

Procedure							The necessary packages are as listed below						
HA Construction (Ansible)							<a href="https://github.com/exastro-suite/it-automation-docs/blob/master/asset/Documents/ITA-online-install_en.pdf">https://github.com/exastro-suite/it-automation-docs/blob/master/asset/Documents/ITA-online-install_en.pdf</a>						
3.11 Construction (7/7) Library overview													
※ Please change the the version number (x.x.x) written under “Settings” or “Remarks” to match the version of ITA being installed. Please also change text such as “Host name” , ITA Install directory” to fit your environment.													
No.	Goal	Goal						Settings	Remarks				
		Common	Construction file	Menu creation	Host group	Ansible	Cobbler			Terraform			
Unpack ITA Installation files													
1	Unpack ITA Installation files						●		deploy the ITA file vx.x.x.tar.gz to the installation file directory. cd / (Install file unpack directory) ls -l vx.x.x.tar.gz	The install files can be unpacked in any directory. For online, uesr the following command to gather them. wget https://github.com/exastro-suite/it-automation/archive/vx.x.x.tar.gz			
2									Unpack the ITA Installation files tar -zxf vx.x.x.tar.gz				
3									Configure ITA Installation directory find it-automation-x.x.x -type f   xargs -l sed -i -e “s:%%%%ITA_DIRECTORY%%%%/(ITA Install directory):g” {}				
Install yum-utils													
4	【For CentOS7, RHEL7】 Install yum-utils						●		Install the following package yum-utils	For Online, use the following command to install yum install -y yum-utils			
Install Apache													
5	Install Apache						●		Install the following package httpd mod_ssl	For Online, use the following command to install yum install -y httpd mod_ssl			
6	Configure Apache automatic startup settings						●		systemctl enable httpd				
Install PHP													
7	Install PHP						●		Install the following packages 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	For Online, use the following command to activate Repository 【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 Repositories will be added  If online, use the command below to install 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			
8	Install PEAR Library						●		Install the following Pear packages HTML_AJAX-beta	For Online, use the following command to install pear install HTML_AJAX-beta			
9	Configure HTML_AJAX-beta						●		ln -s /usr/share/pear-data/HTML_AJAX/js /usr/share/pear/HTML/js				
10	Install php-yaml						●		Install the following package php-yaml	For Online, use the following command to install pecl channel-update pecl.php.net echo ""   pecl install YAML			
11	Install PhpSpreadsheet						●		Create the following directory. mkdir -p /usr/share/php/vendor				
12									Install the PhpSpreadsheet Package to the /usr/share/php/vendor Directory	For Online, use the following command to install curl -sS https://getcomposer.org/installer   php -- --install-dir=/usr/bin  /usr/bin/composer.phar require “phpoffice/phpspreadsheet”:”1.14.1”  mv vendor /usr/share/php/			
Configure PHP													
13	【For CentOS7, RHEL7】 Configure php.ini						●		cp -p / (Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS7.x/etc/php.ini /etc/				
14	【For CentOS8, RHEL8】 Configure php.ini						●		cp -p / (Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS8.x/etc/php.ini /etc/				
15	【For CentOS8, RHEL8】 Configure www.conf						●		cp -p / (Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS8.x/etc/php-fpm.d/www.conf /etc/php-fpm.d/				
Change sudo settings													
16	Create sudo settings file						●		/etc/sudoers.d/ (Free file name) In the directory above, create a file with the contents below.  daemon ALL=(ALL) NOPASSWD:ALL apache ALL=(ALL) NOPASSWD:ALL	Create command example: cat << EOS > /etc/sudoers.d/it-automation daemon ALL=(ALL) NOPASSWD:ALL apache ALL=(ALL) NOPASSWD:ALL EOS			

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17	Change Sudo Settings file permission					●			Make sure the permission for the created sudo settings file is 440 chmod 440 /etc/sudoers.d/(Free file name)”	
18	Change sudoers file					●			vi /etc/sudoers Check the sudoers file and comment out if any of the following is written.(If already comment out, skip this step)  Defaults requiretty	
Install ITA										
19	Create Install directory					●			mkdir -p /(ITA Installation directory)	※Make sure that “other users” also have permission to run all the parent directories of the ITA Install directory.
20	Create data_relay_storage					●			mkdir /(ITA Installation directory)/data_relay_storage	
21	Create common directory					●			Create directory to share the following external storage.	
									Ansible server common directory	
									/(ITA Installation directory)/data_relay_storage	
									/(Free Directory)/data_relay_storage	
22	Deploy ITA Files					●			cp -rp /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/ITA/ita-contents/ita-root /(ITA Install directory)/.	
23	Deploy ITA Settings files					●			cp -rp /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/ITA/ita-confs /(ITA Install directory)/ita-root/ confs	
24	Create ITA Directory					●			For paths written in the /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/install_scripts/list/create_dir_list.txt file, create directories one line at a time with /(ITA Install directory) at the beginning.  mkdir -p /(ITA Install directory)(File path written in the document)	
25	Change permission(755)					●			For paths written in the /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/install_scripts/list/755_list.txt, Change the permissions one line at a time with /(ITA Install directory) at the beginning.  chmod 755 /(ITA Install directory) (File path written in the document)	
26	Change permission(777)					●			For paths written in the /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/install_scripts/list/777_list.txt, Change the permissions one line at a time with /(ITA Install directory) at the beginning.  chmod 777 /(ITA Install directory) (File path written in the document)	
Configure Apache										
27	Configure /etc/hosts					●			vi /etc/hosts  Add the following 127.0.0.1 (Ansible Server host name)	
28	Create server certificate and secret key. ※This shows how to create a self certificate, but you can also use a certificate created by a public organization or use HTTP and not use certificates at all.					●			cd /tmp openssl genrsa 2048 > (Ansible Server host name).key openssl req -new -key (Ansible Server host name).key > (Ansible Server host name).csr  ~~~~~Interactive~~~~~ Country Name (2 letter code) [XX]:(Can be blank) State or Province Name (full name) []:(Can be blank) Locality Name (eg. city) [Default City]:(Can be blank) Organization Name (eg. company) [Default Company Ltd]:(Can be blank) Organizational Unit Name (eg. section) []:Can be blank Common Name (eg. your name or your server's hostname) []:(Ansible Server Host name) Email Address []:(Can be blank) A challenge password []:(Can be blank) An optional company name []:(Can be blank) ~~~~~Interactive~~~~~  openssl x509 -days 3650 -req -signkey (Ansible Server host name).key < (Ansible Server host name).csr > (Ansible Server host name).crt rm -f (Ansible Server host name).csr mv (Ansible Server host name).key /etc/pki/tls/certs/ mv (Ansible Server host name).crt /etc/pki/tls/certs/	※If your server certificate comes with an intermediate certificate, concatenate the intermediate certificate to the server certificate and create a file  Create command cat [Server certificate file] [Intermediate certificate file] > [Connected server certificate.]
29	【For CentOS7, RHEL7】 Deploy Apache conf file					●			cp -p /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS7.x/etc/httpd_conf.d/vhosts_exastro-it-automation.conf /etc/httpd/conf.d/	
30	【For CentOS8, RHEL8】 Deploy Apacheconf file					●			cp -p /(Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS8.x/etc/httpd_conf.d/vhosts_exastro-it-automation.conf /etc/httpd/conf.d/	
31	Fix Apache conf file					●			vi /etc/httpd/conf.d/vhosts_exastro-it-automation.conf  In the file, change the three “exastro-it-automation” to (Ansible server host name)  ServerName (Ansible server host name) ~ SSLCertificateFile /etc/pki/tls/certs/(Ansible server host name).crt SSLCertificateKeyFile /etc/pki/tls/certs/(Ansible server host name).key	

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32	Restart Apache					●			systemctl restart httpd	

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Install Ansible										
33	Install Ansible					●			Install the following packages from pip3 ansible pexpect pywinrm boto3 paramiko boto	For online, use the following command to isntall pip3 install ansible pexpect pywinrm boto3 paramiko boto
34	Create directory for Ansible settings file					●			mkdir -p /etc/ansible/	
35	【For CentOS7, RHEL7】 Deploy Ansible settings file					●			cp -p / (Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS7.x/etc/ansible/ansible.cfg /etc/ansible/ansible.cfg	
36	【For CentOS8, RHEL8】 Deploy Ansible settings file					●			cp -p / (Installation file unpack location)/it-automation-x.x.x/ita_install_package/ext_files_for_CentOS8.x/etc/ansible/ansible.cfg /etc/ansible/ansible.cfg	
37	Install packages needed by Ansible					●			Install the following packages sshpass expect nc	If Online, use the following command to install. yum install -y sshpass expect nc
38	List the Ansible-Playbook path into the text file					●			Use the following command to display a path. Write said path into /(ITA Installation path)/ita-root/confs/commonconfs/path_ANSIBLE_MODULE.txt whereis ansible-playbook	Example: /usr/local/bin/ansible-playbook If the line above is displayed, Write /usr/local/bin