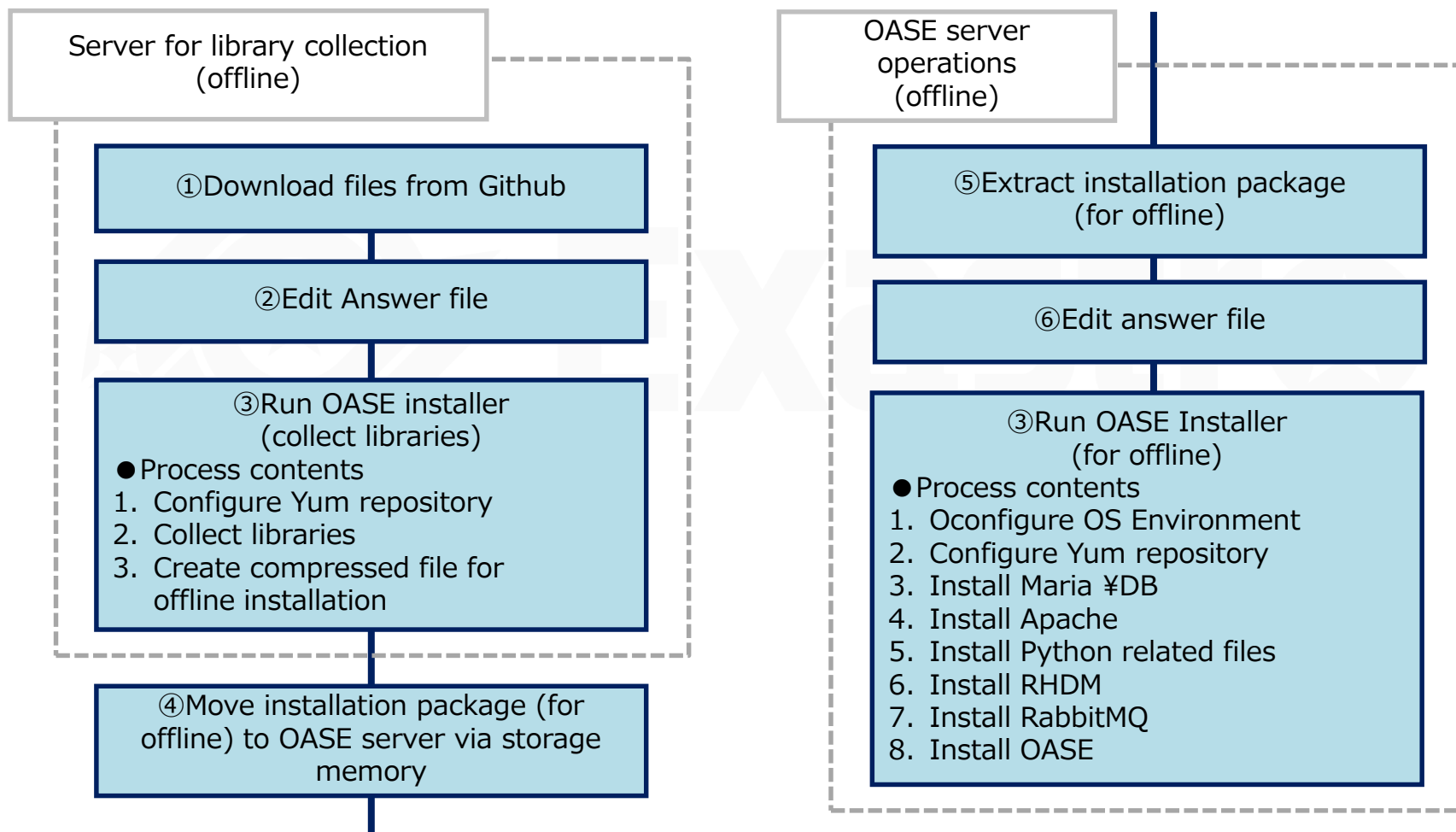| Descritpion	File	Storage path
OASE installer	oase_installer.sh	/(Installation file extract path)/oase/oase_install_package/install_scripts/
Answer file	oase_answers.txt	/(Installation file extract path)/oase/oase_install_package/install_scripts/

RHEL Subscription

- If you want to collect libraries in an non-cloud environment RHEL7/RHEL8 OS, please make sure that you are subscribed to the environment ITA is going to be installed to in advance.

Construction flow（offline）

- The construction flow is as follows.

Server for library collection (offline)	OASE server operations (offline)
①Download files from Github	⑤Extract installation package (for offline)
②Edit Answer file	⑥Edit answer file
③Run OASE installer (collect libraries) ●Process contents 1. Configure Yum repository 2. Collect libraries 3. Create compressed file for offline installation	③Run OASE Installer (for offline) ●Process contents 1. Oconfigure OS Environment 2. Configure Yum repository 3. Install Maria ¥DB 4. Install Apache 5. Install Python related files 6. Install RHDM 7. Install RabbitMQ 8. Install OASE
④Move installation package (for offline) to OASE server via storage memory	

※Execute in online environment
※Execute as root user

Download file from Github

- Download file with the following command

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

  ※Please install curl command beforehand.
  ※Please change the version (x.x.x) according to the file.

Extract file

- Extract .tar.gz file

  # tar zxf exastro-oase-x.x.x.tar.gz

Change directory

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

  # cd Exastro-oase-x.x.x/oase_install_package/install_scripts

Edit Answer file (ita_answers.txt).

- Create the answer file before gathering any libraries.
- If you want to collect libraries, change the "install_mode" setting value to "gather_library".

Item	Required	Initial value	Description
install_mode	○	Install_Online	Install mode settings ・Install_Online : Online install ・Install_Offline : Offline install ・Gather_Library : Gather library ・Versionup_All : Update OASE (with library installation) ・Versionup_OASE : Update OASE (without library installation ・Uninstall : Uninstall OASE ※See references for more details.
RabbitMQ_username	○	administrator	RabbitMQ user name
RabbitMQ_password	○	password	RabbitMQ password
RabbitMQ_queuename	○	oase	RabbitMQ queue name（Generated）
RabbitMQ_ipaddr	○	-	RabbitMQ IP Address
db_root_password	○	password	MariaDB root password
db_name	○	OASE_DB	OASE MariaDB database name
db_username	○	OASE_USER	OASE MariaDB database username

Edit Answer file (oase_answers.txt) (2/3)

- Edit the OASE Environment Construction setting file (oase_answers.txt) by using the table below.

Item	Required	Initial value	Description
db_password	○	OASE_PASSWD	OASE MariaDB Database password
db_erase	○	-	Decides whether to delete or leave the DB when uninstalling OASE
jboss_root_directory	○	/exastro/WildFly	Jboss installation directory
rhdm_adminname	○	admin0000	RHDM administrator name
rhdm_password	○	password@1	RHDM password
dm_ipaddrport	○	localhost:8080	RHDM IP address and port
rulefile_rootpath	○	/exastro/rule	RHDM rule setting file path（generated）
apply_ipaddrport	○	127.0.0.1:50001	IP and Port that Apply service starts,
mavenrep_path	○	/root/.m2/repository/com/oase/	Maven jar file storage place.
oasemail_smtp	○	"{'IPADDR':'127.0.0.1','PORT':25, 'AUTH':False}"	OASE Mail server settings
oase_directory	○	/exastro	OASE installation path

Edit Answer file(oase_answers.txt)(3/3)

Item	Required	Initial value	Description
oase_domain	○	exastro-oase.local	OASE domain name
certificate_path	Optional	–	File path for user specified SSL server Certificate. (Enter only when using an user specified SSL certificate. Specify an absolute path)
private_key_path	Optional	–	File path for user specified SSL Private keys. (enter only when using an user specified SSL private key. Specify an absolute path)

Execute library collection script

- Execute the following script to execute library collection script.

```
# sh oase_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)/oase_install_package/install_scripts/log/

Move file

- Move installation package (for offline) to OASE 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 oase_Verx.x_offline_yyyymmddhhmmss.tar.gzx
```

Edit answer file(oase_answers.txt)

- Please create answer file before collecting any libraries.
- If you want to collect libraries, change the "install_mode" setting value to "gather_library".

・Answer file Item list (oase_answers.txt)（1/3）

Item	Required	Initial value	Description
install_mode	○	Install_Online	Install mode settings ・Install_Online : Online install ・Install_Offline : Offline install ・Gather_Library : Gather library ・Versionup_All : Update OASE (with library installation) ・Versionup_OASE : Update OASE (without library installation ・Uninstall : Uninstall OASE ※See references for more details.
RabbitMQ_username	○	administrator	RabbitMQ Username
RabbitMQ_password	○	password	RabbitMQ Password
RabbitMQ_queuename	○	oase	RabbitMQ Queue name（Generated）
RabbitMQ_ipaddr	○	-	RabbitMQ IP Address
db_root_password	○	password	MariaDB root Password
db_name	○	OASE_DB	OASE MariaDB database name
db_username	○	OASE_USER	OASE MariaDB database username

Edit answer file(oase_answers.txt)(2/3)

Item	Required	Initial value	Description
db_password	○	OASE_PASSWD	OASE MariaDB Database password
db_erase	○	-	Decides whether to delete or leave the DB when uninstalling OASE
jboss_root_directory	○	/exastro/WildFly	Jboss installation directory
rhdm_adminname	○	admin0000	RHDM administrator name
rhdm_password	○	password@1	RHDM password
dm_ipaddrport	○	localhost:8080	RHDM IP address and port
rulefile_rootpath	○	/exastro/rule	RHDM rule setting file path（generated）
apply_ipaddrport	○	127.0.0.1:50001	IP and Port that Apply service starts,
mavenrep_path	○	/root/.m2/repository/com/oase/	Maven jar file storage place.
oasemail_smtp	○	"{'IPADDR':'127.0.0.1','PORT':25,'AUTH':False}"	OASE Mail server settings
oase_directory	○	/exastro	OASE installation path

Edit Answer file(oase_answers.txt)(3/3)

Item	Required	Initial value	Description
oase_domain	○	exastro-oase.local	OASE Domain name
certificate_path	Optional	－	Specify the path of the file used for the user specified SSL server certificate (Enter only when using a user specified SSL certificate. Specify an absolute path)
private_key_path	Optional	－	Specify the path of the file used for user-specified SSL private keys. (Enter only when using a user-specified SSL private key. Specify an absolute path)

▌User specified server certificates and private keys.

- It is possible to use files prepared by users as server certificates and private keys. If you want to use them, please prepare both a server certificate and a private key and input their file paths to "Certificate_path" and "private_key_path" respectively in the answer file. It is not possible to use only either server certificates or private keys.

- If the server certificate includes an intermediate certificate,
  Create a file that connects the two and set the path of the file to "certificate_path"

  Example of Creation command
  #cat(Server certificate file)(Intermediate certificate file)->(Linked server certificate file).

- If nothing is input for "certificate_path" and "private_key_path",
  The ITA installer will use the value of "ita_domain" in the answer file to create and install the self-certificate.
  （※The "ita_domain" is used as the common name when creating the self-certificate. It is also the file name for the self-certificate and the private key.

- When installing, the server certificate and private key are placed in the (/etc/pki/tls/certs). However, since they will be removed from that directory when uninstalled, please manage the original server certificate and private key files with care when using user-specified server certificates and private keys.

- When uninstalling, if both "certificate_path" and "private_key_path" in the answer file (oase_answers.txt) are specified, the specified files will be deleted. If no file is specified, the name specified in "oase_domain" will be used to delete the used file.

Answer file example.(oase_answers.txt) 1/4

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

```
# Select install mode.
# ("Install_Online","Install_Offline","Gather_Library","Versionup_All", "Versionup_OASE", "Uninstall")
# e.g) install_mode:Install_Online
install_mode:Install_Offline


##############################
# RabbitMQ
##############################
# Decide the RabbitMQ_username.
# e.g) RabbitMQ_username:sample_rabbitmq_username
RabbitMQ_username:admin

# Decide the RabbitMQ_password.
# e.g) RabbitMQ_password:sample_rabbitmq_password
RabbitMQ_password:password


# Decide the RabbitMQ_queuename.
# e.g) RabbitMQ_queuename:oase
RabbitMQ_queuename:oase

# Enter IP address for RabbitMQ.
# e.g) RabbitMQ_ipaddr:127.0.0.1
RabbitMQ_ipaddr:

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

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

# In uninstall mode,
# Select "erase" or "leave" oase database
```

❚ The following shows an example of the answer file(oase_answers.txt)2/4

```
# In uninstall mode.
# Select "erase" or "leave" oase database
# e.g) db_erase:erase
db_erase:erase


###############################
# JBoss EAP
###############################
# Enter JBoss install directory.
# e.g) jboss_root_directory:/exastro/JBossEAP
jboss_root_directory:/exastro/JBossEAP


###############################
# RHDM
###############################
# Decide the Administrator name, password.
# e.g) rhdm_adminname:admin0000
rhdm_adminname:admin0000
# e.g) rhdm_password:password@1
rhdm_password:password@1

# Enter IP address & port for Decision Manager.
# e.g) dm_ipaddrport:localhost:8080
dm_ipaddrport:localhost:8080


###############################
# RULEFILE
###############################
# Enter root path for RULEFILE.
# e.g) rulefile_rootpath:/exastro/rule
rulefile_rootpath:/exastro/rule


###############################
# APPLY
###############################
# Enter IP address & port for APPLY SERVICE.
# e.g) apply_ipaddrport:127.0.0.1:50001
apply_ipaddrport:127.0.0.1:50001
```

The following shows an example of the answer file(oase_answers.txt)3/4

```
##############################
# Maven
##############################
# Enter repository path for Maven.
# e.g) mavenrep_path:/root/.m2/repository/com/oase/
mavenrep_path:/root/.m2/repository/com/oase/


##############################
# OASEメールSMTP設定
##############################
# Enter smtp settings.
# e.g) oasemail_smtp:"['IPADDR':'127.0.0.1','PORT':25,'AUTH':False]"
oasemail_smtp:"['IPADDR':'127.0.0.1','PORT':25,'AUTH':False]"


##############################
# OASEインストールディレクトリ
##############################
# Enter OASE install directory.
# e.g) oase_directory:/exastro
oase_directory:/exastro


##############################
# settings.py
##############################
# Decide the EVTIMER SERVER location
# e.g) ev_location:127.0.0.1
ev_location:127.0.0.1

# Select language. ("ja")
# e.g) oase_language:ja
oase_language:ja

# Select Operation System. ("CentOS7" or "RHEL7" or "RHEL8")
# e.g) oase_os:RHEL7
oase_os:RHEL8
```

The following shows an example of the answer file(oase_answers.txt)4/4

```
###############################
# SSLサーバ証明書
###############################
# Enter the oase domain name.
# e.g) oase_domain:exastro-oase.local
oase_domain:exastro-oase.local

# Enter when using user-specified certificates and private keys.
# If no file path is entered for both "certificate_path" and "private_key_path",
# the OASE installer creates and installs a self-certificate and private key
# using the values entered in "oase_domain".

# Enter the file path where the certificate to be install.
# e.g) certificate_path:/temp/etc_pki_tls_certs/exastro-oase.crt
certificate_path:

# Enter the file path where the private key to be install.
# e.g) private_key_path:/temp/etc_pki_tls_certs/exastro-oase.key
private_key_path:
```

Executing the configuration tool (for offline installation)

- Execute the configuration tool with the following command:

  \# sh oase_installer.sh

Check 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)/oase_install_package/install_scripts/log/

Exit status

- The OASE installer returns one of the exit statuses listed below depending on the shell process exit status.

  Normal exit : 0

  Abnormal exit : 1

List of libraries installed during construction.

- The following table lists the libraries installed after running the OASE installer (for offline).

Installed driver	Library overview	Library name
OASE	httpd	httpd httpd-devel mod_ssl
	MariaDB	MariaDB MariaDB-server MariaDB-devel MariaDB-shared expect
	RabbitMQ	erlang rabbitmq-server
	python	python36 python36-libs python36-devel python36-pip

4. OASE Operation Check

Access URL

- Please access the login screen from the following URL.
- URL : **https://exastro-oase/oase_web/top/login**

 ※Accessing from both HTTP and HTTPS are available after installation.

 Since HTTP is insecure, accessing from HTTPS is recommended.

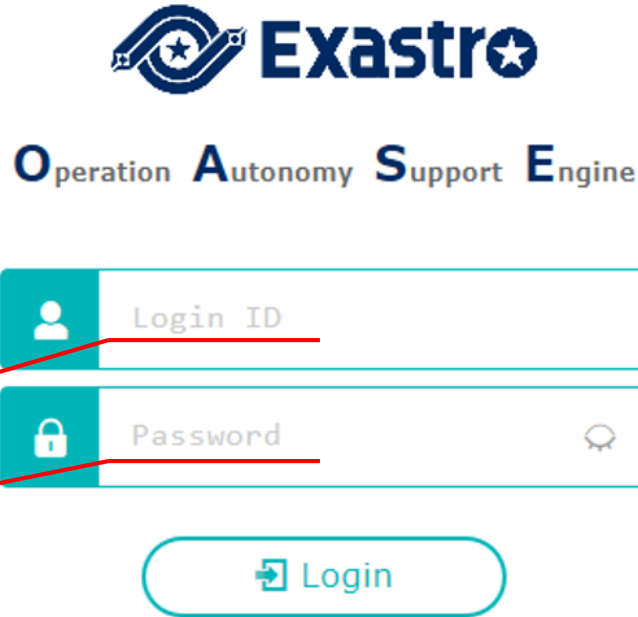 **Please check from Operation check(3/7) for the method to access from HTTP.**

Login

- Please enter the specific Login ID and default password then click the [Login] button when the login screen of OASE is displayed.
    - ・Login ID　　　：　administrator
    - ・Default password :　oaseoaseoase

- The screen will move to [Change password screen] if it is the first login after installation.
- Please change the default password from the change password screen.

OASE login screen

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

Login ID：administrator

Default password : oaseoaseoase

Check contents according to the display of each menu

- Please check if the following menu are displayed after login.

Function	Menu
OASE screen	DashBoard
	Rule
	System
	Management

Preparation for accessing with HTTPS.

- Register the host set in the Answer file's "oase_domain" to the environment's DNS Server or the operator device's "hosts".
- Import the certificate to the Operator device (Windows)
  If you are not using user specified server certificates, the server certificate can be found in the following path in the OASE install package.

Directory	File name
/etc/pki/tls/certs	[Host name set in the Answer file's "oase_domain"].crt

  If you are using user certificates, please use the certificate file set in the Answer file's "Certificate_path".
- Import the certificate to your Web browser.

Access URL via HTTP

- Please access the login screen via the following URL
- URL : http:// （IP address of server）

※ You can also access through the server's IP Address.

The steps after connection is the same as HTTPS.

5. Appendix

5.1　Appendix

Install modes

- The behavior of the installer branches depending on the "install_mode" value in the answer file (oase_answers.txt)

  - Install_Online : Installs OASE after installing the neccessary libraries online.
  - Install_Offline : Installs OASE and libraries using the package created by gather_library offline.
  - Gather_Library : Uses the internet to gather OASE Libraries and creates a package that can be used for Install_offline.(Use this before install_offline)
  - Versionup_All : Updates OASE after installing the necessary libraries online.
  - Versionup_OASE : Updates OASE without installing any libraries.
  - Uninstall : Uninstalls OASE. (Libraries will not be deleted)