

Procedure name	Please refer to the following file for required package.
HA configuration (backyard)	<a href="https://exastro-suite.github.io/it-automation-docs/asset/Learn/ITA-online-install_en.pdf">https://exastro-suite.github.io/it-automation-docs/asset/Learn/ITA-online-install_en.pdf</a> All packages other than <Mariadb, httpd, Ansible> in 3.11 Configuration(7/7)

※ For the version(x.x.x) in Setting, Notes column, please replace with the ITA version to be installed.  
For strings such as "ITA installation target directory name", "Host name of backyard server", "IP address of Ansible server", please replace them according to the installation environment.

No.	Target	Target								Setting	Notes	
		Common	File manage	Create menu	Host group	Ansible	Cobbler	OpenStack	Terraform			
Deploy ITA installation file												
1	Deploy ITA installation file	●								Please place the ITA file vx.x.x.tar.gz in the installation file deployment directory cd / (installation file deployment directory) ls -l vx.x.x.tar.gz	The deployment directory of the installation file can be any directory. Please acquire the file via the following command when performing online installation wget https://github.com/exastro-suite/it-automation/archive/vx.x.x.tar.gz	
2										Please extract ITA installation file tar -zxf vx.x.x.tar.gz		
3										Set the ITA installation directory find it-automation-x.x.x -type f   xargs -I{} sed -i -e "s:%%%%%%%%ITA_DIRECTORY%%%%%%%%/(ITA installation target directory):g" {}		
Install yum-utils												
4	【For CentOS7、RHEL7】 Install yum-utils	●								Please install the following package. yum-utils	Please install via the following command when performing online installation	
Install PHP												
5	Install PHP	●								Please install the following package. php php-bcmath php-cli php-ldap php-mbstring php-mysqlnd php-pear php-pecl-zip php-process php-snmp php-xml zip telnet mailx unzip php-json php-gd python3 php-devel libyaml libyaml-devel make sudo crontabs	Please enable the repository via the following command when performing online installation 【For CentOS7、RHEL7】 yum install -y http://rpms.remirepo.net/enterprise/remi-release-7.rpm  yum-config-manager --enable remi-php72  【For CentOS8、RHEL8】 No need to add repository.  Please install via the following command when performing online installation yum install -y php php-bcmath php-cli php-ldap php-mbstring php-mysqlnd php-pear php-pecl-zip php-process php-snmp php-xml zip telnet mailx unzip php-json php-gd python3 php-devel libyaml libyaml-devel make sudo crontabs	
6	Install PEAR library	●								Please install the following package HTML_AJAX-beta	Please install via the following command when performing online installation pear install HTML_AJAX-beta	
7	Set HTML_AJAX-beta	●								ln -s /usr/share/pear-data/HTML_AJAX/js /usr/share/pear/HTML/js		
8	Install php-yaml	●								Please install the following package php-yaml	Please install via the following command when performing online installation pecl channel-update pecl.php.net echo ""   pecl install YAML	
9	Install PhpSpreadsheet	●								Please create the following directory mkdir -p /usr/share/php/vendor		
10										Please install PhpSpreadsheet package in /usr/share/php/vendor directory	Please install via the following command when performing online installation curl -sS https://getcomposer.org/installer   php -- --install-dir=/usr/bin  /usr/bin/composer.phar require "phpoffice/phpspreadsheet": "*"  mv vendor /usr/share/php/	
Set PHP												
11	【For CentOS7、RHEL7】 Set php.ini	●								cp -p / (installation file deployment directory) /it-automation-x.x.x/ita_install_package/ext_files_for_CentOS7.x/etc/php.ini /etc/		
12	【For CentOS8、RHEL8】 Set php.ini	●								cp -p / (installation file deployment directory) /it-automation-x.x.x/ita_install_package/ext_files_for_CentOS8.x/etc/php.ini /etc/		
13	【For CentOS8、RHEL8】 Set www.conf	●								cp -p / (installation file deployment directory) /it-automation-x.x.x/ita_install_package/ext_files_for_CentOS8.x/etc_php-fpm.d/www.conf /etc/php-fpm.d/		

No.	Target	Target								Setting	Notes																		
		Common	File manage	Create menu	Host group	Ansible	Cobbler	OpenStack	Terraform																				
Install ITA																													
14	Create install target directory	●								mkdir -p /(ITA installation target directory)																			
15	Create shared directory	●								Please create the following shared directory to share with external storage  /(ITA installation target directory)/data_relay_storage /(ITA installation target directory)/ita-root/temp /(ITA installation target directory)/ita-root/uploadfiles /(ITA installation target directory)/ita-root/webroot/uploadfiles /(ITA installation target directory)/ita-root/webroot/menus/sheets /(ITA installation target directory)/ita-root/webroot/menus/users /(ITA installation target directory)/ita-root/webconfs/sheets /(ITA installation target directory)/ita-root/webconfs/users																			
16	Set shared directory	●								Please set the shared directory for external storage as follows. <table><tr><th>backyard server shared directory</th><th>external storage shared directory</th></tr><tr><td>/(ITA installation target directory)/data_relay_storage</td><td>/(any desired shared directory)/data_relay_storage</td></tr><tr><td>/(ITA installation target directory)/ita-root/temp</td><td>/(any desired shared directory)/ita-root/temp</td></tr><tr><td>/(ITA installation target directory)/ita-root/uploadfiles</td><td>/(any desired shared directory)/ita-root/uploadfiles</td></tr><tr><td>/(ITA installation target directory)/ita-root/webroot/uploadfiles</td><td>/(any desired shared directory)/ita-root/webroot/uploadfiles</td></tr><tr><td>/(ITA installation target directory)/ita-root/webroot/menus/sheets</td><td>/(any desired shared directory)/ita-root/webroot/menus/sheets</td></tr><tr><td>/(ITA installation target directory)/ita-root/webroot/menus/users</td><td>/(any desired shared directory)/ita-root/webroot/menus/users</td></tr><tr><td>/(ITA installation target directory)/ita-root/webconfs/sheets</td><td>/(any desired shared directory)/ita-root/webconfs/sheets</td></tr><tr><td>/(ITA installation target directory)/ita-root/webconfs/users</td><td>/(any desired shared directory)/ita-root/webconfs/users</td></tr></table>	backyard server shared directory	external storage shared directory	/(ITA installation target directory)/data_relay_storage	/(any desired shared directory)/data_relay_storage	/(ITA installation target directory)/ita-root/temp	/(any desired shared directory)/ita-root/temp	/(ITA installation target directory)/ita-root/uploadfiles	/(any desired shared directory)/ita-root/uploadfiles	/(ITA installation target directory)/ita-root/webroot/uploadfiles	/(any desired shared directory)/ita-root/webroot/uploadfiles	/(ITA installation target directory)/ita-root/webroot/menus/sheets	/(any desired shared directory)/ita-root/webroot/menus/sheets	/(ITA installation target directory)/ita-root/webroot/menus/users	/(any desired shared directory)/ita-root/webroot/menus/users	/(ITA installation target directory)/ita-root/webconfs/sheets	/(any desired shared directory)/ita-root/webconfs/sheets	/(ITA installation target directory)/ita-root/webconfs/users	/(any desired shared directory)/ita-root/webconfs/users	
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17	Deploy ITA file	●								cp -rp /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-contents/ita-root /(ITA installation target directory)/.																			
18	Deploy ITA setting file	●								cp -rp /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-confs /(ITA installation target directory)/ita-root/confs																			
19	Create directory used by ITA	●								Please create one directories for each line of the paths written in /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/install_scripts/list/create_dir_list.txt by adding /(ITA installation target directory) in the front of the paths  mkdir -p /(ITA installation target directory)(path written in the file)																			
20	Change privilege(755)	●								Please change privilege for every line of paths written in /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/install_scripts/list/755_list.txt by adding /(ITA installation target directory) in front of the paths  chmod 755 /(ITA installation target directory)(path written in the file)																			
21	Change privilege(777)	●								Please change privilege for every line of paths written in /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/install_scripts/list/777_list.txt by /(ITA installation target directory) in front of the paths  chmod 777 /(ITA installation target directory)(path written in the file)																			
22	Deploy the release file of ita_base	●								cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_base /(ITA installation target directory)/ita-root/libs/release/.																			
23	Deploy the release file of material		●							cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_material /(ITA installation target directory)/ita-root/libs/release/.																			
24	Deploy the release file of material (File link list(Ansible)) ※Please execute when installing material and ansible_driver		●			●				cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_material2 /(ITA installation target directory)/ita-root/libs/release/.																			
25	Deploy the release file of material (File link list(OpenStack)) ※Please execute when installing material and openstack_driver		●					●		cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_material3 /(ITA installation target directory)/ita-root/libs/release/.																			
26	Deploy the release file of createparam			●						cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_createparam /(ITA installation target directory)/ita-root/libs/release/.																			
27	Deploy the release file of hostgroup				●					cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_hostgroup /(ITA installation target directory)/ita-root/libs/release/.																			

No.	Target	Target								Setting	Notes
		Common	File manage	Create menu	Host group	Ansible	Cobbler	OpenStack	Terraform		
28	Deploy the release file of hostgroup(Create HostGroupVariable list) ※Please execute when installing hostgroup and Ansible_driver				●	●				cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_hostgroup2 /(ITA installation target directory)/ita-root/libs/release/. cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_hostgroup3 /(ITA installation target directory)/ita-root/libs/release/.	
29	Deploy the release file of ansible_driver					●				cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_ansible-driver /(ITA installation target directory)/ita-root/libs/release/.	
30	Deploy the release file of cobbler_driver						●			cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_cobbler-driver /(ITA installation target directory)/ita-root/libs/release/.	
31	Deploy the release file of openstack_driver							●		cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_openstack-driver /(ITA installation target directory)/ita-root/libs/release/.	
32	Deploy the release file of terraform_driver								●	cp -p /(installation file deployment directory)/it-automation-x.x.x/ita_install_package/ITA/ita-releasefiles/ita_terraform-driver /(ITA installation target directory)/ita-root/libs/release/.	
33	Set the connection information of MariaDB	●								①Please create a string of the following string that is by encoded with base64 and encrypted with rot13. mysql:dbname=(name of ITA DB);host=(IP address of DBMS server)  ②Please overwrite the following file with the created string. ※Please delete the value that is already written. /(ITA installation target directory)/ita-root/confs/commonconfs/db_connection_string.txt	Example: In the case that the name of ITA DB is “ITA_DB” and the IP address of DBMS server is 1.1.1.1, users can acquire the string encoded with base 64 and encrypted with rot13 by the following command. echo -ne “mysql:dbname=ITA_DB;host=1.1.1.1”   base64   tr '[A-Za-z]' '[N-ZA-Mn-Za-m]'
34	Set the user information of MariaDB	●								①Please create a string of the user name of MariaDB that is encoded with base64 and encrypted with rot13.  ②Please overwrite the following file with the created string. ※Please delete the value that is already written. /(ITA installation target directory)/ita-root/confs/commonconfs/db_username.txt	Example: In the case that the user name of MariaDB is “ITA_USER”, users can acquire the string encoded with base 64 and encrypted with rot13 by the following command. echo -ne “ITA_USER”   base64   tr '[A-Za-z]' '[N-ZA-Mn-Za-m]'
35	Set the password information of MariaDB	●								①Please create a string of password of MariaDB that is encoded with base64 and encrypted with rot13.  ②Please overwrite the following file with the created string. ※Please delete the value that is already written. /(ITA installation target directory)/ita-root/confs/commonconfs/db_password.txt	Example: In the case that the password of MariaDB is “ITA_PASSWD”, users can acquire the string encoded with base 64 and encrypted with rot13 by the following command. echo -ne “ITA_PASSWD”   base64   tr '[A-Za-z]' '[N-ZA-Mn-Za-m]'
Set ITA backyard											
36	Create the link for the config file of backyard	●								ln -s /(ITA installation target directory)/ita-root/confs/backyardconfs/ita_env /etc/sysconfig/ita_env	
37	Copy the service file of the ita_base backyard process	●								cp -p /(ITA installation target directory)/ita-root/backyards/ita_base/*.service /usr/lib/systemd/system/. cp -p /(ITA installation target directory)/ita-root/backyards/webdbcore/*.service /usr/lib/systemd/system/.	
38	Copy the service file of the material backyard process		●							cp -p /(ITA installation target directory)/ita-root/backyards/material/ky_material_management.service /usr/lib/systemd/system/.	
39	Copy the service file of the material(File link list(Ansible))backyard process ※Please execute when installing material and ansible_driver.		●			●				cp -p /(ITA installation target directory)/ita-root/backyards/material/ky_material_linkage_ansible.service /usr/lib/systemd/system/.	
40	Copy the service file of the material(File link list(OpenStack) backyard process ※Please execute when installing material and openstack_driver.		●					●		cp -p /(ITA installation target directory)/ita-root/backyards/material/ky_material_linkage_openstack.service /usr/lib/systemd/system/.	
41	Copy the service file of the createparam backyard process			●						cp -p /(ITA installation target directory)/ita-root/backyards/create_param_menu/*.service /usr/lib/systemd/system/.	
42	Copy the service file of the hostgroup backyard process				●					cp -p /(ITA installation target directory)/ita-root/backyards/hostgroup/ky_hostgroup_split.service /usr/lib/systemd/system/. cp -p /(ITA installation target directory)/ita-root/backyards/hostgroup/ky_hostgroup_check_loop.service /usr/lib/systemd/system/.	
43	Copy the service file of the hostgroup(Create HostGroupVariable list)backyard process ※Please execute when installing hostgroup and Ansible_driver.				●	●				cp -p /(ITA installation target directory)/ita-root/backyards/hostgroup/ky_hostgroup_make_var.service /usr/lib/systemd/system/. cp -p /(ITA installation target directory)/ita-root/backyards/hostgroup/ky_hostgroup_regist_var_legacy.service /usr/lib/systemd/system/. cp -p /(ITA installation target directory)/ita-root/backyards/hostgroup/ky_hostgroup_regist_var_legacy_role.service /usr/lib/systemd/system/.	
44	Copy the service file of the ansible_driver backyard process					●				cp -p /(ITA installation target directory)/ita-root/backyards/ansible_driver/*.service /usr/lib/systemd/system/.	
45	Copy the service file of the cobbler_driver backyard process						●			cp -p /(ITA installation target directory)/ita-root/backyards/cobbler_driver/*.service /usr/lib/systemd/system/.	
46	Copy the service file of the openstack_driver backyard process							●		cp -p /(ITA installation target directory)/ita-root/backyards/openstack_driver/*.service /usr/lib/systemd/system/.	
47	Copy the service file of the terraform_driver backyard process								●	cp -p /(ITA installation target directory)/ita-root/backyards/terraform_driver/*.service /usr/lib/systemd/system/.	
48	Set residential for services	●								ls -l /usr/lib/systemd/system/.   grep ky_   xargs systemctl enable	
49	Start services	●								ls -l /usr/lib/systemd/system/.   grep ky_   xargs systemctl start	

No.	Target	Target								Setting	Notes
		Common	File manage	Create menu	Host group	Ansible	Cobbler	OpenStack	Terraform		
	Set cron for ITA										
50	Set cron	●								crontab -e  Please add the following statement. 01 00 * * * su - -c / (ITA installation target directory) /ita-root/backyards/common/ky_execinstance_dataautoclean-workflow.sh' 02 00 * * * su - -c / (ITA installation target directory) /ita-root/backyards/common/ky_file_autoclean-workflow.sh'	
	Set hosts										
51	Set /etc/hosts	●								vi /etc/hosts  Please add the follows.(For the desription of associated driver server, please add servers that are used only.) 127.0.0.1 (Host name of the backyard server) (IP address of Ansible server) (Host name of Ansible server) (IP address of AnsibleTower server) (Host name of AnsibleTower server) (IP address of Cobbler server) (Host name of Cobbler server)	
	Install Git										
52	Install Git		●							Please install the following package git	Please install via the following command when performing online installation. yum install -y git