Construction procedure

User/Connection requirements
Run as root user the root user must be able to login through SSH

№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
1. Install ITA					
1-1	Install ITA	●	●	Please see the All in one installation manual below https://exastro-suite.github.io/it-automation-docs/learn_ja.html#deploy	
2.DRBD Synchronization settings					
2-1	Configure the environment settings for construction	●	●	【Setting line】Change the red text to fit the user environment (In this manual, we will use the environment described in the previous section, "2. System Configuration export ha1_name=ita-ha-sv01　※ Specify the Master side's Host name export ha2_name=ita-ha-sv02　※ Specify the Slave side's Host name export ha1_addr=192.168.1.11　※ Specify the Master side's Heartbeat IP Address export ha2_addr=192.168.1.12　※ Specify the Slave side's Heartbeat IP Address export virtual_ip_addr=10.1.1.10　※ Specify the ITA Access virtual IP address	If you want to re-login in the middle of the procedure, please run this command again.
2-2	Add elrepo repository for installing DRBD	●	●	yum -y install http://www.elrepo.org/elrepo-release-8.1-1.el8.elrepo.noarch.rpm	
2-3	Install DRBD	●	●	yum -y install drbd kmod-drbd90	
2-4	※Name resolution not necessary if DNS Server is used Allow HA configuration nodes to resolve each other's names	●	●	echo "${ha1_addr}　${ha1_name}" >> /etc/hosts echo "${ha2_addr}　${ha2_name}" >> /etc/hosts	

2-5	Use DRBD init script to define DRBD operation when starting.	●	●	vi /etc/drbd.d/global_common.conf
				
				startup {
				# wfc-timeout degr-wfc-timeout outdated-wfc-timeout wait-after-sb
				wfc-timeout 5;　※Describe "wfc-timeout" in the startup section.
				}	

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		master	slave		

2-6	Comment out any commands that does not exist in version 9.0 or later
	from the DBRD systemd settings file.
		●	●	vi /usr/lib/systemd/system/drbd.service
				
				[Service]
				(Display order)
				～～～～～～～～～～～～～～～～～～～～～Excerpt～～～～～～～～～～～～～～～～～～～～～
				#ExecStart=/usr/sbin/drbdadm sh-b-pri all　※Comment out the "sh-b-pri" subcommand.
				# disconnect and detach all resources
				ExecStop=/usr/sbin/drbdadm down all	

2-7	Create /dev/vdc1	●	●	echo -e "\nn\np\n1\n\n+(Partition size)\nw" | fdisk /dev/vdc	(Partition size) equals Number+Measure unit. K = KibiByte, M = MebiByte, G = GibiByte. E.g.) 5 GibiByte = 5G
2-8	Create /dev/vdc2 ※When using all remaining free space on the DRBD Synchronization volume.	●	●	echo -e "\nn\np\n2\n\n\nw" | fdisk /dev/vdc	
2-9	Fill the created partision date with "0" and reset the file system.	●	●	dd if=/dev/zero of=/dev/vdc1 bs=1M count=1 dd if=/dev/zero of=/dev/vdc2 bs=1M count=1	

2-10	Create DRBD settings file	●	●	cat > /etc/drbd.d/r0.res << DRBD
				resource r0 {
				device /dev/drbd0;
				disk /dev/vdc1;
				meta-disk internal;
				on $ha1_name {
				address $ha1_addr:7788;
				}
				on $ha2 name {
				address $ha2 addr:7788;
				}
				}
				DRBD
					Install the commands together

				cat > /etc/drbd.d/r1.res << DRBD
				resource r1 {
				device /dev/drbd1;
				disk /dev/vdc2;
				meta-disk internal;
				on $ha1_name {
				address $ha1_addr:7789;
				}
				on $ha2_name {
				address $ha2_addr:7789;
				}
				}
				DRBD
					Install the commands together

2-11	※Only if using firewalld Allow communication to the used port.	●	●	firewall-cmd --add-port=7788/tcp --zone=public --permanent firewall-cmd --add-port=7789/tcp --zone=public --permanent firewall-cmd --reload	
2-12	Create DRBD resource meta data	●	●	drbdadm create-md r0 drbdadm create-md r1	
2-13	Run DRBD service	●	●	systemctl start drbd	

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User/Connection requirements
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№	Operation	Server: master	Server: slave	Contents (※When "Master" and "Slave" server configuration is required, please configure them in paralell)	Remarks
2-14	Configure the mount for ITA synchronization on the master side.				
	Initial Synchronize the DRBD synchronization devices from Master to Slave.	●		drbdadm primary --force all	
	Format the DRBD synchronization devices using xfs.	●		mkfs -t xfs /dev/drbd0 mkfs -t xfs /dev/drbd1	
	Configure ITA Synchronization file mount (drbd0)				
	Create a directory of ITA Synchronization and mount the DRDB Synchronization devic	●		mkdir -p /mnt/(ITA Install path) mount /dev/drbd0 /mnt/(ITA Install path)	Please change the red text to fit your environment.
	Store the ITA Installation directory in array variables.	●		dirs=("/(ITA Install path)/data_relay_storage/symphony" "/(ITA Install path)/data_relay_storage/conductor" "/(ITA Install path)/data_relay_storage/ansible_driver" "/(ITA Install path)/ita_sessions" "/(ITA Install path)/ita-root/temp" "/(ITA Install path)/ita-root/uploadfiles" "/(ITA Install path)/ita-root/webroot/uploadfiles" "/(ITA Install path)/ita-root/webroot/menus/sheets" "/(ITA Install path)/ita-root/webroot/menus/users" "/(ITA Install path)/ita-root/webconfs/sheets" "/(ITA Install path)/ita-root/webconfs/users")	Install the commands together Please change the red text to fit your environment.

	Move the data from the ITA Synchronization directory to the DRBD Synchronization d
	and create a symbolic link to the ITA Installation path.
		●		for dir in "${dirs[@]}" ; do
				## directory backup
				if [-d ${dir}]; then
				mv ${dir}{,.org}
				fi
				## Create directory under the mounted directory.
				if [! -d `dirname /mnt${dir}`]; then
				mkdir -p `dirname /mnt${dir}`
				fi
				## Copy ITA Data to under the Mounted directory.
				if [! -d /mnt${dir}]; then
				cp -pr ${dir}.org /mnt${dir}/
				fi
				##Create symbolic link
				if [-d /mnt${dir}]; then
				ln -s "/mnt"${dir} ${dir}
				fi
				## Comment in if you want to delete the backed up directory.
				# if [-d ${dir}.org]; then
				# rm -rf ${dir}.org
				# fi
				done
					Install the commands together

	Configure MariaDB Datafile device (drbd1)				
	Save the source MariaDB data	●		cp -pr /var/lib/mysql /var/lib/mysql.org	
	Mount /var/lib/mysql to the DRBD Synchronization device	●		mount /dev/drbd1 /var/lib/mysql chown -R mysql:mysql /var/lib/mysql	
	Copy the MariaDB Data to the mount (Synchronize) and delete the saved source data	●		rsync -a --delete /var/lib/mysql.org/ /var/lib/mysql/ rm -rf /var/lib/mysql.org	
	Unmount the DRBD Synchronization device.	●		umount /dev/drbd0 umount /dev/drbd1	
	Demote the DRBD Resource to Secondary.	●		drbdadm secondary all	

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User/Connection requirements
Run as root user the root user must be able to login through SSH

№	Operation	Server: master	Server: slave	Contents (※When "Master" and "Slave" server configuration is required, please configure them in paralell)	Remarks
2-15	Configure the Slave server's ITA Synchronization mount.				
	Initial synchronize the Slave storage to the Master storage.		●	drbdadm primary --force all	
	Format the DRBD Synchronization partition using xfs		●	mkfs -t xfs /dev/drbd0 mkfs -t xfs /dev/drbd1	
	Configure ITA Synchronization file mount (drbd0)				
	Create a directory for ITA Synchronization and mount it to DRBD Synchronization device	●		mkdir -p /mnt/(ITA Install path) mount /dev/drbd0 /mnt/(ITA Install path)	Please change the red text to fit your environment.
	Store the ITA Synchronization directory in an array variable.		●	dirs=("/(ITA Install path)/data_relay_storage/symphony" "/(ITA Install path)/data_relay_storage/conductor" "/(ITA Install path)/data_relay_storage/ansible_driver" "/(ITA Install path)/ita_sessions" "/(ITA Install path)/ita-root/temp" "/(ITA Install path)/ita-root/uploadfiles" "/(ITA Install path)/ita-root/webroot/uploadfiles" "/(ITA Install path)/ita-root/webroot/menus/sheets" "/(ITA Install path)/ita-root/webroot/menus/users" "/(ITA Install path)/ita-root/webconfs/sheets" "/(ITA Install path)/ita-root/webconfs/users")	Install the commands together Please change the red text to fit your environment.

	Move the data from the ITA Synchronization directory to the DRBD Synchronization devic and create a symbolic link to the ITA Installation path.		●	for dir in "${dirs[@]}" ; do
				## back-up directory
				if [-d ${dir}]; then
				mv ${dir}{,.org}
				fi
				## Create directory under the mounted directory
				if [! -d `dirname /mnt${dir}`]; then
				mkdir -p `dirname /mnt${dir}`
				fi
				## Copy ITA Data to under the mounted directory
				if [! -d /mnt${dir}]; then
				cp -pr ${dir}.org /mnt${dir}/
				fi
				## Create symbolic link
				if [-d /mnt${dir}]; then
				ln -s "/mnt"${dir} ${dir}
				fi
				## Comment in if you want to detele the backed up directory.
				# if [-d ${dir}.org]; then
				# rm -rf ${dir}.org
				# fi
				done
					Install the commands together

	Configure Device for MariaDB Data files (drbd1)				
	Mount /var/lib/mysql to DRBD Synchronization device.		●	mount /dev/drbd1 /var/lib/mysql chown -R mysql:mysql /var/lib/mysql	
	Unmount the DRBD Synchronization partition.		●	umount /dev/drbd0 umount /dev/drbd1	
	Demote the DRBD Resource to Secondary.		●	drbdadm secondary all	
2-16	Stop DRBD Service	●	●	systemctl stop drbd	

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User/Connection requirements
Run as root user the root user must be able to login through SSH

№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
3.Maria DB Stop settings					
3-1	Stop Maria DB	●	●	systemctl disable mariadb systemctl stop mariadb	
4.ITA Stop settings					
4-1	Stop ITA services (ky_*)	●	●	systemctl stop ky_activedirectory_roleuser_replication-workflow.service systemctl stop ky_ansible_execute-workflow.service systemctl stop ky_ansible_towermasterSync-workflow.service systemctl stop ky_bulk_excel-workflow.service systemctl stop ky_change_col_to_row.service systemctl stop ky_cmdbmenuanalysis-workflow.service systemctl stop ky_create_er-workflow.service systemctl stop ky_create_param_menu_execute.service systemctl stop ky_data_portability_execute-workflow.service systemctl stop ky_hostgroup_check_loop.service systemctl stop ky_hostgroup_split.service systemctl stop ky_legacy_role_valautostup-workflow.service systemctl stop ky_legacy_role_varsautolistup-workflow.service systemctl stop ky_legacy_valautostup-workflow.service systemctl stop ky_legacy_varsautolistup-workflow.service systemctl stop ky_mail.service systemctl stop ky_pioneer_valautostup-workflow.service systemctl stop ky_pioneer_varsautolistup-workflow.service systemctl stop ky_std_checkcondition-linklist.service systemctl stop ky_std_synchronize-Collector.service systemctl stop ky_std_synchronize-Conductor.service systemctl stop ky_std_synchronize-regularly2.service systemctl stop ky_std_synchronize-regularly.service systemctl stop ky_std_synchronize-regularly.service systemctl stop ky_terraform_execute-workflow.service systemctl stop ky_terraform_checkcondition-workflow.service systemctl stop ky_terraform_varsautolistup-workflow.service systemctl stop ky_terraform_valautosetup-workflow.service	Some services might not exist depending on the ITA Version. In that case, there will be no need to stop said service.

Construction procedure

User/Connection requirements
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№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
4-2	Deactivate automatic startup for the different ITA services (ky *)	●	●	systemctl disable ky_activedirectory_roleuser_replication-workflow.service systemctl disable ky_ansible_execute-workflow.service systemctl disable ky_ansible_towermasterSync-workflow.service systemctl disable ky_bulk_excel-workflow.service systemctl disable ky_change_col_to_row.service systemctl disable ky_cmdbmenuanalysis-workflow.service systemctl disable ky_create_er-workflow.service systemctl disable ky_create_param_menu_execute.service systemctl disable ky_data_portability_execute-workflow.service systemctl disable ky_hostgroup_check_loop.service systemctl disable ky_hostgroup_split.service systemctl disable ky_legacy_role_valautostup-workflow.service systemctl disable ky_legacy_role_varsautolistup-workflow.service systemctl disable ky_legacy_valautostup-workflow.service systemctl disable ky_legacy_varsautolistup-workflow.service systemctl disable ky_mail.service systemctl disable ky_pioneer_valautostup-workflow.service systemctl disable ky_pioneer_varsautolistup-workflow.service systemctl disable ky_std_checkcondition-linklist.service systemctl disable ky_std_synchronize-Collector.service systemctl disable ky_std_synchronize-Conductor.service systemctl disable ky_std_synchronize-regularly2.service systemctl disable ky_std_synchronize-regularly.service systemctl disable ky_std_synchronize-symphony.service systemctl disable ky_terraform_execute-workflow.service systemctl disable ky_terraform_checkcondition-workflow.service systemctl disable ky_terraform_varsautolistup-workflow.service systemctl disable ky_terraform_valautosetup-workflow.service	Some services might not exist depending on the ITA Version. In that case, there will be no need to stop said service.
5.Apache resource settings					
5-1	Create Apacha Server status	●	●	cat > /etc/httpd/conf.d/server_status.conf << STAT ExtendedStatus On <Location /server-status> SetHandler server-status Order deny,allow Deny from all Allow from localhost </Location> STAT	Install the commands together
5-2	Stop/Deactivate Apache service.	●	●	systemctl disable httpd systemctl stop httpd	
5-3	Copy the https server certificate/sercret key from the master server to the slave server.	●	●	scp /etc/pki/tls/certs/(https server certificate name).crt ${ha2_addr}:/etc/pki/tls/certs/ scp /etc/pki/tls/certs/(https server certificate name).key ${ha2_addr}:/etc/pki/tls/certs/	Make sure to change the https server certificate/secret key to the file name used when installing the ITA Server.

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№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6.Pacemaker settings					
6-1	Install HA Software	●	●	yum --enablerepo=rhel-8-for-x86_64-highavailability-rpms install pacemaker pcs drbd-pacemaker NetworkManager NetworkManager-config-server systemctl restart NetworkManager	
6-2	※Do only if under a proxy. Add main machine/secondary machine IP to no proxy	●	●	sed -i 's/^export\ NO_PROXY/export no_proxy=\$no_proxy,'$ha1_name','$ha2_name'\nexport NO_PROXY/' /etc/profile.d/proxy.sh sed -i 's/^setenv\ NO_PROXY/setenv no_proxy=\$no_proxy,'$ha1_name','$ha2_name'\nsetenv NO_PROXY/' /etc/profile.d/proxy.csh source /etc/profile.d/proxy.sh source /etc/profile.d/proxy.csh	※Run one time after pasting the text
6-3	※Do only if firewalld is used add firewalld settings	●	●	firewall-cmd --add-service=high-availability --permanent firewall-cmd --reload	
6-4	Modify corosync.service settings	●	●	cp -p /usr/lib/systemd/system/corosync.service /etc/systemd/system/ sed -i 's/^#Restart=on.*/Restart=on-failure/' /etc/systemd/system/corosync.service sed -i 's/^#RestartSec=.*/RestartSec=70/' /etc/systemd/system/corosync.service	
6-5	Treat Pacemaker internal process failure as a node failure	●	●	sed -i 's/^#\ PCMK_fail_fast.*/PCMK_fail_fast=yes/' /etc/sysconfig/pacemaker	
6-6	Modify pacemaker.service settings	●	●	cp -p /usr/lib/systemd/system/pacemaker.service /etc/systemd/system sed -i "s/^#\ ExecStopPost=\/bin\/sh.*/ExecStopPost=\/bin\/sh -c 'pidof crmd || killall -TERM corosync'/" /etc/systemd/system/pacemaker.service	
6-7	Generate/deploy cluster certification setting file	●		corosync-keygen -l scp -p /etc/corosync/authkey root@${ha2_addr}:/etc/corosync/authkey	
6-8	Configure password for the "hacluster" user ID (pcs admin account).	●	●	passwd hacluster New password:xxxxxx Re-input the new password:xxxxxx passwd: Successfully updated all authentication tokens.	Please change the red text to fit your environment. Make sure the password for both master and slave are the sa
6-9	Start pcsd service and configure pcsd so it is active when the system starts.	●	●	systemctl enable pcsd systemctl start pcsd systemctl status pcsd	

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User/Connection requirements
Run as root user the root user must be able to login through SSH

№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6-10	Authenticate cluster	●		pcs host auth ${ha1_name} ${ha2_name} Username: hacluster Password:(Password set with "passwd hacluster")	Please change the red text to fit your environment.
6-11	Set up cluster	●		pcs cluster setup hacluster --start ${ha1_name} addr=${ha1_addr} ${ha2_name} addr=${ha2_addr}	
6-12	Deactivate STONITH (Shoot The Other Node In The Head) option	●		pcs property set stonith-enabled=false	
6-13	Configure the clusters so that no special actions are carried and all nodes are managed if the minimum required number of nodes are not reached.	●		pcs property set no-quorum-policy=ignore	
6-14	Configure attribute wait time.	●		pcs property set transition-delay="0s"	
6-15	Deactivate automatic failback.	●		pcs resource defaults resource-stickiness="INFINITY" migration-threshold="1"	
6-16	Configure the clusters so they run automatically	●		pcs cluster enable --all	
6-17	Configure vip resources	●		pcs resource create virtual_ip ocf:heartbeat:IPaddr2 ip=${virtual_ip_addr} cidr_netmask=24 \ op monitor interval=10s timeout=30s \ op start interval=0s timeout=20s \ op stop interval=0s timeout=20s	
6-18	Register r0 DRBD device as resource	●		pcs resource create drbd_r0 ocf:linbit:drbd drbd_resource=r0 \ op monitor interval=10s role=Master \ op monitor interval=30s role=Slave \ op notify interval=0s timeout=90s \ op promote interval=0s timeout=90s \ op reload interval=0s timeout=30s \ op start interval=0s timeout=240s \ op stop interval=0s timeout=100s	
6-19	Register r1 DRBD device as resource	●		pcs resource create drbd_r1 ocf:linbit:drbd drbd_resource=r1 \ op monitor interval=10s role=Master \ op monitor interval=30s role=Slave \ op notify interval=0s timeout=90s \ op promote interval=0s timeout=90s \ op reload interval=0s timeout=30s \ op start interval=0s timeout=240s \ op stop interval=0s timeout=100s	
6-20	Configure resource settings for DRBD block devices	●		pcs resource create fs_exastro ocf:heartbeat:Filesystem device=/dev/drbd0 directory=/mnt/exastro fstype=xfs pcs resource create fs_mariadb ocf:heartbeat:Filesystem device=/dev/drbd1 directory=/var/lib/mysql fstype=xfs	
6-21	Configure httpd resources	●		pcs resource create httpd systemd:httpd \ op monitor interval=60s timeout=100s \ op start interval=0s timeout=100s \ op stop interval=0s timeout=100s	

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№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6-22	Configure ITA service (ky_*) resources	●		pcs resource create ky_activedirectory_roleuser_replication-workflow systemd:ky_ansible_execute-workflow \ op monitor interval=60s timeout=100s \ op start interval=0s timeout=100s \ op stop interval=0s timeout=100s pcs resource create ky_ansible_execute-workflow systemd:ky_ansible_execute-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_ansible_towermasterSync-workflow systemd:ky_ansible_towermasterSync-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_bulk_excel-workflow systemd:ky_bulk_excel-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_change_col_to_row systemd:ky_change_col_to_row \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_cmdbmenuanalysis-workflow systemd:ky_cmdbmenuanalysis-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_create_er-workflow systemd:ky_create_er-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_create_param_menu_execute systemd:ky_create_param_menu_execute \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_data_portability_execute-workflow systemd:ky_data_portability_execute-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s	

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№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6-22	Configure ITA service (ky_*) resources	●		pcs resource create ky_hostgroup_check_loop systemd:ky_hostgroup_check_loop \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_hostgroup_split systemd:ky_hostgroup_split \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_legacy_role_valautostup-workflow systemd:ky_legacy_role_valautostup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_legacy_role_varsautolistup-workflow systemd:ky_legacy_role_varsautolistup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_legacy_valautostup-workflow systemd:ky_legacy_valautostup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_legacy_varsautolistup-workflow systemd:ky_legacy_varsautolistup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_pioneer_valautostup-workflow systemd:ky_pioneer_valautostup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_pioneer_varsautolistup-workflow systemd:ky_pioneer_varsautolistup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_std_checkcondition-linklist systemd:ky_std_checkcondition-linklist \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s	

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№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6-22	Configure ITA service (ky_*) resources	●		pcs resource create ky_std_synchronize-Conductor systemd:ky_std_synchronize-Conductor \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_std_synchronize-regularly2 systemd:ky_std_synchronize-regularly2 \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_std_synchronize-regularly systemd:ky_std_synchronize-regularly \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_std_synchronize-symphony systemd:ky_std_synchronize-symphony \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_terraform_execute-workflow systemd:ky_terraform_execute-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_terraform_checkcondition-workflow systemd:ky_terraform_checkcondition-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_terraform_varsautolistup-workflow systemd:ky_terraform_varsautolistup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s pcs resource create ky_terraform_valautosetup-workflow systemd:ky_terraform_valautosetup-workflow \ op monitor interval=30s timeout=60s \ op start interval=0s timeout=60s \ op stop interval=0s timeout=60s	
6-23	Configure mariadb resources	●		pcs resource create mariadb systemd:mariadb \ op monitor interval=60s timeout=100s \ op start interval=0s timeout=100s \ op stop interval=0s timeout=100s	

Construction procedure

User/Connection requirements
Run as root user the root user must be able to login through SSH

№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6-24	Configure fs resource group	●		pcs resource group add fs_mount_group fs_exastro fs_mariadb	
6-25	Configure vip and httpd resource groups	●		pcs resource group add exastro virtual_ip httpd	
6-26	Configure ITA service (ky_*) resource groups	●		pcs resource group add ky_services ky_activedirectory_roleuser_replication-workflow ky_ansible_execute-workflow ky_ansible_towermasterSync-workflow ky_bulk_excel-workflow ky_change_col_to_row ky_cmdbmenuanalysis-workflow ky_create_er-workflow ky_create_param_menu_execute ky_data_portability_execute-workflow ky_hostgroup_check_loop ky_hostgroup_split ky_legacy_role_valautostup-workflow ky_legacy_role_varsautolistup-workflow ky_legacy_valautostup-workflow ky_legacy_varsautolistup-workflow ky_pioneer_valautostup-workflow ky_pioneer_varsautolistup-workflow ky_std_checkcondition-linklist ky_std_synchronize-Conductor ky_std_synchronize-regularly2 ky_std_synchronize-regularly ky_std_synchronize-symphony	
6-27	Assign the added DRBD resources to Master/Slave. Start up 2 nodes and specify one of the nodes to be the master node (DRBD primary node)	●		pcs resource promotable drbd_r0 master-max=1 master-node-max=1 clone-max=2 clone-node-max=1 notify=true pcs resource promotable drbd_r1 master-max=1 master-node-max=1 clone-max=2 clone-node-max=1 notify=true	
6-28	Add constraint so fs resource and ms_drbd start on the same node	●		pcs constraint colocation add fs_exastro with drbd_r0-clone INFINITY with-rsc-role=Master pcs constraint colocation add fs_mariadb with drbd_r1-clone INFINITY with-rsc-role=Master	
6-29	Add constraint so the resources are run in the following order: Resource ms_drbd → fs_exastro	●		pcs constraint order promote drbd_r0-clone then start fs_exastro pcs constraint order promote drbd_r1-clone then start fs_mariadb	
6-30	Specify all created resources and then the resource group start/stop order.	●		pcs constraint order set fs_mount_group mariadb ky_services exastro	
6-31	Specify a constraint that forces all set resources to be started on the same node.	●		pcs constraint colocation set fs_mount_group mariadb ky_services exastro	
6-32	Reload resources	●		pcs resource cleanup	
6-33	Reload settings file	●	●	systemctl daemon-reload	
6-34	Start HA program services	●	●	systemctl enable corosync systemctl enable pacemaker systemctl start corosync systemctl start pacemaker	

Construction procedure

User/Connection requirements
Run as root user the root user must be able to login through SSH

№	Operation	Server		Contents （※When "Master" and "Slave" server configuration is required, please configure them in paralell）	Remarks
		master	slave		
6-35	Check that the Cluster is running properly	●		pcs status (Display example) ~~~~~~~~~~~~~~~~~~~~~~~~Excerpt~~~~~~~~~~~~~~~~~~~~~~~~ 2 nodes configured　←Check that this is displayed 32 resource instances configured Online: [ita-ha-sv01 ita-ha-sv02]　←Check that both Master and Slave are online Active resources: 　mariadb　(systemd:mariadb):　Started ita-ha-sv01　←Check that "master"　is "Started" Resource Group: fs_mount_group 　fs_mysql　(ocf::heartbeat:Filesystem):　Started ita-ha-sv01 　fs_httpd　(ocf::heartbeat:Filesystem):　Started ita-ha-sv01 Resource Group: ky_services 　ky_xxx　(systemd:ky_xxx):　Started ita-ha-sv01 Resource Group: exastro 　virtual_ip (ocf::heartbeat:IPaddr2):　Started ita-ha-sv01 　httpd　(systemd:httpd):　Started ita-ha-sv01 ~~~~~~~~~~~~~~~~~~~~~~~~Excerpt~~~~~~~~~~~~~~~~~~~~~~~~	Install the commands together
6-36	Check ITA Connection	●		Access the login screen with the URL below https://10.1.1.10	Install the commands together
作業終了					