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Hitachi Dynamic Replicator - Scout Host Troubleshooting Guide

Hitachi Data Systems

Contents

Conventions

Keywords, command buttons and other such fields are enclosed in " " while being bold, for example, to

denote Next -> "**Next**" is used

Inputs for commands and Variables are shown in *Italics*

File names and paths are shown in **bold**

Commands are shown in Courier new font

Optional keywords and arguments are enclosed within [ ].

Notes:

Contain suggestions or tips.

Caution:

Contains critical information

References

Hitachi Dynamic Replicator Install Guide: Explains installing and deploying Scout.

Hitachi Dynamic Replicator Administration Guide: Explains configuring, backing up and recovery operations

1 Before Troubleshooting

Before proceeding into troubleshooting, ensure that

- The FX and VX agents are pointed to the CX server
- VX and FX agent services are up and running
- Agents are pointed to the HTTP port of the CX server
- No firewall is blocking any of the Scout components
- Valid Scout licenses are applied to the VX and FX agents
- Linux based CX server relays a loop back address if a fully qualified domain name is not used. Thus, while working with the CX UI, always use a fully qualified domain name.

2 Possible issues and workarounds

2.1 The service refuses to stop

Error: The FX or VX agent refuses to stop

Condition: This could be because the agent service is busy working on a replication pair

Workaround: First, recall that you should avoid stopping the "InMage Host Agents" service on the local server. With that in mind, if you stop the service, wait a few minutes, and check the service to see if it stops. The service first completes the task it is working on, and only then stops as requested. When you check the service later, it will stop as requested.

2.2 FX job not starting

Error: A scheduled FX job on the CX UI is not starting

Condition: A firewall might be blocking port 874 either on the source or the target.

Workaround: Unblock the port from the firewall settings

2.3   Application refuses to run off the Snapshot Volume

Error: Application such as Exchange, SQL etc did not start off from the snapshot volume

Condition: The snapshot may be taken at an inconsistent point.

Workaround: Ensure that you perform a snapshot for the "exact tag" represented by a green flag on the CX UI.

2.4   Files replicate but they cannot be deleted from the target

Error: Unable to delete replicated files on the target host

Condition: Post replication (either VX or FX), the files on the target host cannot be deleted

Workaround: The replicated files have been replicated exactly as is, including the original owner of the file. The owner of the files on the source machine is still the owner of the files on the target machine. Thus SOURCE_HOST\Administrator is not the same user as TARGET_HOST\Administrator. The solution is to use an appropriately privileged user to remove replicated files.

2.5   Target volume label is blank when target volume is made visible

Error: After unhiding the target volume, the label is blank

Condition: Known issue on windows

Workaround: You can either close and open windows explorer or do a reboot. The label will be restored.

2.6   Virtual snapshot lost after a reboot

Error: Virtual snapshot is lost after the target volume is rebooted

Condition: Another device may have occupied the virtual snapshot's drive letter

Workaround: Since virtual volume are persistent even after a reboot, it is essential to choose a drive letter which will not be occupied (even after reboot) by removable media, floppies, USB devices etc to prevent loss of virtual snapshot.

2.7   Vacp consistency tags failing

Error: Vacp consistency tags are failing on the production server

Condition: Either VSS is not properly installed or VSS is an older version.

Workaround 1: VACP uses Volume shadow copy service to issue consistency tags (or bookmarks). It is highly recommended to have the latest VSS installed along with updates and hot fixes. For troubleshooting VSS follow Microsoft's article on http://support.microsoft.com/kb/826936/ and for checking follow the link http://support.microsoft.com/?kbid=833167

Workaround 2: Rarely VACP tags do fail, to overcome this delete the "**HKLM\Software\Microsoft\EventSystem\ {26c409cc-ae86-11d1-b616-00805fc79216}\Subscriptions**" key from the registry of the source host (where VACP is being used), and reboot the system

Workaround 3: While issuing consistency tags on exchange ensure that the service "**Microsoft exchange information store**" is up and running. While issuing consistency tags on SQL server ensure the service "**SQL VSS writers**" is up and running, else VACP tags fail.

Workaround 4: While working with SQL server ensure that the service "**SQL server VSS writer**" is set to start automatically.

Workaround 5: While using Symantec antivirus Ver 10.0.100 always apply the SAV 10.0 Maintenance Patch 1, else vacp fails

2.8   Vacp tags missing from cdpcli

Error: Consistency tags can't be seen in cdpcli list events command output

Condition: If the volume where the tags are stored is not mounted (usually after reboots) then those are not shown through "**cdpcli"**, however the same are shown through the UI.

Workaround: Ensure that the retention volume is available.

2.9   File system errors on target volume

Error: Windows disk manager shows different file system, while properties of the same volume show a different file system.

Condition: This happens when you set up a replication pair with different file systems on source and target volumes

Workaround: The target volume should be formatted with the same file system as that of the source to ensure 100% data consistency, only then it may be used for a replication.

2.10 Unable to mount snapshot

Error: Snapshot operation failed with the error "**mount operation failed specified paramaters: FileSystem:"VxFS Mountpoint:**"

Condition: This occurs when snapshot is performed for a VxFS replication pair with a non exact consistency tag.

Workaround: When you are replicating the VxFS file system ensure that you always select the "Exact" recovery point indicated as a green flag on the CX UI. The snapshot (either physical or virtual) will not mount when the recovery point is "approximate" or "not guaranteed" for VxFS file system.

2.11 Virtual snapshot returns error of inpage operations

Error: After a virtual snapshot is performed the target host shows error messages of inpage operations.

Condition: This occurs when there are hardware issues on the media inpage operation error occurs when a copy is attempted from a faulty media

Workaround: Identify and replace the faulty disk, (you may use file system check)

2.12 FX jobs failing with exit code 23

Error: FX job fails with error code of 23 on CX UI.

Condition 1: This occurs because of user level privileges, ownerships or FX agent not running with domain user privileges

Condition 2: St Bernard software's issue with FX agent service

Condition 3: This may occur on windows because of a corrupted passwd or group file

Workaround 1: FX job fails with an exit code 23 due to user level privileges, ownerships or FX agent not running with domain user privileges. Start the FX service with domain administrator privileges.

Workaround 2: Access the FX source host's registry and navigate to "**HKEY_LOCAL_MACHINE\SOFTWARE\Cygnus Solutions\Cygwin\mounts v2\\etc**" to find the "**native**" value. This "**native**" value holds a path where the passwd and group files are located. When the passwd and group files are corrupted, you may regenerate it under the "native" path using the following commands

To generate password file:
```
mkpasswd.exe" -l -d > "<native path>"\passwd"
```

To generate group file:
```
mkgroup.exe" -l -d > "<native path>"\group"
```

Occasionally the passwd file may take more than five minutes to be generated, under such cases manually generate the passwd and group files and set the FX source and target registry value "**MakeAcls**" to 0 under "**HKEY_LOCAL_MACHINE\software\SVSystems\FileReplicationAgent**"

Work around 3: Exclude the FX agent from St Bernard's list

Work around 4: Create the passwd file on windows

If only FX is installed on system then
The correct value for this should be "**<FX agent installation folder>\Application Data\etc**". Restart the FX agent service to effect the changes

If windows CX is installed on the system (along with FX) then
The correct value for this should be "**C:\home\svsystems\etc**"

Ideally, the value should be the path where the files "**passwd**" and "**group**" are located.

2.13 FX job failing with exit code 5 on AIX

Error: FX jobs on AIX platform fail with exit code 5.

Condition: This occurs because the user "**root**" is not the member of the group "**root**"

Workaround: Add the user "root" to the group "root" then restart the FX service and run the job. The FX job should now be successful or as an alternative edit the "config.ini" file under the FX installation directory to change the line inmsyncGID = <*group to which the root user belongs to*>. Then restart the FX agent service to apply the changes.

2.14 FX jobs failing with exit code -255 on CX HA environment

Error: FX jobs are stopping automatically with -255 error code. The corresponding FX log shows the error "Host is blocked because of many connection errors"

Condition: This error usually occurs on CX HA environments. This is caused when the "**mysqld**" service blocks a host after 10 connection errors

Workaround:
Identify the machine (passive or active node) which is causing the FX job to fail through the FX job log file.
Access the command prompt of the identified node to tweak the number of connection errors through the command "**mysqld_safe --max_connect_errors=<** *desired value* **>".**
Or
Use the "**mysqladmin flush-hosts**" command on the identified node to flush the hosts on all the CX servers.

2.14.1 How to Set FX to get best Performance

If the new source files gets added then existing files won't change. The options would be that checksums has to be performed, checksums has to be performed always, and also files that exist already are ignored at the destination. The effect and state are explained in the table.

For bandwidth of more than 100 Mbps the files are compressed and the effect and state is explained in the table below.

Table 1: Checksum list

Scenario	Options	State	Effect
If File list at source is incremental, i.e., newer files would get added and existing files would not change.	Whole files (no incremental checks)	Enable	Does not do any checksum operation as inmsync transfers the whole file
	Always perform checksum	Disable	As the files don't exist at target, checksum is not required.
	Ignore files that already exist at the destination	Enable	Old files do not change, hence does not need to transfer them
If Bandwidth is more than 100Mbps	Compress files	Disable	Compression is counterproductive in high speed networks.

2.15 FX error codes, conditions and workarounds

Table 2

Exit codes	Description	Causes	Troubleshooting
1	Syntax or usage error	Invalid filter mentioned	Edit the job options and correct the filters under Include/ Exclude Options
		Invalid options in catch all job modifier	Edit the Job Options and correct the "Catch all" job modified under Miscellaneous options
3	Errors selecting input/output files, folders	Destination is not a directory	Edit the FX job and set a valid target directory
		Unable to get details of a file or a directory	Please verify the file system on which the files exist is available for use
5	Error starting client-server protocol	A file daemon.conf may be corrupted. This can be found under the FX installation path (for non windows) And for windows daemon.conf can be found under FX installation folder\application data	Restart the FX job.
		Source Directory does not exist	Edit the job settings and set a valid source directory
10	Error in Socket IO	Failed to connect to remote FX agent	Check the FX agent service and start the service if not already started. A firewall might be blocking the FX agent's port (default 874). Unblock the FX ports from the firewall. Port might already be in use by another application. Stop the FX agent service and verify if the port is in use
11	Error in file I/O	Failed to open include/exclude file	Include/Exclude option creates a file on the target (in case of pull mode). The error occurs if this file cannot be accessed. Ensure enough free space and set read write permissions to the parent folder.

			For windows the parent folder is FX installation folder\application data And for non-windows the parent folder is FX installation folder.
		Unable to create destination folder	Ensure FX agent service has permissions to create the directory in the target path
		No free space available	FX installation folder may be running out of space. Move the log files to a different volume to make free space.
12	Error in rsync protocol data stream	Connection failure	Ensure source and target FX services are up and running Ensure inmsync process is running on the source (in case of pull mode) Check the network connectivity
		Unable to write to the socket	Too many FX jobs are competing for the same resource such as sockets or disk space at the same time. Schedule the jobs to run such that they don't overlap with each other.
14	Error in IPC code	Unable to create a pipe or create a child process	System policy restricting the FX agent to create child processes.
20	Received SIGUSR1 or SIGINT	FX agent service or its child process was stopped abruptly	Identify if any user or application has accidentally stopped the process and restart the FX agent service.
23	Partial transfer due to error	Some of the files /file attributes are not transferred completely.	Windows: The FX agent service should be started with domain user privileges. Then FX job option "Catch all job modifier" should have the input value as --super In general Source FX agent should have permissions to read the files from the source and write them on the target

24	Partial transfer due to vanished source files	This is a warning message indicating file deletion on the source folder during FX execution. Before FX starts to replicate files, it makes a list of all files on source that differ from target. After making a list, it starts to update target with all the changes in source, one file at a time. If by the time FX comes to a file, in the list, to send it to target, if the file has been removed on the source, it throws the error 24. This happens when another process, another FX jobs removes the files on the source.	It means that file has been deleted from source by another process. You can ignore this error. Only in cases, where no one has removed files but this error still occurs, we need to restart the FX job.
30	Timeout in data send/receive	No activity from the FX job for 9600 secs will result in a timeout. This is used to detect network outage	While working with large number of files, there might be idle time during the FX replication. Either increase the idle time or Split the job to smaller jobs.
-255	Job Stopped by user	Job stopped through CX UI	Re run the job to replicate the data
		FX service is down while job is in progress	Start the FX service.
		Pre or Post script returned a non zero value.	Check the script for possible errors
		Mysqld blocked the target host after ten connection errors	mysqladmin flush-hosts
-127	inmlimit: child terminated unexpectedly	Inmlimit is a child process for FX, which again spawns inmsync. This error is shown when inmsync exits unexpectedly	Check the job log for errors and restart the FX service

2.16 Email Alerts, conditions and workarounds

Table 3

Event Description	Reasons / conditions that can generate	Corrective action to be taken
RPO SLA threshold exceeded	a) The target can drain slowly.	Monitor the services at both source and target and CX and ensure the services are running.
Resync required for VX replication pair	a) The re-sync required might be set due to data inconsistency. b) On source volume resize c) If the target drive is exposed in read/write mode. d) Process server fail over for the replication pairs e)Configuration server fail over in case of the High availability scenario	Restart a re-sync from UI or configure a auto re-sync policy to get the pair to do restart
VX/FX agent not responding	This email is sent when the agent is unable to communicate with the CX server within 900 seconds. Either the 1. Agent service may not be started 2. A fire wall may be blocking the agent, 3. Network failure or 4. The host itself may be down The timeout may be configured under "**System-> Agent settings**"	Disable any firewalls (or allow FX agent through the firewall). Check and ensure that FX service is running Ping the target and CX servers to see if the host can communicate with them and vice versa. Check if agent is pointed to the right CX server
CX secondary storage warnings and alerts	If the disk space at CX exceeds than disk space warning threshold, which is configured from UI.	An email alert is sent when the disk usage has reached 80% (as configured under "**System-> CX settings**") for the following four volumes on the CX server. • / • /home • /tmp and • /var
Agent logged error message	An email alert is sent out when the VX or FX agent has encountered an error.	Check the Agent log

CX, VX, FX license expiry and related issues	Email alert is sent seven days before license expiry and continues until the new license is uploaded.	Contact Hitachi Data Systems or the concerned Representative for obtaining new Licenses
Bandwidth shaping alerts	An email alert is sent out when a policy is created, deleted, or is invalid	Monitor the bandwidth as per the configured policy
Capacity threshold exceeded	This is applicable for capacity based license. When the threshold is exceeded as set under "**System-> license management - Set Capacity Utilization Threshold**" an email alert is sent out.	Upgrade license to higher capacity
Capacity utilization reached limit	Again this option is applicable for capacity based licensing, when the full capacity of the license is consumed by replication pairs, an email alert is sent out until a higher capacity license is uploaded or a replication pair is removed in order to adjust within the defined license capacity.	Upgrade license to higher capacity
Health report every	Enable this option to receive a protection report. By default the interval is set to one day. Protection report will always	if the protection coverage is lesser as indicated by the report, monitor for the following on your system: a) RPO characteristics for the volume b) Has the pair been throttled? c) Has resync required been set to yes
Source volume resize	If the source volume capacity is resized greater than the current configured source volume pair	As per the documentation.
CX node Failover	CX HA failover. Primary CX server has gone down	Bring the primary CX online and perform a failback
Debug information for CX services	An email is sent out if there are any errors in the host logs	Check the host logs

2.17 Data is not replicating from one end to the other

Error: Data replication is not happening

Condition:
- Verify whether the source and target volume relationship is established as expected or not.
- Ensure that the agent (VX or FX) service is running on both the production server and DR server
- Verify whether the PS and CX servers are up and available (ping-able) or not.
- Verify whether network connectivity works from end to end (local to remote server) or not.
- Verify if firewalls are blocking the ports
- If the CX server time has been changed, it requires tmanagerd service restart else the replication will not progress

Workaround 1:
When a VX machine's operating system is upgraded from windows 2000 to windows 2003 the agent driver does not get upgraded along with it and the replication does not progress. For this the VX agent needs to be uninstalled and then reinstalled.

Workaround 2:
If there is no space on the target system the replication pauses until space is freed. If the replication is progressing slowly free up space on the CX server

Workaround 3:
Target volume made visible
If the problem persists then contact Hitachi Data Systems Technical Support if the above recommendations do not resolve the issue.

2.18 Replication stuck on Solaris agents

Error:
- Replication pair stuck in Resync on Solaris source and Solaris Target
- DR host's partition corrupted
- IO errors on DR server

Condition: Partition was created from cylinder 0

Workaround: Before installing the unified agent on Solaris machine, ensure that you create the partition from the cylinder 1 rather than the cylinder 0 on both the production and DR servers. The replication will not complete when partition is made from cylinder 0

2.19 Devices are not shown on CX UI

Error: Devices on the production or DR machines does not appear on the CX UI

Condition: The VX agent performs a filter and sends a list of devices, volumes, file systems, free space etc to the CX server. There are some devices that do not match the criteria and do not get reported to the CX server.

Workaround: To bypass this, first access the source host,

- Open the file "/usr/local/InMage/Vx/etc/drscout.conf".
- Look for a text "TrackExperimentalDeviceNumbers=0" and change it to "TrackExperimentalDeviceNumbers=1"
- If the value is 0, then the filters are enabled and block some devices while reporting to the CX server
- If the value is 1, then the filters are bypassed and all the devices are shown on the CX UI
- Then restart the VX agent service.
Repeat the same process for the target VX

2.20 Windows CX installation failing

Error: Windows CX installation fails

Condition: Oracle may be installed on the same machine leading to perl conflicts.

Workaround: Windows CX installation may not be performed on a system with Oracle installed due to Perl conflicts

2.21 The Scout CX UI does not display some tables correctly

Error: Unexpected display on CX UI

Condition: Versions of Internet Explorer 6 and above that are shipped with Windows 2003 have high security settings

Workaround: For the CX UI to display right form and table information, the CX server IP address must be added to the list of trusted sites. In addition to this allow automatic URL forwarding

2.22 All the volumes are shown Inactive on the UI

Error: All volumes of the host are reported as offline

Condition: Agent service may be down or a fire wall may be blocking the agents

Workaround: Restart agents, unblock agent services from firewall.

2.23 CX restore fails with error "Table svsdb1.users doesn't exist"

Error: CX server restore fails with the error "Table svsdb1.users does not exist"

Condition: Corrupted CX backup file

Workaround:

- Acquire the latest "*.amc" file from the CX which is under the "<*FX installation path*>/cxbackup/*.amc"
- Change the extension of the file from amc to zip
- Extract the zip file to find three files "amethyst.conf", "license.dat" and "svs_db.sql" file.
- Access the "svsdb1" database on CX and drop the existing tables.
- Run the "svs_db.sql" file to create new set of tables.
- Replace the "amethyst.conf" and "license.dat" file in "/home/svsystems/etc" (for linux) and "C:\home\svsystems\etc" (for windows) on the CX.
- Restart the CX services.

2.24 CX backup consuming disk space

Error: While performing a CX backup, space on the CX and FX target is consumed

Condition: This occurs as part of the CX backup

Workaround: You may manually delete these files.
On Linux, the default path is "**/usr/local/InMage/Fx/cxbackup/**"
On windows, the default path is "**C:\Program Files\InMage Systems\cxbackup**"

2.25 Resync stuck

Error: VX Replication is stuck at 0%

Condition: source or the target agents are down, CX out of disk space

Workaround: If the target is on Linux, then ensure that the volume is not being used, since force unmount is not supported on Linux.

When reporting a support incident, note if offload or fast resync has been used. Also, collect the host error logs either from CX UI or from CX Server for both the source and the target volumes. "**HKEY_LOCAL_MACHINE\SOFTWARE\SVSystems\VxAgent\FastSyncHashCompareDataSize**" should have the same value on the source and the target else the replication will not progress.

2.26 Resync stuck for clustered setup

Error: Resync stuck for clustered to standalone replication.

Condition: One or more nodes may be offline

Workaround: After performing a failover or a failback the cluster nodes should be **"online"** for the replication to progress

2.27 When is resync stuck

- Check the heart beat from the source and target agents in the system page. If heartbeats are not current, then either the Hosts and CX are unavailable or the services are not running. Start the hosts or restart the InMage services.
- Check if the host has been registered twice. This can be done by going to the licensing page under the system. If the same host shows up twice with the same agent (VX or FX) then the host was registered twice due to an incorrect uninstall/install cycle. Run "http://<CXip>/cleanup_database.php?name=hostname" from your browser to solve double entries. You have to re-license the hosts and setup the protection pairs for the host after the cleanup.
- Check that all the hosts have been configured to point the correct CX IP address using hostconfig
- Ensure that no application like exchange or sql server is holding open handles to the target volume. This can prevent the resync from starting.
- Sometimes a hard reboot on the target may result in missing target drive letter and once the system is back online Scout fails to recognize the volume since it has no drive letter assigned to it. To correct this, access the disk management, and assign the target drive letter back to the target volume as mentioned in [Mounting volumes on windows](#) section.
- Check the host logs under the system page to see if there are any errors detected from either the source or the target hosts.
- If you can login to the CX console, check the status by service status tmanagerd
- Check all physical connections.
- When there is a cygwin version mismatch (e.g., if cygwin is installed separately on the VX agent host, then there is a greater possibility that both cygwin versions [the one bundled with VX agent and the one installed by any other application or user] mismatch causing the resync to stop.) To overcome this, ensure that the latest version of "**cygwin1.dll**" is present under the VX installation path.

2.28 VX agent down on passive nodes

Error: VX agent is reported as down on passive nodes

Condition: This occurs on cluster environment

Workaround: Passive cluster nodes will always indicate the agent is down, you may ignore this message.

2.29 VX replication pair throttled

Error: VX replication pair throttled

Condition:
- Low bandwidth,
- Large amounts of data changes on the source volume,
- If the cache folder for the replication pair is filled up on the CX server.
- WAN outage

Workaround:
For Low bandwidth, increase bandwidth or disable any bandwidth shaping policies
Rapid data changes on source volume: The VX agent will replicate all data from the source to target, however large data change rates may often force the pair to throttle due to low cache space on the source.

When CX cache is out of space, you should see a message "**cumulative throttling**". Switch to the CX server's command prompt to identify and move (or delete) large files on the CX cache by using the command "**du / --max-depth=2 | sort –n**". This should solve the issue where CX cache is full.

2.30 Unable to unlock target volume

Error:
- Unlockdrives.exe does not list locked target volumes
- Cdpcli.exe cannot unlock target volumes.

Condition: Cdpcli.exe and unlockdrives.exe are executed without administrator privileges.

Workaround:
Always use cdpcli.exe to unlock the target volumes rather than unlockdrives.exe since unlockdrives.exe is used only after stopping a replication pair or while uninstalling the product. You cannot unlock a target volume either from CX UI or cdpcli while the replication pair is in "Resync" state. Ensure that have administrator privileges before you use cdpcli.exe.

Unlockdrives.exe: right click on unlockdrives.exe and click on "**Run as Administrator**" to enter the administrator credentials, this will start the utility with administrator privileges and shows the list of locked volumes

Cdplci.exe: Start the command prompt with administrator privileges and run the following command

`Cdpcli.exe --unhide_ro <`*Target volume*`>` (for unlocking in read only mode)
`Cdplci.exe --unhide_rw <`*target volume*`>` (for unlocking in read write mode)

2.31 Clustered volumes show up as regular volumes

Error: Clustered volume appear as regular volumes on the CX UI

Condition: Due to online/offline race conditions, the clustering information of nodes in a cluster may not be reported correctly from the VX agent to CX in certain situations

Workaround: Restart the VX agent services on all nodes in the cluster through the service manager.

2.32 Replication pair visible even after deleting Solaris volume

Error: Solaris volume appears on the CX UI even after unmounting the volume

Condition: A Solaris source volume is unmounted from the production Solaris machine still appears on the CX UI

Workaround: you will need to manually delete the replication pair through the CX UI

2.33 Unable to determine volume replication status

Error: Unable to monitor replication pair progress or to verify the replication status

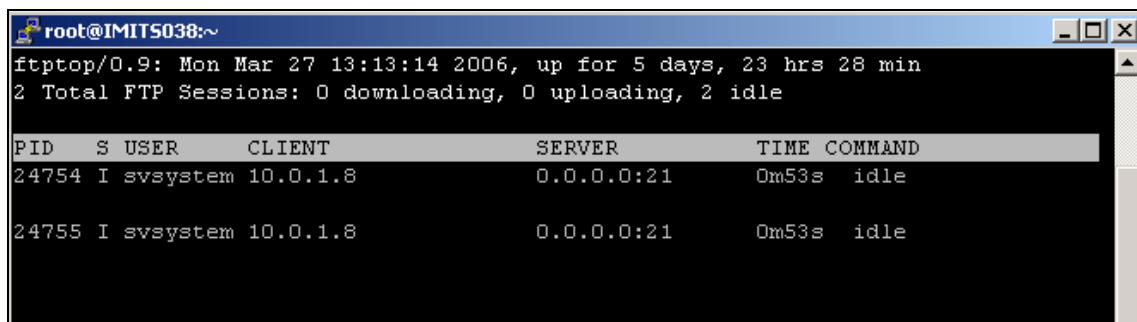**Condition**: CX Server takes time to respond or unable to access the CX UI

Workaround 1: The replication status page on the CX UI shows the RPO associated with every replication pair. If a certain volume replication pair was not working for any reason, you would see the RPO continually climb.

There are two ways of validating the contents of the volume to check if the latest changes are present:

- Make the replicated volume "visible" using the view details page on the CX server. This requires a resynchronization as the File System drivers make changes to the volume making it inconsistent with the source.
- Take a snapshot of the replicated volume using the recovery page on the CX server. This does not require a resynchronization.
- Set up email alerts and SNMP traps via the System Configuration page.

Workaround 2:
"Ftptop" is a command used to display current status of ftp sessions. It shows the clients IP address: port number, command being used and time of connection along with the process ID

Figure 1

 If the replication status indicates 0% progress and "**ftptop**" doesn't indicate any progress between hosts and PS for configured replication pair – check if a firewall is blocking the FTP traffic (Refer: Firewall Configuration Section in User Manual). If this does not solve the issue then report the case to Hitachi Data Systems.

2.34 Linux target host shows maintenance screen

Error: Maintenance screen shows up while booting up the Linux target host

Condition: If the target host reboots or if a user issues a command "**mount**" then the operating system tries and mounts the target volume. Since the target volume takes up the file system as that of

corresponding source, the mount fails. If the system is rebooted, then you will be taken to the maintenance screen

Workaround: To avoid this issue, manually edit the file "**/etc/fstab**" and remove the entry for the target volume.

2.35 Mysql not working as expected

Error: MySQL step failed while installing the CX server.

Condition: Invalid IP address or hostname

Workaround: Check IP address and the hostname. Mysql needs a valid host name to work on. Before installation a host name has to be set. In other words host name cannot be null.

2.36 Replication pair paused after source volume resized

Error: Replication pair paused after source volume resized.

Condition: Ensure that you first prepare for the source volume resize as explained in the administration guide. If you have already resized the source volume follow the workaround below to resume the replication pair.

Workaround: You should receive an email alert and a trap with the new volume size. Switch to the CX UI, observe that the replication pair will be in paused state. Follow the below steps to resume replication

- Restart the VX agent service on the target host
- Resize the target volume.
- Stop the VX agent service on the source host
- Clear the VX agent cache through the command
    - Windows: **drvutil --stopfiltering** <*drive letter or mount point*> **-deletebitmap**
    - linux: **inmstkops-bin r** <*protected volume name*>
- Start the Service on the Source
- Resume the replication through the CX UI
- You will need to "**Restart Resync**" when the source volume was resized while the replication pair is in "**Resync Step 1**" or "**Resync Step 2**"

2.37 Errors or warnings on CX UI

Error: CX UI may rarely show warnings or errors due to configuration change.

Condition: Usually incompatible changes caused by other applications or manual modification.

Workaround: If there are errors or warning related to "**amethyst.conf**" then it could be because of the following reasons.

Either the file "**amethyst.conf"** is not present under "**/home/svsystems/etc**"
(and/ or)
A file named "**config**" under "**/etc/selinux**" has invalid configuration. To correct this change the line
"**SELINUX=enforcing**" to "**SELINUX=disabled"**

CX server requires a restart to apply configuration changes

2.38 CX UI not displaying volume list of a host

Error: CX UI does not list the volumes for a particular host.

Condition: Same host name is being used for another host.

Workaround: Either change the hostname or switch to NAT hostname from the agent configuration interface. This requires an agent service restart.

2.39 Differential synchronization does not progress when CDP retention is enabled

Error: Replication pair stuck at differential sync when CDP retention is enabled.

Condition: Retention log volume not accessible or insufficient disk space on retention volume,

Workaround:
- Check and ensure the retention log volume is accessible.
- Delete unnecessary files/folders or extend the volume size to free up space on the volume.
- Increase the log capacity to accommodate large incoming differential files
- When the retention volume is hidden, use "cdpcli" command line utility to unhide the retention volume. If the above remedial action cannot be taken, you may disable media retention to continue with the replication. However, by disabling the retention, the logs will get into an inconsistent state. These failures are also reported to CX and can be checked from Hosts Log.

2.40 Differentials getting accumulated/ Diff sync not progressing/ Diff sync stuck

Error: Differentials not progressing..

Condition: Differentials get stuck because of low cache space on the target host.

Workaround: You may try to free up space on the target cache ("Application data" folder under the installation folder) and then the differentials will drain automatically
Or

You may choose to tweak this through windows registry.
Two DWORD values "**MinCacheFreeDiskSpace"** and "**MinCacheFreeDiskSpacePercent"** under
"**HKEY_LOCAL_MACHINE\SOFTWARE\SV Systems\VxAgent**" need to be modified in such a way
that free space under cache directory is greater than minimum of
(MinCacheFreeDiskSpacePercent * Volume Capacity /100) and MinCacheFreeDiskSpace.

2.41 Virtual snapshot mount / unmount failing

Error: Mounting or unmounting the Virtual snapshot fails

Condition: Open files on the virtual volume

Workaround: Before unmounting a virtual volume ensure that all the files or applications using it are closed (no open handles) otherwise unmount will fail and even further mounts will fail as well. Reboot the system and then unmount the virtual volume. If mounts are failing, unload previous virtual volume either through UI or cdpcli and try again.

If a virtual snapshot is created through cdpcli while the CX is down, an error message is expected. This is because the agent will try to update the CX UI that a virtual snapshot has been created on a given volume and that volume is no longer available.

If the log directory length is more than 140 characters then virtual snapshot mount fails due to a windows operating system limitation the same is applicable to media retention log folder.

2.42 Email alerts not working

Error: Emails not received

Condition: CX server not configured for email alerts

Workaround: On the CX server the file "**hosts"** under **"/etc"** should include a line as shown below. And the ip address 127.0.0.1 should be pingable.

2.43 Multiple snapshots or misfired snapshots

Error: Too many snapshots are created without reason

Condition: possibly a pre-defined name is used

Workaround: While issuing consistency tags it is vital not to use pre-defined tag names (refer administration guide for a complete list of tag names). Using a predefined tag name will trigger multiple

or misfired snapshots. Under special cases you may want to use the tag names which are differentiable (e.g., file1system [user defined] to file system [pre defined].

2.44 Timeshot manager hung (windows CX)

Error: Timeshot manager not responding

Condition: Timeshot manager service depends on mysql service. If the system is slow or low on resources windows task manager might show that the service is hung but through services we can see that it is running

Workaround: In this case restart timeshot manager through services.msc

2.45 Same replication shown more than once

Error: Same replication pair is shown more than once on the CX UI

Condition: While setting up the replication pair, (in the CDP retention page) double clicking on "**submit**" makes the same replication appear twice

Workaround: Refrain from double clicking anywhere on the CX UI

2.46 ERROR VX : Warning: incoming differential file is out of order

Error: incoming differential file is out of order

Condition: The source and target host have different times

Workaround: You may choose to override this by setting the **AllowOutOfOrderSeq** and **AllowOutOfOrderTS** values to 1. These values may be found the registry (**HKEY_LOCAL_MACHINE\SOFTWARE\SVSystems\VxAgent**) for the windows based VX agents and "**drscout.conf"** file under the VX agent install path for Linux based VX agents

2.47 Slow Offload resync progress with target CPU usage 100%

Error: Offload resync is slow and CPU usage on the target host is 100%

Condition: This occurs because of low disk space on the target.

Workaround: Each offload resync requires about 128 MB of hard disk space. To reduce load, the number of simultaneous resync threads can be changed by editing MaxResyncThreads value using regedit.exe.

The registry value "**MaxResyncThreads**" is set to eight by default, which indicates the maximum number of resync processes it can.
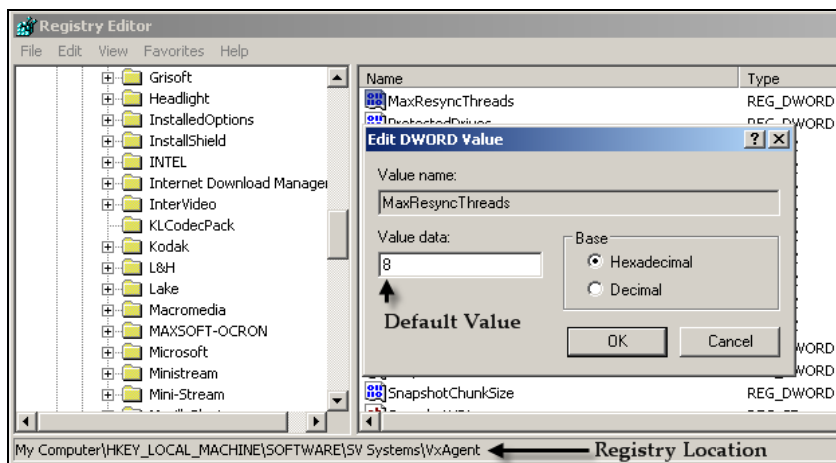
Figure 2

CacheDirectory (Target side):

Specifies the directory to be used as cache.
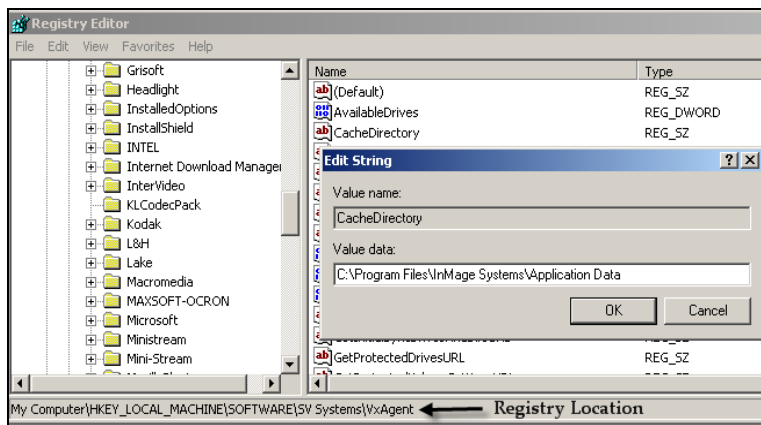
Figure 3

FastSyncMaxChunkSize (Source Side):
This value determines the chunk of data to be sent to the CX from the source. Default is 65MB.
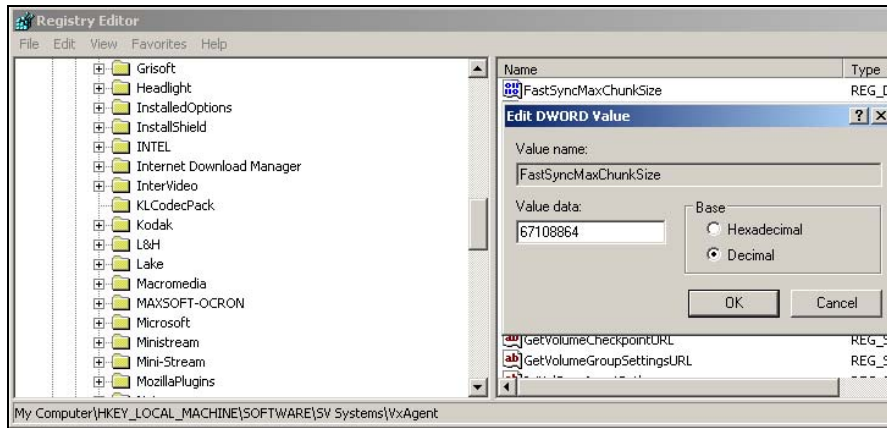
Figure 4

The memory required by a single offload resync = 2 (MaxResyncThreads * FastSyncMaxChunkSize)

Total free space required = number of offload resync * MaxResyncThreads * FastSyncMaxChunkSize * 2

2.48 FX jobs stuck in any status

Error: FX job not progressing

Condition: FX "**config.ini**" file corruption for non windows agents

Workaround: Check the "**sv.log**" available under the FX installation folder for following errors:

PARSING /usr/local/InMage/Fx/config.ini FILE FAILED
CHECK config.ini FOR ANY JUNK DATA OR SYNTAX ERRORS
VERIFY config.ini AND RESTART FX SERVICE.

If above error messages present in "**sv.log**" then verify config.ini file for any junk data clear them manually and restart FX service.

3 Special notes

- While using remote desktop session (RDC) on Windows 2000 features like Snapshot, Recovery, and Drive Unlock/Lock are visible only through console. Rebooting would fix this issue or switching to VNC from RDC will also address this issue.

- VX agent uses a binary value "MaximumBitmapBufferMemory" (under "My Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\involflt\Parameters") and the default value is 65 MB. "MaximumBitmapBufferMemory" is proportionate to the size of protected volume. If 2 TB needs to be replicated from source MaximumBitmapBufferMemory has to be not less than 64 MB.

- If the value is 34MB or other because of manual modification or a version upgrade then either the value can be deleted so that on reboot the driver sets it back to 65MB or it can be manually set (required a reboot).

- During un-installation, unlocking of drives may not succeed from remote desktop session. These operations are not supported due to a known issue with windows operating system. Click here for more information on the problem. You can perform snapshot and recovery from a VNC session or console login.

Certain File Replication option combinations are known to cause unexpected behaviors. The known options and actual behaviors are documented in this section.

- Include and exclude options – If a file replication job contains rules set to exclude a set of files and to include a subset of those excluded files, the "include" option will be ignored. All files under the exclude option will be excluded.

- Include and exclude options with other rules – Under the following set of rules: Keep files at target host that do not exit at source, exclude replication of certain files at source, and delete files at target (if present) that were excluded from replication at source; The behavior is as desired except that, the files that do not exist at the source host are deleted at the target along with the files excluded from replication.

- Symbolic links outside source tree – When the options to copy symbolic links as symbolic links and ignore links outside the source tree are set, replication of the symbolic links pointing to files outside the source tree will be skipped.

- Illegal filenames across platforms – Certain special characters are allowed for use in filenames on certain platforms while they are illegal on others. For instance, while replicating files from a UNIX source to Windows target, files at the source with filenames that may be illegal on the Windows platform will not be replicated.

- Scout CX residing on Linux (for volume replication) and Scout FX File Replication agent for Linux, both, may start a daemon process on port 873 by default. This port number is not configurable in

Scout CX. If Scout FX agent and CX server co-exist on the same box, a file replication job will not initiate if port 873 is in use by CX for volume replication. This can be circumvented, by configuring the file replication job to use a specified port. This port can be specified in the file replication job options page.

- When and older version of VX agent is installed over a new version, then the new drivers are retained while the old VX agent is installed resulting in version mismatch and things not working as expected. This can stop snapshots from starting. (specific to versions older than 3.5.0)

- Chkdsk.exe crashes when attempting to move a group from one node to another because of MSCE issue. If you don't see your cluster drives listed under the cluster (either they appear as non cluster drives or not at all), restart the svagents service on the machine for which the drives are not displaying correctly.

4 Enabling HTTP Access Logs

4.1 On Red Hat Linux

By default the logging options is disabled, you can enable this by editing the file "**httpd.conf**" under "**/etc/httpd/conf**" a line "#**CustomLog logs/access_log combined**" needs to be uncommented by removing "#" before the line to enable http log access.
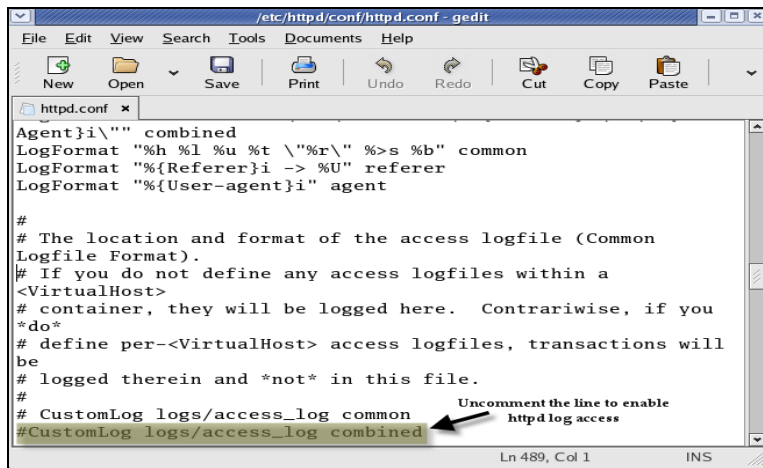
Figure 5

After removing the hash before the line save the file and restart the http service by the command "**/etc/init.d/httpd restart**" as in the figure

Figure 6

The log file "**access_log**" is created under the "**/var/log/httpd**" folder where the activity is logged.
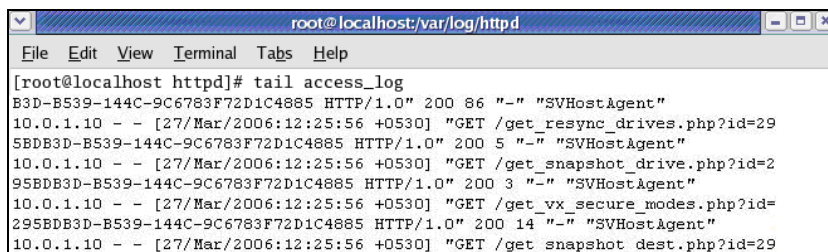
Figure 7

4.2 On SUSE Linux

Even in SUSE Linux http log access is disabled by default .You need to edit the file "**apache2**" under the folder "**/etc/sysconfig/apache2**".
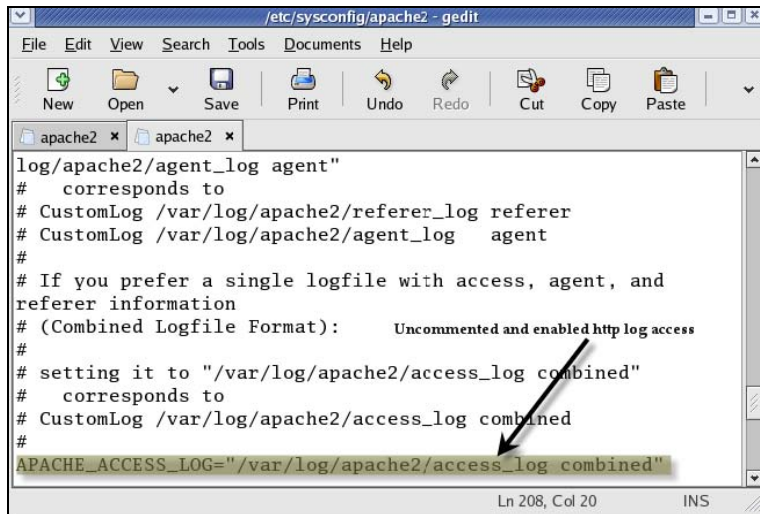
Figure 8

Once http log access is enabled the service requires a restart to initiate logging.

Figure 9

All activity is logged to the file "**access_log**" under the folder "**/var/log/apache2**".
A sample log file looks like this:
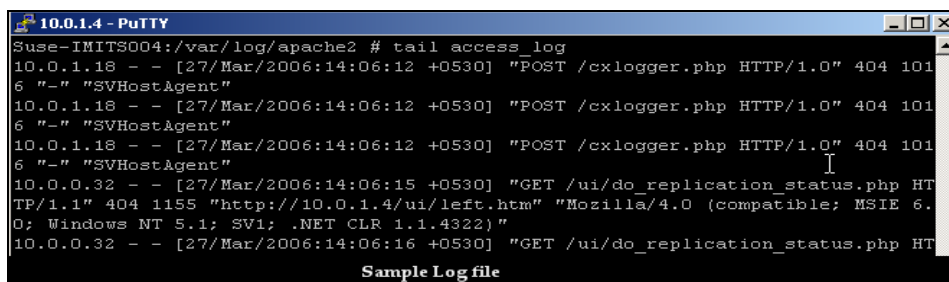
Figure 10

The log file has no size limit and logs all http activity.

5 Verifying the database service is running

DR- Scout CX server uses a database called "**svsdb1**" in mysql. This makes mysql a critical service for the CX system. To check the status of mysql service use the command "**/etc/init.d/mysqld status**"

Figure 11
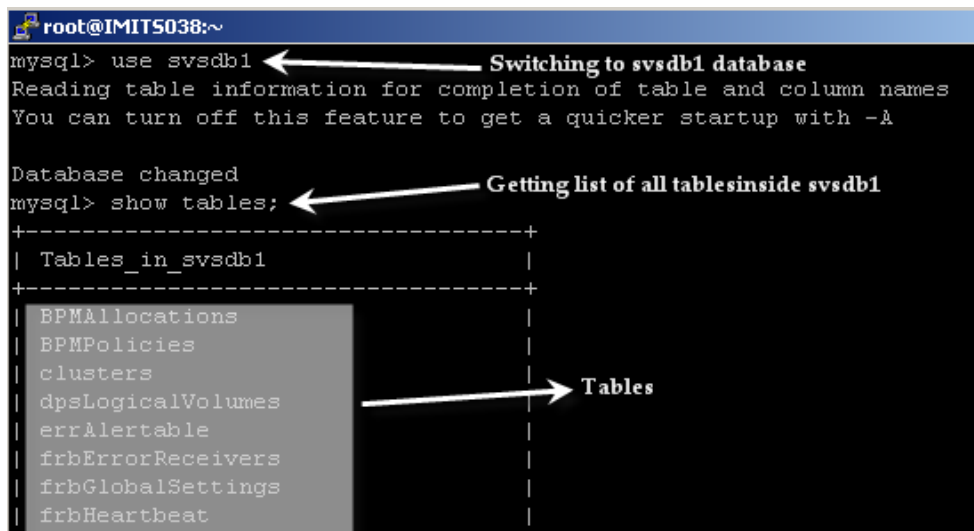
To see the database first use the command "**mysql**" to get the mysql prompt then use the command "**show databases**;" (a semi-colon is required after the command) this command fetches all the databases in mysql

Figure 12

"**Use svsdb1;**" is used to switch to the database to fetch the list of the tables in the database the command "**show tables**" is used

Figure 13

mysql database gets corrupted in case of an unclean shutdown to correct this use the command "**mysqlcheck -c svsdb1**" followed by "**mysqlcheck -r svsdb1**" at sql prompt (on CX server).

6 Detecting a hung agent

The symptoms of a hung agent are

- The RPO under protection status increases continuously.

- Windows task manager does not show any variation in "**I/O Read Bytes**" and "**I/O Write Bytes**" of s2.exe process.

- These two columns can be added from "**Select columns**" under View menu in the task manager.
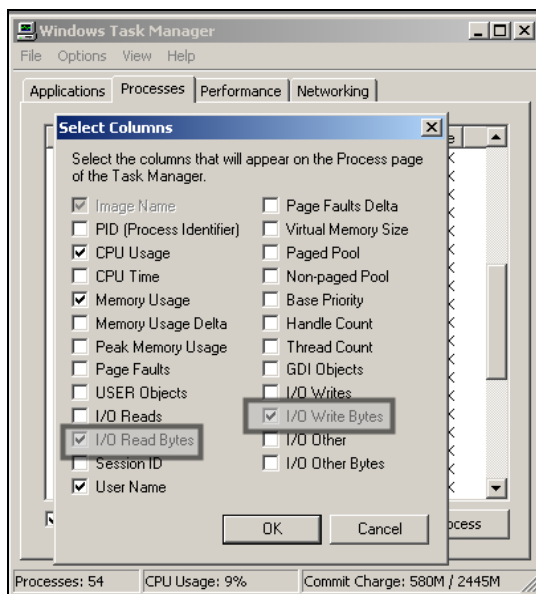
Figure 14

7   Checking CX server's status for windows

To confirm if CX server is active
- Click on start button -> run and then type "**services.msc**"
- Check for the process "**tmansvc**", the status should be "**started**" indicating that CX is active.
- If the process is not started right click on it and click on "**start**".
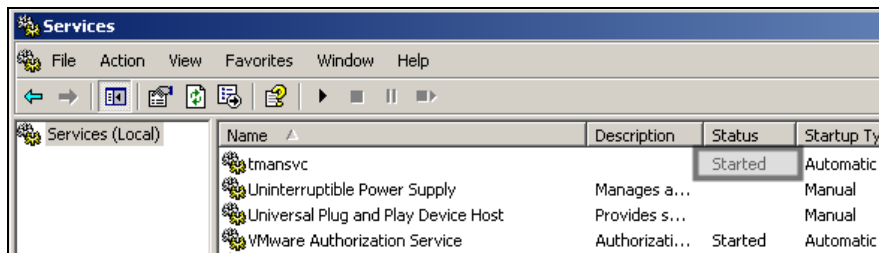
Figure 15

If the process does not start and throws an error then the environment variable "**Path**" needs to be checked
- Click on "**start menu –> settings –> control panel**" and then double click on "**System**"
- Then go to "**Advanced**" and then to the bottom click on "**Environment variables**" or do a Alt+N to bring up the environment variables.
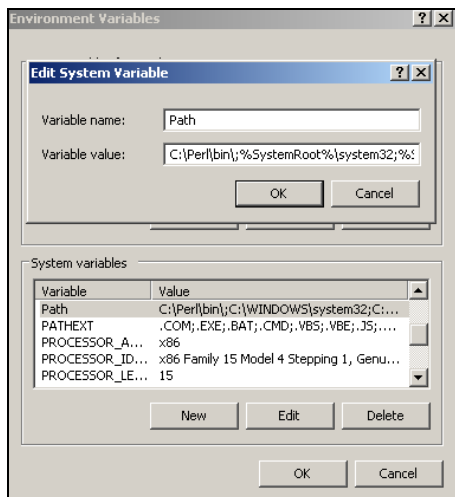

Figure 16

- Select path and click on edit then change the "**variable value**" to
  "**C:\home\thirdparty\perl\bin\;C:\Perl\bin\;%SystemRoot%\system32;%SystemRoot%;%SystemRoo
  t%\System32\Wbem;c:\home\svsystems\bin\"** if it is different.

- Reboot the machine and then CX server should be running as expected

8 Monitoring CX/ PS services

Tmanager is a replication monitoring service used to control and display the status of critical processes on which CX and PS depend upon:

Access the CX server's command prompt to issue the "**service tmanager status**" to see the list of services under it.

Table 4

Service	Purpose
Timeshot manager monitor services	Required to monitor health of replication activity, dispatches mails, generates graphs from rrd/log files sent by PS, monitor agent licenses etc.
Apache	Required for agents to post information about replication activity. Serves as a control path for a replication activity.
Mysql, Scheduler	MYSQL DB stores all the metadata information. Scheduler is used for setting up FX jobs on configuration server.

Similarly access the process server's command prompt to issue the same command to see the list of services running under it

Table 5

Service	Purpose
Timeshot manager monitor service	Required to register the process server with Configuration server, monitor health of replication activity from source/target to process server. Generate rrd/log files for bandwidth trending/data transfer activity.
Volume synchronization processes	Required to process differentials/resync files sent by agent
Proftpd Service	Required to facilitate FTP transfer from source / Target to PS

9 CX-Process Server low on resources

When there are multiple volumes being profiled at the same time there is a possibility of a PS overload (disk space, longer compression times). This is because all profiler volumes get assigned to the same replication pool. This can be changed under view details page by giving a unique replication pool id. This in turn creates different threads for different replication pairs.

Figure 17

10 CX UI slow

While accessing Linux based CX server, The UI might be slow because of severe load on apache server. This may result in high CPU consumption. To keep this load under control, you can edit the **"/etc/httpd/conf/httpd.conf"** file and tweak the values. Given below is the sample of the file to give optimum performance. This might vary from one machine to another, depending on the resources

```
StartServers        8
MinSpareServers     5
MaxSpareServers    10
ServerLimit        10
MaxClients         10
MaxRequestsPerChild  500
StartServers         2
MaxClients          50
MinSpareThreads     25
MaxSpareThreads     25
ThreadsPerChild      5
MaxRequestsPerChild  0
```

Restart the httpd service for the changes to take effect

11 Accessing CX Central Log Files

For better support, you might need to download Scout system logs files and pass it across the Scout support personnel. CX Server administrator console provides a feature to just do that.

 Click on "**System**" menu, navigate to "**Logs**" tab, you can further find navigate to "**Host Logs**", and "**CX Logs**"

Host Logs	CX Logs	Download logs	Audit Logs
CX - Log Details
tmanager
tman_monitor_disks
tman_monitor
tmanager_ps
Message
tman_volsync
bpmtrace
tman_monitor_ps
mrtgtrace
audit
TrapLog
rsyncd
xferlog

Figure 18

Host logs are generated by the source and target hosts, where VX and FX agents are installed. VX agents by default shall log all severe and critical errors to host logs on the CX Server.

CX Log files nomenclature

Table 6

TrapLog	View or Download the CX logged trap messages
Tmanager	View or Download the logged CX messages
Message	View or Download the logged Scheduler messages.
Bpmtrace	View or Download the logged VX Bandwidth Shaping messages
Tman_volsync	View or Download the logged tman_volsync messages
Tman_monitor	View or Download the logged messages for volume and file monitoring process

12 Accessing host logs

Navigate to the desired host and click on it to expand the list of log files for the selected hosts.

Host - Log Details
IMITS042.LOCALDOMAIN
RHEL5_BASE_64_241_97.INMAGE.IN
LOCALHOST.LOCALDOMAIN
IMITS241
W2K64-241-220
W2K64-241-221
VIDYADHAR
IMITS042.LOCALDOMAIN
imits029.localdomain
IMITS042.LOCALDOMAIN
WIN32-241-156
IMITS042.LOCALDOMAIN
WIN32B-241-155
IMITS042.LOCALDOMAIN

Figure 19

Host Log files nomenclature
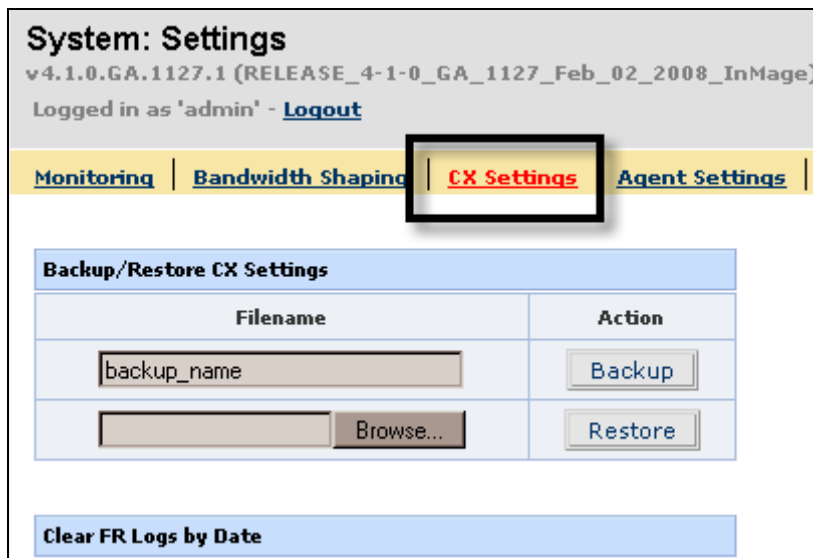
Table 7

driveletter_rpo	View or Download the RPO trends observed for the drive. Eg: H_rpo
driveletter_sentinel	View or Download VX Source (sentinel) logs for that particular drive. Eg: H_sentinel
hosts	View or Download all the severe and critical errors for that hosts reported by the agents

13 Restoring a destroyed CX server

This section describes about restoring or replacing a CX server that has been destroyed assuming that you have a backup file of CX configuration file.

- Install the same version of CX server on a new system and use the same IP as that of the old CX server
- Point all the agents (served by the old CX) to the new CX server (through host config)
- Restart all agents pointed to the CX server
- Assign the same kind of licenses to the hosts through license management
- Then through CX UI (System-> CX Settings) restore the backup file.
- Now the CX server will reflect all old settings and replication pairs
- Force resync on all pairs to ensure consistency

Figure 20

14 Mounting volume on windows

Aborting while a snapshot is in progress may lead to a locked or unmounted volume status. This volume is not visible in volume protection page or in the shell. To mount a drive click on "**start menu -> settings -> control panel -> administrative tools -> computer management**" then click on "**disk management**" under "**storage**".
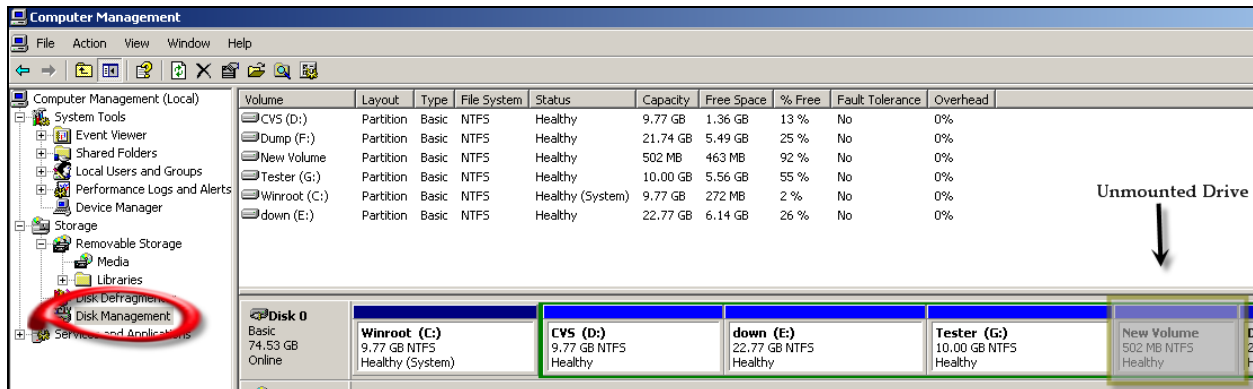

Figure 21

One of the volumes will not have a drive letter indicating it's not mounted. To mount it, right click on it, click on "**change drive letter and paths**", then a window "**Change Drive letter and paths for new volume**", click on "**add"** and select a desired drive letter from the drop down menu, and click on "**ok**". The volume is mounted without any reboot.
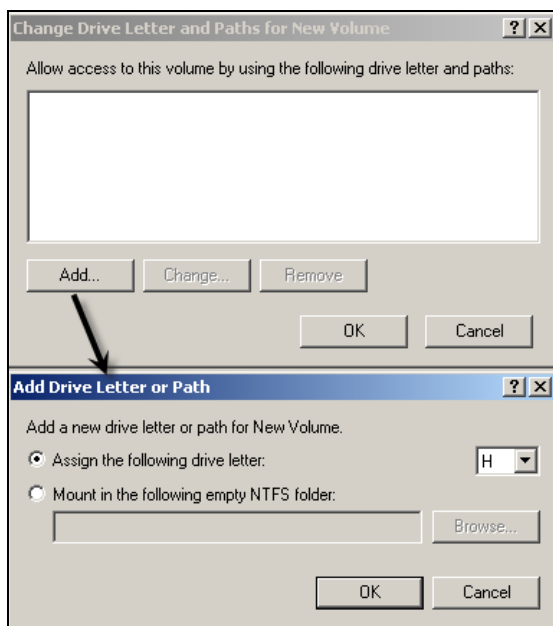

Figure 22

15 Errors in retention logs

Errors in the retention logs may be found by using the cdpcli with the "**--validate**" switch. Occasionally this may report that the retention logs are corrupted. To fix these errors you will need to use the "**--fixerrors**" switch to correct the retention logs.

15.1 Step 1: Fixerrors

This command is used whenever there are any errors within the retention logs. The "**fixerrors**" switch is used in combination with the "**Export**" command to correct the retention logs.

The "**Fixerrors**" switch corrects the errors while the "**Export**" switch command will generate the XML file which is to be uploaded through the CX UI to correct the retention log mismatch

This is used to verify and fix the CDP retention log database issues stale nodes, physical size, time issues etc. Some of the errors are:

- The time being displayed by "**showsummary**" is prior to the replication start time or it may be in future. Both indicate there is some time related error in the retention logs which generally happens due to epoch differences between Windows and Unix platforms. The"**--fix=time**" sub option fixes this type of errors.

- Retention logs containing empty data files of 0 bytes size. The "**--fix=staleinodes**" sub option deletes these unnecessary stale metadata (inodes) from the retention directory.

- The physical size reported by the "**showsummary**" option may be a large value greater than the volume size. The "**--fix=physicalsize**" option fixes this type of error.

Multiple fixes may be performed simultaneously to reduce the running time. For this the fix sub option takes a comma separated list. Example: "**--fix=time,physicalsize**"

When the command is run to fix any of the above errors, it takes a backup of the original file to a temporary directory which should be specified through the "**--tempdir**" sub option. The temporary backup file will be deleted after the operation is completed.

The syntax is:

```
cdpcli.exe --fixerrors --db<retention db path> --fix=time --tempdir=<path>
```


Figure 23: On Windows Platform

Figure 24: On Linux Platform

Table 8

Flags	Descriptions
--db=<db name>	Represents the retention database name
--fix=< time,stalenodes,physicalsize >	Represents the type of fix need to do on the retention database (time, stalenodes, physicalsize)
--tempdir=<directory>	The directory path to store the fixed db

When the time related errors are fixed in the retention logs, they have to be fixed in the CX internal database as well. To flush the erroneous entries in CX and update it with corrected entries, you may use the "--export" option of cdpcli explained below.

15.2 Step 2: Export

This option is used to extract the metadata (such as the retention log start and end time usually referred to as the retention window, accuracy time ranges and bookmarks) from the retention log and export them to an xml file. This file can later be uploaded through the CX UI, which will reset the retention related information and gets it in sync with the retention logs.

The syntax to create the XML file is
cdpcli.exe --export --vol=<*db name* > --filename =<*xml file name*> --format=xml

```
C:\Program Files\InMage Systems>cdpcli.exe --export --vol=F: --db=G:\sanlog\9b3a
4be059\3CCDB152-4706-1A41-AC158D76CBB20C49\F\cdpv1.db --filename=san.xml --forma
t=xml

The retention information is successfully exported to san.xml

C:\Program Files\InMage Systems>_
```
Figure 25: On Windows platform

```
[root@target bin]# ./cdpcli --export --vol=/dev/mapper/s-vol3 --db=/vol1/logdata/
753ce42bc6/2b1837d4-6c12-44a4-8058-63755eb3edcb/dev/mapper/s-vol3/cdpv1.db--format=xml
--filename=/root/san.xml

The retention information is successfully exported to /root/san.xml
[root@target bin]# []
```
Figure 26: On Linux platform

Table 9

Flags	Descriptions
--vol=<volume name>	Represents volume name
--db=<db name>	Represents the retention database name
--format=<xml>	Represents the format of the file (always xml)
--filename=<file name>	The xml file name to be created

15.3 Step 3: Upload the XML to CX UI

To correct the retention time stamps on the CX UI, you will need to upload the XML file containing all the retention information. This XML file will be generated through the CDPCLI command line utility on the target server as explained in the previous two steps. Place the XML file on your local workstation, then switch to the CX UI and type the following in the address bar

http://<CX IP Address>/ui/view_retention_update.php

You should see the browser display the "**Update Retention Information**" as shown below.
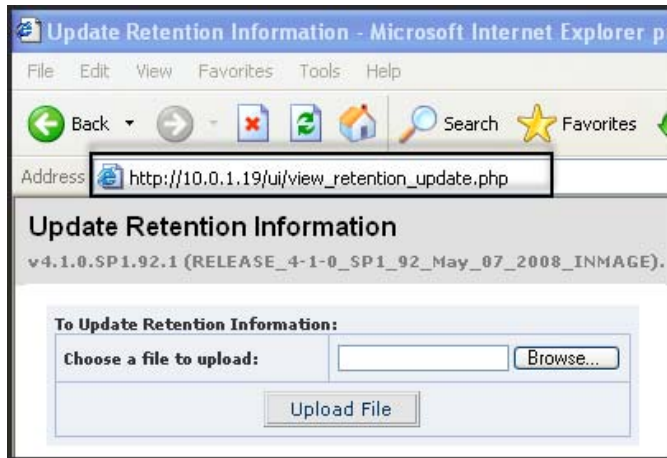

Figure 27

Upload the XML file through the interface provided. On successful upload the retention logs are corrected and you should see "**All Data Uploaded in Databases and Commit the Database**" message on the UI.

16 CDP retention FAQ

Q: How to choose CDP retention policy

Time option:
This policy can be used when the business mandates or you have sufficient disk space to retain the retention logs for the time period. If the logs fill the entire volume before reaching the time based on the selection on "**On insufficient disk space** "

- If "**Purge older retention logs**" is selected then retention old logs are purged to make space for new retention logs and the replication pair continues.

- When "**Pause differentials**" option is selected, the replication pair pauses until space is freed up on the retention volume.

- To resume the replication pair, free up space in the retention volume or expand the retention volume to larger size or disable retention for the pair.

Size Option:
The policy can be used when disk space is limited and you would like to use the space to fit-in as much retention as possible.

Time & size (both) option:
This option can be used when the business mandates or you have sufficient disk space to retain the retention logs for the time period but you do not want replication to stop due to non-availability of disk space for retention logs.

Q: How to arrive at retention log file size or retention time

Time Policy:
As business mandates (ensure you have enough volume space using CX's profiler & analyzer features). Minimum time which can fill the log volume under high load condition will be the "**retention time**".

Size Policy:
Maximum space you can spare for the specific retention log.

Q: What happens when both size & time policies are set?

The retention logs will be purged
When time elapses before the file grows to the size
Or.
When logs size reaches the configured size.

Q: How to measure retention log file growth and compared, planned V/S actual

Refer to Log Management and Analyzer and Trending chapters of the administration guide.

Q: How to take care of staled retention logs

Stopping the replication pair will not delete the retention logs. You need to login to the target system and manually delete the stale retention logs

Q: How to move retention logs for new volume

Disable the retention and re-configure retention with new path for log file. However, the current recovery window is lost during this process.

Q: What are the best practices for retention

- Create replication pairs separate with drive letters or mount point's help with debugging.
- Exclude retention logs volume from virus scanners.
- Retention logs should not be created on network drives
- Make an entry into "**/etc/fstab**" if the patch of retention log is mountable.
- Always set "**On insufficient disk space**" to Purge older retention logs

Q: Same Volume is used for storing retention for many replication pair

Only size policy logs present:
For each pair have a spare disk space of 256MB
For example, If three pairs with each 1GB retention log size using same volume to store retention logs should have the volume size (1+1+1) + (0.25+0.25+0.25) = 3.75 GB or more.

Only time policy logs present:
Sum of Maximum of all retention logs + 256MB * Number of pairs with retention.

Both time & size policy logs present.
Sum of time and size policy

Q: Do we require retention volume to be larger than target volume?

Retention log grows as per the data change rates. If there are more and more data changes on the production volume then more space is required for the retention volume. There is no relation between the target volume size and retention volume size.

For example: A replication volume of 2 GB in duration of 1 day under go about 0.5 MB changes and you configure the retention logs with time policy of 7 days. The retention logs grow to 7+0.5 = 3.5GB.

Q: What setting may be changed without stopping replication pair

- Retention size or time based on policy.
- Retention policy
- Action to be taken on insufficient disk space
- Alert when disk space utilization reaches

17 Exclude cache and retention log folders from virus scanners

The "**Application Data"** folder under the VX agent installation path is the cache folder. This folder on the source needs to be excluded from virus scanners. Similarly the retention log folder on the target host needs to be excluded from virus scanners.

17.1 MacAfee antivirus

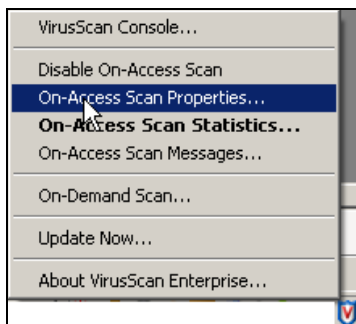**Step 1.** Right click on the MacAfee tray icon then click on "**On-Access Scan properties**"

Figure 28

Step 2. Then click on "**All Processes**" and then click on "**Detection**" tab. Then click on the "**Exclusions"** button to the bottom of the window (or "Alt+X" as shortcut)
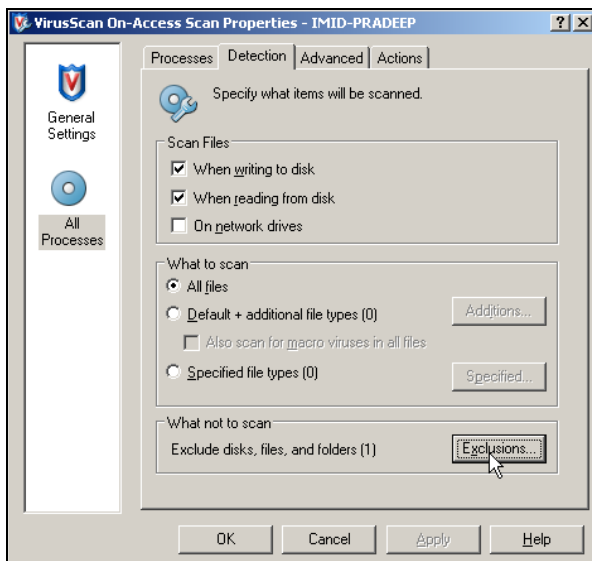

Figure 29

Step 3. This opens the "**Set Exclusions**" window. Click on "**add**" (shortcut Alt+A). Select the "**By name/location**" either type the path or select the folder using the browse button, then click on "**OK**". Then, you will be returned to the "**set exclusions**" window. Click on "**OK**", then in the main window click on "**Apply**", and on "**OK**". That concludes excluding the cache folder from being scanned.
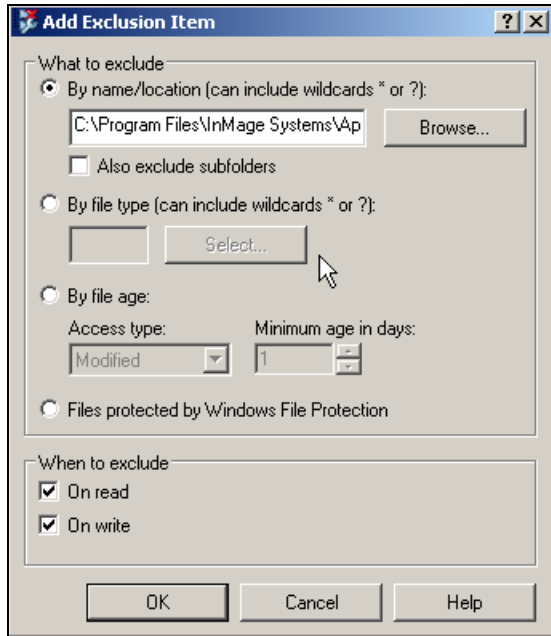

Figure 30

17.2 Norton Antivirus

Step 1. On the Tray bar double click on the Norton antivirus icon to show the interface

Figure 31

Step 2. Go to "**Options**" and then select on "**Norton antivirus**". This opens up options. Click on "**exclusions**" under "**Auto-Protect**" and then click on "**New**".
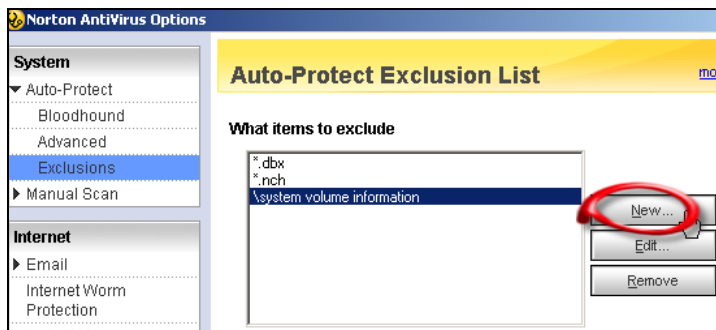

Figure 32

Step 3. A new window opens with "**Add Item**". Type the cache folder path or it can also be browsed using the browse button.
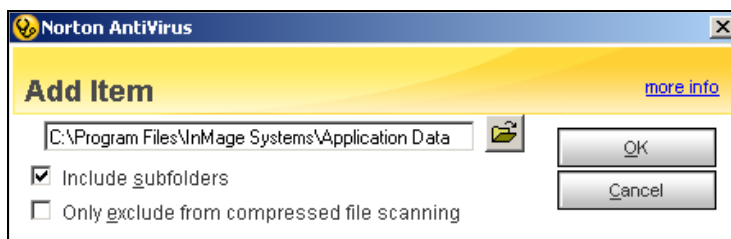

Figure 33

Step 4. Then click on "**OK**". The cache folder now appears in the excluded list. The same process needs to be repeated to manual scan under system menu for the cache and retention folders.

18 Exchange

18.1 Unable to access mailbox through Outlook

Error: Unable to access exchange server's mailbox through outlook client (or web based)

Condition: Exchange server might be missing the "**CLIENT ACCESS ROLE**" component

Workaround: Check exchange installation for "**CLIENT ACCESS ROLE**". It's a required component for user to access mailbox from outlook or from OWA.

18.2 Excess service principal name

Error: Excess service principal name is observed during failover or failback

Condition: Possible mismatch of SPN entries

Workaround: use winop.exe under the VX agent installation folder to fix this error.

Winop.exe is used to
- Add SPN attribute values corresponding to Exchange related services running on specific server to the specific account in the Active Directory
-
- Delete SPN attribute values corresponding to Exchange related services running on specific server to the specific account in the Active Directory

The above-mentioned addition/deletion of entries can be performed on single/multiple servers on single/multiple accounts basis as well.

18.3 Clients are pointed to production Exchange post failover

Error: Clients are pointing to the Source machine even after a failover

Condition: The source is online and re-registered the IP address with the DNS server

Workaround 1: Uncheck the option "**Register this connection's addresses in DNS**" ("**Connection Properties -> TCP/IP Properties -> Advanced -> DNS tab**") for each network connection.

Workarounds 2: Add the "**DisableDynamicUpdate**" of type DWORD to the Registry key "**HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ Tcpip\Parameters**" with value set to one. This key disables DNS update registration for all adaptors on that computer.

18.4 Unable to perform Exchange validation

Error: Unable to perform Exchange validation

Condition: This is caused because of replicating exchange system volume. The file "**eseutil.exe**" is on a locked volume.

Workaround: Stop the replication pair at a consistent point

18.5 Failover not progressing

Error: Exchange failover stuck either through CX UI or through CLI

Condition: Failover from cluster to non cluster environment. Because the "**Exchange information Store**" is offline

Workaround: Bring the "**exchange information store"** online.

19 SQL Server

19.1 Planned SQL server Failover through CLI failed

Error: Planned SQL server Failover through CLI failed

Condition: Stale information about prior failover may cause this error

Workaround: Copy the source SQL configuration file from \failover to \failover\data on the target host
Or
Delete the SOURCE SQL configuration file from \Failover\data from target host.

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