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Hitachi Dynamic Replicator - Scout Installation and Configuration Guide

Hitachi Data Systems

MK-98DF8213-00

Contents

Conventions

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

"**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`**
Mandatory keywords and arguments are enclosed within < >.
Optional arguments are enclosed in [ ]

 **Notes:**

Contains suggestions or tips.

 **Caution:**

Contains critical information

Please note that Hitachi Dynamic Replicator- Scout does not currently support fabric-based solutions.

References

Although this document been designed sequentially, you may choose to skip to sections that are of interest. Other documents which you may want to refer are

- **Hitachi Dynamic Replicator Quick start guide**: For quick reference.
- **Hitachi Dynamic Replicator Administration guide** for Hitachi Dynamic Replicator- Scout components, protection, and recovery operations through GUI and CLI interface.
- **Hitachi Dynamic Replicator Troubleshooting guide**: For possible issues and workarounds

For application based requirements refer the solution documents.

Scope of Document

This document deals with installing Hitachi Dynamic Replicator- Scout suit and configuring it as required.

Target Audience

This document is intended for Hitachi Dynamic Replicator- Scout administrators, Hitachi Dynamic Replicator partners, sales, and engineering teams.

1 About Hitachi Dynamic Replicator- Scout

With the Hitachi Dynamic Replicator- Scout, Hitachi Data Systems introduces the world's first data protection appliance based upon a patent-pending replication technology. This breakthrough product cuts the cost and operating price for data protection by an order of magnitude. It installs within few minutes. The impact on production servers is minimal. Along with these performance and cost advantages, Hitachi Dynamic Replicator- Scout delivers recovery features, and interoperability either new to the industry or previously found only in high-end storage arrays.

The Hitachi Dynamic Replicator- Scout advantages:

Performance: Unlike conventional host based replication solutions, writes to production disks are asynchronously written to secondary storage. In addition, our asynchronous replication always runs in the idle cycles of the host machine, avoiding contention for the host CPU. This ensures that the performance of applications on production servers runs at top speed all the time.

Installation time: Unlike other replication solutions, Hitachi Dynamic Replicator- Scout requires no reformatting of primary storage or migration to a new volume manager. Hitachi Dynamic Replicator- Scout uses your existing file system with no disruptive changes.

Built-in WAN replication: Using the standard TCP/IP protocol, data replicates to recovery sites potentially hundreds of miles away. This replication requires no duplication of data to avoid performance overhead (such as mirroring and then replicating from the mirror). The Hitachi Dynamic Replicator- Scout CX appliance may be present only on the local side (only optionally employing an appliance at both the local and remote site), saving rack space on the recovery site.

Compression: Using techniques new to replication solutions, Hitachi Data Systems achieves compression ratios superior to competing volume replication solutions. As a result, recovery sites require thinner WAN pipes and may reduce the operating costs of replication substantially.

Robustness: Faultless replication requires that an entire chain of events execute flawlessly. Attention to these failure scenarios guides every aspect of the Hitachi Dynamic Replicator- Scout CX design. As a result, the Hitachi Dynamic Replicator- Scout CX delivers new levels of recoverability. For example, WAN outages of an hour may be seamlessly recovered from without causing disruptive resynchronizations. The Hitachi Dynamic Replicator- Scout CX automatically throttles in response to excessive demand for WAN capacity. Similarly, the Hitachi Dynamic Replicator- Scout CX adjusts to other events in an adaptive manner.

The goal of this document set is to achieve these results in your own environment.

2 Terminology

This document set uses the terms defined below:

Replication: Creating a copy of a volume from one location to another location. In this manual, replication means "**asynchronous replication**" instead of "**synchronous replication**." Thus, replicated volumes are copied to a target volume, but unlike the synchronous case, Hitachi Dynamic Replicator-Scout does not wait for the secondary storage to acknowledge the write before allowing primary storage to continue writing to disk.

Secondary Storage: Storage attached to the remote servers. The Hitachi Dynamic Replicator- Scout CX replicates data from primary storage to secondary storage.

Hitachi Dynamic Replicator- Scout Series/Hitachi Dynamic Replicator- Scout: Software that enables data protection features on the Outland appliance.

Platform: The hardware platform for Hitachi Dynamic Replicator- Scout.

Operational Recovery (OR): The set of data protection features essential for effective on-site recovery.

Disaster Recovery (DR): The set of data protection features essential for effective off-site recovery.

Protected Hosts: The customer servers/workstations whose data needs to be protected.

Applications: The software applications that are running on the customer servers.

Agents: The software that will be installed on the protected hosts.

Recovery Point Objective (RPO): This can be defined as time delta between the age of the data on the protected volume and the age of the data on the replicated volume. The reference age for the protected volume is always zero.

Recovery Time Objective (RTO): This is the time delta when a data outage happens and the time by which the affected applications are back online and fully functional.

Source Host: This is the production server which requires either file or volume level protection.

Destination Host: This is the backup server located either locally for local recovery or remotely for disaster recovery.

Scheduled Replication: Replicating data from a source host to a destination host on a scheduled basis. This mode of replication involves retroactively determining the changes that have happened to the data in the past and then transmit them to the destination host as dictated by the schedule.

Continuous Replication: The data replication is based on continually tracking the data changes. These data changes can either be sent to the destination host continuously or on a scheduled basis.

Volume Replication: The smallest quantum of data that can be replicated is at the (logical) volume level. Volumes need to be formatted properly

File Replication: The smallest quantum of data that can be replicated is at the file system (file/directory) level.

Protected Volume: A volume on the source host that is configured to be replicated to a volume on the destination host

Replicated Volume: The volume on the destination host that acts as the receptacle for the protected volume on the source host. This can, in some cases, be a remote file.

Bootstrap or Initial Sync: The process of syncing up all the data on a protected volume to its associated replicated volume.

Resync: This is the process wherein initial copy is being made on the target volume which is followed by **"Differential Sync"**.

Differential Resync: The process of syncing up any data differences between a protected volume and its associated replicated volume. Only the deltas between the volumes are replicated using an algorithmic. The algorithm is used to figure out differences in data between the volumes without sending all of the data across the WAN. The Resync process can be used for Bootstrapping.

Replication Pair: The source volume corresponding to its target volume together is referred to as **"Replication Pair"**.

Second Site: The remote data center that hosts the destination hosts. The remote data center can either be the customers own site or it could be managed by someone else.

Volume: A logical storage container that is resizable using a volume manager. Drive letters may be assigned to volumes.

Volume Manager: OS software for creating, deleting, resizing, and reformatting volumes.

Write-ordering: The order in which the data is written by the source host to a data store. In our case, the pertinent data store would be a logical volume. Write-ordering has to be guaranteed throughout the data path all the way to the destination host (i.e., the writes have to be written in the same exact order with the same exact data as they occurred on the protected volume). Not doing so defeats the purpose of volume replication as the data could be inconsistent and irrecoverable from a file system and an application perspective.

NMS: Network Management Station Software such as HP Open View, BMC Patrol, IBM Tivoli etc.

Retention Window: The amount of time from the initial sync that the backup set is maintained on secondary media (Disk). The user can restore directly from the secondary media within the retention window. Once the retention window is passed, the latest data overwrites the older copy in order to reclaim the space. Continuous Data Protection (CDP) solutions might have built-in archival features (copy of the data to tertiary media such as tape), or they might integrate with traditional backup software to achieve the same. This step is most useful when it is performed before the older data is overwritten.

3 Introduction Hitachi Dynamic Replicator- Scout

Hitachi Dynamic Replicator- Scout is an application-aware business continuity solution that combines enterprise-class disaster recovery and advanced continuous data protection (CDP) in a single product. Hitachi Dynamic Replicator- Scout is ideally suited for implementing consolidated real time backups and remote replication based on CDP technology (Continuous Data Protection).

CDP technology provides the capability to rollback/rewind the system to a point back in time without any data copies or restores. Data changes are captured at block level on production volumes thus effectively reducing the RPO.

Components of Hitachi Dynamic Replicator- Scout include host agents (VX or FX) on the production and backup servers along with a dedicated server (CX).

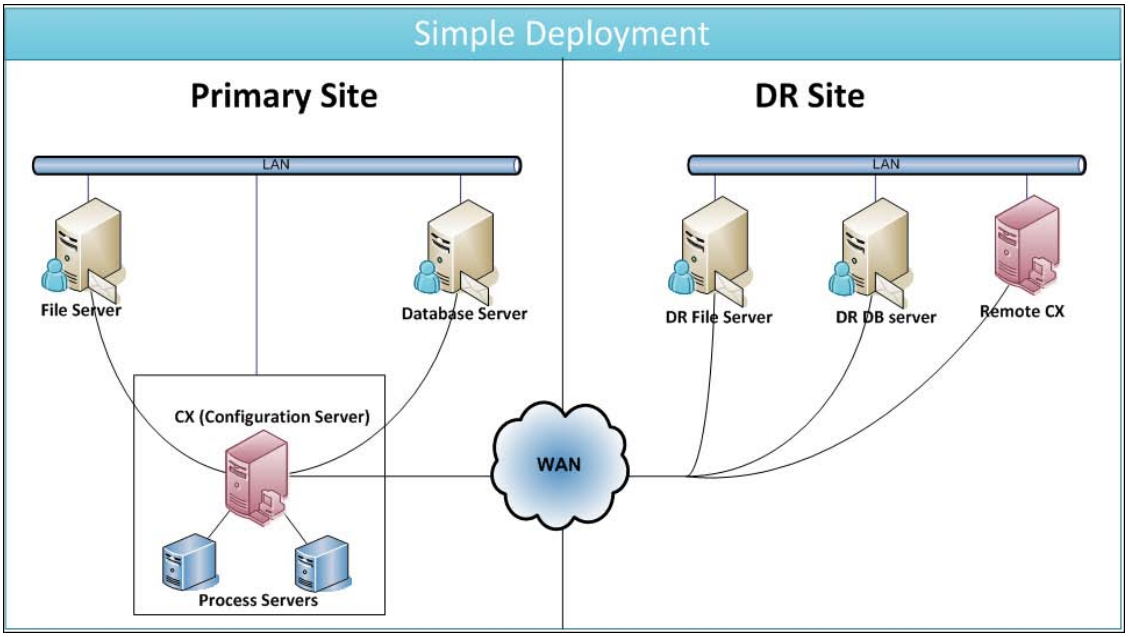

Figure 1: A typical Hitachi Dynamic Replicator- Scout deployment

The CX server (configuration Server)
Operations such as setting replication pairs, performing recovery operations, License Management, generating statistical reports, log management and status reporting are performed through the CX server's user interface (CX UI).

CX server resides within the same LAN as that of the source host and provides a central web based interface through which the CX server is administered, while target(s) are usually placed over a WAN or a LAN depending on the type of recovery policy in place.

Process Server (PS)
The process server is deployed within the same LAN as of the CX server. Each replication pair is assigned a process server which takes care of all the offload activities.

Host Agents:
A host agent can either be a VX agent (for volume level protection) or a FX agent (for file and directory protection). Hosts are offloaded by intelligent agents (FX or VX), which do not compete for resources so that business applications are given priority.

VX Agent:
VX agents are volume replication agents and perform block level replication. VX agent has a small footprint on the host and moves only byte level differences based on data changes. Features like snapshots (virtual and physical) can be taken on the target host without disrupting the replication.

FX agent:
FX agents are file replication agents and perform file and folder level replication. Each of these replications may be scheduled to run at a particular time. FX jobs are used in combination with the VX agent as part of the application solution.

Unified Agent:
The unified agent is a combination of both VX and FX agent. While installing this unified agent, you may either install the FX agent, VX agent or both of them.

4 Preparing to install Hitachi Dynamic Replicator- Scout

4.1 Deployment process

The following is the deployment sequence.

- Determine on the business requirements such as RPO and RTO values, a single or multiple DR servers etc
- Install to size or profile the production server to predict required resources to achieve desired goals such as RPO, RTO values etc.
- Start full deployment (i.e., install CX server and then VX agent followed by FX agents on production and DR servers). Then setup replication pairs and schedule consistency jobs

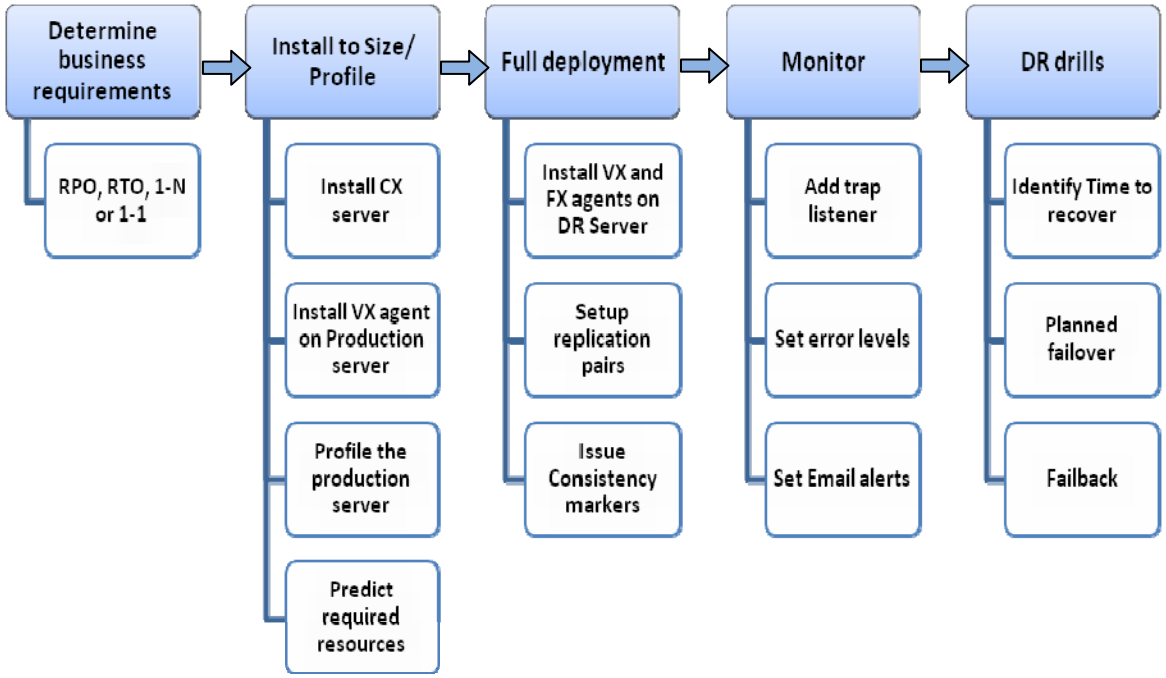

Figure 2: Deployment Sequence

Monitor all the activities from the CX server's user interface. Set error levels, email alerts etc.
For DR drills etc you may choose to perform planned failover for applications.

4.2 Platform support

4.2.1 Supported platforms for CX-CS and CX-PS

Table 1: Platform Support for CX Server

Platforms	CX server
Windows	Windows 2003 Server sp2 and sp1 (32 bit)
RHEL	RHEL4 update 3 (32 bit) RHEL4 update 4 (32 bit) RHEL4 update 5 (32 bit) RHEL4 update 6 (32 bit) RHEL4 update 7 (32 bit) RHEL5 (32 and 64 bit) RHEL5 update 1 (32 and 64 bit) RHEL5 update 2 (32 and 64 bit) RHEL5 update 3 (32 and 64 bit)
CentOs	Centos4.3 (32 bit) Centos4.4 (32 bit) Centos4.5 (32 bit) Centos4.6 (32 bit) Centos4.7 (32 bit) CentOS 5 (32 and 64 bit) Centos5.1 (32 and 64 bit) Centos5.2 (32 and 64 bit) Centos5.3 (32 and 64 bit)

4.2.2 Supported platforms for VX agent

Table 2: Platform Support for VX Agent

Platforms	VX Agent
Windows	Windows 2000 (32bit) Windows 2003 Enterprise base, sp1 and sp2 (32 and 64 bit) Windows 2003 Professional base, sp1 and sp2(32 and 64 bit) Windows 2003 Data center base, sp1 and sp2 (32 and 64 bit) Windows 2008 Windows 2008 Hyper V Windows 2008 Cluster (32 and 64 bit)
RHEL	RHEL 4 update 3, update 4, update 5, update 6, update 7 and update 8 (32 and 64 bit). RHEL 5 base , update 1, 2 and 3(32 and 64 bit)
SuSE	SLES 9 sp2 (32 bit) SLES 9 sp3 (32 and 64 bit) SLES 10 base , sp1 and sp2 (32 and 64 bit) OpenSuSE 10 base (32 and 64 bit)
CentOs	Cent OS 4.3 (32 and 64 bit) Cent OS 4.4 (32 and 64 bit) Cent OS 4.5 (32 and 64 bit) Cent OS 4.6 (32 and 64 bit) Cent OS 4.7 (32 and 64 bit) Cent OS 4.8 (32 and 64 bit) Cent OS 5 (32 and 64 bit) Cent OS 5.1 (32 and 64 bit) Cent OS 5.2 (32 and 64 bit) Cent OS 5.3 (32 and 64 bit)
Solaris	Solaris 8 Sparc (64 bit) Solaris 9 Sparc (64 bit) Solaris 10 Sparc (64 bit) and X86 (64 bit)
Others	Open Enterprise Server 2 (32 and 64 bit) Debian Etch 4 (32 and 64 bit) Citrix Xen Server 4.0.0 (32 bit) Citrix Xen Server 4.1.0 (32 bit) Citrix Xen Server 5.0.0 (32 bit) Ubuntu 8 (64 bit)

4.2.3 Supported platforms for FX agent

Table 3: Platform Support for FX Agent

Platforms	FX Agent
Windows	Windows XP professional sp2 and sp3 (32bit) Windows 2000 (32 bit) Windows 2003 (32 and 64 bit) Windows 2008 (32 and 64 bit)
RHEL	RHEL3.0 (32 bit) RHEL 4.3 (32 and 64 bit) RHEL4. 4 (32 and 64 bit) RHEL4. 5 (32 and 64 bit) RHEL4. 6 (32 and 64 bit) RHEL4. 7 (32 and 64 bit) RHEL 5.0 (32 and 64 bit) RHEL5. 1 (32 and 64 bit) RHEL5. 2 (32 and 64 bit)
SuSE	SLES 9 base and sp3 (32 and 64 bit) SLES 10 base, sp1 and sp2 (32 and 64 bit) OpenSuSE 10 base (32 and 64 bit)
CentOs	CentOS 5.0, 5.1, 5.2 and 5.3 (32 and 64 bit) CentOS 4.3, 4.4 , 4.5, 4.6, 4.7 and 4.8 (32 and 64 bit)
AIX	AIX 5.2 and 5.3 (64 bit) AIX 6.1 (64 bit)
Solaris	Solaris 8, 9 and 10 (64 bit), X86 (64 bit)
HPUX	HPUX PA-RISC 11iv1 HPUX Itanium 11i v2 and v3 (64 bit)
Others	Open Enterprise Server 2 (32 bit) Citrix Xen 4.0, 4.1, 5.0 (32 and 64 bit) Debian Etch 4. 0 (32 and 64 bit) Ubuntu 8 (64 bit)

4.2.4 Available installers

Table 4: Installers on Various Platforms

Operating System	FX	VX	UA
Windows	✗	✗	✓
AIX	✓	✗	✗
HPUX	✓	✗	✗
Solaris 8, 9 & 10	✗	✗	✓
Rest of the platforms	✗	✗	✓
RHEL3, SLES 9 (32 and 64 bit)	✓	✗	✗

 **Notes:**

For platforms where the unified agent is available, there are no separate installers for the VX and FX agents since the unified agent is capable of installing VX and FX agents.

4.2.5 Types of installations

You may install the CX-CS, CX-PS servers, VX, FX and unified agents in three modes. The table below shows the availability of the install type on different platforms.

Interactive install: Each of the installer contains an install script. When this install script is executed you will be prompted the required inputs during the install.

Command line silent install: All the required inputs are passed as arguments to the same install script. Once executed, you will not be prompted to any inputs throughout the install.

File based silent install: All the required inputs are filled up in a configuration file and passed to the install script. The install script reads the configuration file and again no inputs will be prompted during the install process.

Table 5: Types of Installation

Installation Type	CX Server		VX Agent		FX Agent		Unified Agent	
	Windows	Linux	Windows	Linux	Windows	Linux	Windows	Linux
Interactive install	✓	✓	✓	✓	✓	✓	✓	✓
Command Line silent install	✗	✓	✗	✓	✗	✓	✓	✓
File based Silent install	✗	✓	✗	✓	✗	✓	✗	✓

4.3 Hardware considerations

Table 6: Hardware Considerations

Target side	CX	Source
Hardware Processor: 2-3 GHZ Processor RAM: 512 MB or More Hard disk: One volume where the software is installed plus one or more target volumes. Target volume sizes should be greater than or equal to the source volumes.	Hardware Processor: 2-3GHz RAM: 1 GB or more Hard Disk: 100-200GB Disk Space (Preferably RAID based)	Hardware Processor 2-3 GHZ RAM: 512 MB or More

Hitachi Dynamic Replicator- Scout VX agent replicates the data across LAN/WAN, it is required to have adequate network bandwidth provisioned for attaining better RPO. The required bandwidth depends upon the data change rates on the source production server. The Cumulative disk write throughput (CDWT) of all protected volumes should be less than the cumulative network throughput (CNT) of all network interfaces allotted for the purpose of replication. Refer to the following reference table for provisioning NIC cards.

Table 7: NIC Requirements

S.No.	CDWT at source	NIC throughput	No. of NICs required at source / CX/ target	NIC Bonding Required?
1	< 8 MB/sec	100 Mbps	1	n/a
2	8-90 MB/sec	1 Gbps	1	n/a
3	90-150MB/sec	1 Gbps	2	yes

4.4 Firewall considerations

Ensure that the network traffic on the following ports is not blocked by hardware or software based firewalls.

Table 8: Firewall Considerations

Component	Ports
Source Host	FTP (20), FTPS (21), +>1024 (VX FTP Data Traffic) Outgoing HTTP (80) 874 (FX replication)
CX configuration server	Incoming FTP, FTPS (20,21,+>1024) 873 (VX Replication data traffic) Incoming HTTP (80) Port 3306 for MySQL
Target Host	FTP (20,21,+>1024) 873 (VX Replication Data Traffic) 874 (FX replication) Outgoing HTTP (80)
Optional	SNMP (162)
Process Server	Ports 21 and 22

To limit the number of ports being used (>1024) you can switch to active FTP connection through the CX UI. For more details refer to firewall Configuration section on page 91 .

Notes:

If CX is within the firewall, port 80, 873, 20, 21 and >=1024 must be open to support passive FTP connection (inbound ftp support).

If you are using active FTP then only ports 80, 873, 20 and 21 are required. Refer to the section "Restricting passive FTP port range usage" in this document

On Linux platform always allow incoming SSH connections through the firewall

4.5 CS and PS dependencies

The table below shows list of dependencies that are required before installing the CX or PS server.

Table 9: CS and PS Dependencies

	RHEL4, all upgrades	RHEL5 (32 and 64 bit)
RPMs	• perl-DBI • perl-5.8 • perl-libwww-perl • php-4 • php-mysql-4 • httpd-2 • mysql-4 • mysql-server-4 • perl-DBD-MySQL • php-pear-[0-9] • net-snmp-libs-5.1.2-11.EL4.7 • net-snmp-5.1.2-11.EL4.7 • net-snmp-utils-5.1.2-11.EL4.7 • beecrypt-devel-3.1.0-6.i386 • elfutils-devel-0.97.1-4.i386 • elfutils-libelf-devel-0.97.1-4.i386 • rpm-devel-4.3.3-18_nonptl.i386 • net-snmp-libs-5.1.2-11.EL4.7 • net-snmp-5.1.2-11.EL4.7 • net-snmp-utils-5.1.2-11.EL4.7 • beecrypt-devel-3.1.0-6.i386 • elfutils-devel-0.97.1-4.i386 • elfutils-libelf-devel-0.97.1-4.i386 • rpm-devel-4.3.3-18_nonptl.i386 • net-snmp-libs-5.1.2-11.EL4.6 • net-snmp-5.1.2-11.EL4.6 • net-snmp-utils-5.1.2-11.EL4.6 • net-snmp-5.1.2-11.EL4.10 • net-snmp-libs-5.1.2-11.EL4.10 • net-snmp-utils-5.1.2-11.EL4.10 • mailcap-2.1.17-1 • sendmail-8.13.1-3.RHEL4.5 • mailx-8.1.1-36.EL4	• perl-DBI • perl-5.8 • perl-libwww-perl • php-5 • php-mysql-5 • httpd-2 • mysql-5 • mysql-server-5 • perl-DBD-MySQL • php-pear-[0-9] • net-snmp-utils-5.3.1-14.el5 • net-snmp-libs-5.3.1-14.el5 • net-snmp-5.3.1-14.el5 • mailx-8.1.1-44.2.2 • sendmail-cf-8.13.8-2.el5 • procmail-3.22-17.1 • sendmail-8.13.8-2.el5

Table 10

	SLES 9, SP2 and SP3	RHEL5 (32 and 64 bit)
RPMs	• perl-DBI • perl-5.8 • perl-libwww-perl • php-4 • php-mysql-4 • httpd-2 • mysql-4 • mysql-server-4 • perl-DBD-MySQL • php-pear-[0-9] • net-snmp-5.1-80.16 • net-snmp-5.1.3.1-0.6s • net-snmp-5.3.0.1-25.15	• perl-DBI • perl-5.8 • perl-libwww-perl • php-4 • php-mysql-4 • httpd-2 • mysql-4 • mysql-server-4 • perl-DBD-MySQL • php-pear-[0-9]

4.6 Browser support

Hitachi Dynamic Replicator- Scout User Interface is best viewed with a resolution of 1024 X 768 and supports Microsoft Internet Explorer 6+ (recommended) and Firefox 1.0+

4.7 Install/ upgrade sequence

There is no specific sequence for installing or uninstalling. However, for upgrading or installing on a cluster environment a sequence is followed.

While upgrading always upgrade the CX server followed by VX agent on the DR server and production server. Then, upgrade the FX agent on DR sever and production server.

Figure 3: Up-gradation Sequence

While installing on Microsoft Cluster environment, always install the VX agent on the passive node, and then reboot. Then failover the passive node and install VX agent on new passive node.

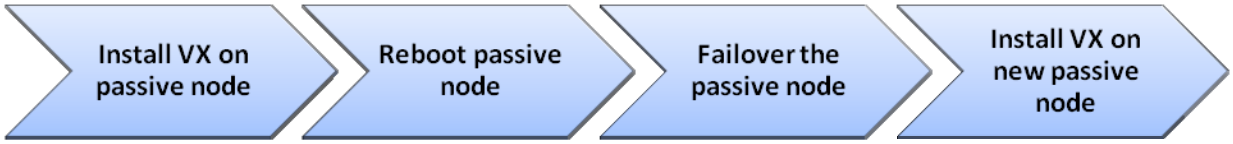

Figure 4: Sequence for Up-gradation in Microsoft Cluster Environment

To install CX High Availability refer to the section Installing CX HA on page 77.

5 The CX configuration and process servers

5.1 CX-CS (Configuration server)

The CX server is typically a Linux or a Windows server placed within the same LAN as that of the protected source host(s). It provides a web user interface to manage both source and remote host(s). CX server is responsible for providing interface to create and manage replication pairs and to perform recovery operations and other administrative tasks.
A list of services that run on the CX server as given in the table below

Table 11: List of Services on CX Server

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.

5.2 CX-PS (Process server)

A process server may be installed on the same machine intended for the CX server; however for scalability multiple process servers are installed. While the CX server provides the user interface, the process server handles all the offload activity such as FTP for data transfer; generate log files for graphs, compress data on its way to the target host, emails, snmp etc. Services that run on the PS are given in the table below.

Table 12: List of Services on PS Server

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

5.3 Installing CX-CS and CX-PS on Linux

Hitachi Dynamic Replicator- Scout CX server is designed to work on a range of platforms refer to the Supported platforms for CX server section on page 11 for a list of supported platforms. It is recommended to install all the packages that are shipped with the operating system. Setup email servers like send mail or postfix depending on the Linux version of the CX server. To learn more about the required dependencies refer to the "CX dependencies" section on page 18.

5.3.1 Before you install

- Ensure enough free space on the CX server.
- Do not use the CX server for any other purpose.
- To install the CX server on port other than 80, ensure that the desired port is free. Follow the steps below to free a port for the CX server.
- RX should not be installed on the

Create a backup of the original services file.
"cp /etc/services /etc/services.ORIG"

After creating a backup of the services file, free the desired port
"grep -v <*port_number_intended_for_CX_install*> /etc/services.ORIG > /etc/services "

5.3.2 Uncompress the installers

Ensure that you have root privileges to install CX server. The following illustrates an example for RHEL5U3 (32-bit) CX installation. You can follow a similar procedure for installing CX on other supported versions of Linux.

Step 1. Copy the CX Installers "**InMage_CX_5.10.1_RHEL5U3-32_GA_29Aug2009.tar.gz"** file to "**/root/Installers**" (or any other location as desired.)
Step 2. In the command prompt provide "tar –xvzf" to uncompress the above compressed file
Step 3. This creates a directory named "**Scout-CX-RHEL5U3-32".** Change directory into it. The name of the installer varies from one platform to another.

```
[root@imits030 ~]# cd /root/Installers/
[root@imits030 Installers]# ls
InMage_CX_5.10.1_RHEL5U3-32_GA_29Aug2009.tar.gz
[root@imits030 Installers]# tar -xvzf InMage_CX_5.10.1_RHEL5U3-32_GA_29Aug2009.t
ar.gz
Scout-CX-RHEL5U3-32/
Scout-CX-RHEL5U3-32/dbupgrade_4.2ga_5.0.sql
Scout-CX-RHEL5U3-32/notices.txt
Scout-CX-RHEL5U3-32/db_host_indexes_50.sql
Scout-CX-RHEL5U3-32/db_upgrade_42_to_51.sql
Scout-CX-RHEL5U3-32/OS_details.sh
Scout-CX-RHEL5U3-32/php_inmage.conf
Scout-CX-RHEL5U3-32/dbchange4.3.sql
Scout-CX-RHEL5U3-32/install.config
Scout-CX-RHEL5U3-32/db_upgrade_42_gilead_to_51.sql
Scout-CX-RHEL5U3-32/db_cs_ps_split.sql
Scout-CX-RHEL5U3-32/db_fabric_index_50.sql
Scout-CX-RHEL5U3-32/svsdb3.5.2.sql
Scout-CX-RHEL5U3-32/dbupgrade_3.5.2ga.sql
```

Figure 5: Uncompressing the Installer

5.3.3 Interactive install

Step 1. Run pre-installation verification script **"./check.sh"** to verify if the required dependencies are installed. Proceed further if the check succeeds; otherwise ensure that the correct packages and dependencies are installed (as mentioned in the check.sh output).

```
[root@imits030 Installers]# cd Scout-CX-RHEL5U3-32/
[root@imits030 Scout-CX-RHEL5U3-32]# ./check.sh
       RPM architecture for this platform is i386
       The list of required RPM packages is :
       perl-DBI
       perl-5.8
       perl-libwww-perl
       php-5.1
       php-mysql-5.1
       perl-URI
       httpd-2
       mysql-5
       mysql-server-5
       perl-DBD-MySQL
       php-pear-[0-9]
      Checking for i386 package perl-DBI- ... pass
```

Figure 6: All Tests Passed

Step 2. After the check script is successful, execute the command **"./install.sh"** without any parameters to start interactive CX server install. It will show license agreement. You may quit the setup at the license agreement by hitting key **"Q".**

```
[root@imits030 Scout-CX-RHEL5U3-32]# ./install.sh
Checking if RX server is already installed or not in the setup ...
Checking for installation platform compatibility ...
Checking for an existing CX server installation ...
End User Software License Agreement

This is a legal agreement between Customer and InMage Systems, Inc. ("InMage").
 YOU MUST READ AND AGREE TO THE TERMS OF THIS END USER SOFTWARE LICENSE AGREEMEN
T ("AGREEMENT") BEFORE ANY SOFTWARE CAN BE DOWNLOADED OR INSTALLED OR USED.  BY
CLICKING ON THE "ACCEPT" BUTTON OF THIS AGREEMENT, OR DOWNLOADING, INSTALLING OR
 USING THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS AND CONDITIONS OF
 THIS AGREEMENT.  IF YOU DO NOT AGREE WITH THE TERMS AND CONDITIONS OF THIS AGRE
EMENT, THEN YOU SHOULD NOT DOWNLOAD, INSTALL OR USE THE SOFTWARE.  BY DOING SO Y
OU FORGO ANY IMPLIED OR STATED RIGHTS TO DOWNLOAD OR INSTALL OR USE THE SOFTWARE
```

Figure 7: Installation Process Started

Notes:

If the install script is executed directly without executing the check script, the install may succeed if the required packages exist, else you will be prompted either for a force install (which may eventually fail) or to cancel the installation.

Set execute permissions on the "install.sh" script if required, and run it as "./install.sh". This should install Hitachi Dynamic Replicator- Scout CX and start all services.

A swap partition is not required here.

Step 3. The installation scripts displays license agreement and prompts for accepting the license, accept it by entering **"Y"** on a command prompt. You will be prompted to choose between installing a configuration server, process server or both. Choose **"3".**

```
"Computing Devices" means laptop, tablet or desktop computers used by Customer's
 employees that have been designated by Customer to receive the Agent Software.
Do you agree to the above-displayed terms and conditions? : [Y|N] y

    You can install the following  :

    1. CX-Configuration Server
    2. CX-Process Server
    3. Both

Please make your choice (1 or 2 or 3) here : 3
```

Figure 8: Showing Types of Configuration Server

Step 4. Installing the process server either alone or along with the configuration server (CX-CS server) will prompt the corresponding HTTP port id. Just hit enter to default it to port 80.

```
Enter Configuration Server port [default 80]:
NOTE: Changing the document root in /etc/httpd/conf/httpd.conf from /var/www/htm
l to /home/svsystems/admin/web ...
NOTE: Saved a copy of the previous httpd.conf file to /etc/httpd/conf/httpd.conf
.install_save ...
Creating CX server database ...
```

Figure 9: Command Prompt of Configuration Server Port

Step 5. Command prompt will ask for CX Server IP address.

```
Please enter the IP address of the Configuration Server here : 10.0.1.30
Upgrading version number...
Starting sendmail:
Starting proftpd:                                          [  OK  ]
Starting MySQL:                                            [  OK  ]
Stopping httpd:                                            [  OK  ]
Starting httpd:                                            [  OK  ]
Starting inmsync                                           [  OK  ]
Starting replication servers and monitor                   [  OK  ]
Starting process servers and monitor services              [  OK  ]
Starting disk monitor services                             [  OK  ]
Starting volume replication                                [  OK  ]
Starting file replication                                  [  OK  ]
Starting BPM Module                                        [  OK  ]
Starting MRTG                                              [  OK  ]
Starting reporter                                          [  OK  ]
Starting Push Server                                       [  OK  ]
Combined Configuration-Process Server installation is successful.
[root@imits030 Scout-CX-RHEL5U3-32]#
```

Figure 10: Successful Installation of CX Server

Notes:

When the configuration server (CX) has more than one NIC, you will be prompted for the NIC that shall be used.

5.3.4 Command line install (Silent Mode)

The CX server installation process can be done through one command line. Follow the following process for the same.

Step 6. Execute the command given below,

`./install.sh -p <Port Number> –i<CS IP address> -P<PS IP address> -t <Server Type, either CS, PS, or both> -M <Server Mode type, host>`

Provide inputs as described below.

<Port Number> : Provide CX HTTP Port number
<CS IP Address> : Provide CX IP address
<PS IP Address> : Provide PS IP address
<Server Type> : Provide server type as CS, PS or both as required
<Server Mode> : Provide server mode as host

Correct input of variables will start the CX installation process directly.

```
[root@imits030 Scout-CX-RHEL5U3-32]# ./install.sh -p 80 -i 10.0.1.30 -P 10.0.1.3
0 -t both -M host
Checking if RX server is already installed or not in the setup ...
Checking for installation platform compatibility ...
Checking for an existing CX server installation ...
Creating mailbox file: File exists
NOTE: Changing the document root in /etc/httpd/conf/httpd.conf from /var/www/htm
l to /home/svsystems/admin/web ...
NOTE: Saved a copy of the previous httpd.conf file to /etc/httpd/conf/httpd.conf
.install_save ...
Creating CX server database ...
Generating host guid afresh ...
Upgrading version number...
Starting sendmail:
Starting proftpd:                                          [  OK  ]
Starting MySQL:                                            [  OK  ]
Stopping httpd:                                            [  OK  ]
Starting httpd:                                            [  OK  ]
Starting inmsync                                           [  OK  ]
Starting replication servers and monitor                   [  OK  ]
Starting process servers and monitor services              [  OK  ]
Starting disk monitor services                             [  OK  ]
Starting volume replication                                [  OK  ]
Starting file replication                                  [  OK  ]
Starting BPM Module                                        [  OK  ]
Starting MRTG                                              [  OK  ]
Starting reporter                                          [  OK  ]
Starting Push Server                                       [  OK  ]
Combined Configuration-Process Server installation is successful.
[root@imits030 Scout-CX-RHEL5U3-32]#
```

Figure 11:

Notes:

Optionally you may use the "-m" switch to set the MySQL password.

5.3.5 File Based install (Silent Mode)

Rather than passing arguments at the command line, you may choose to pass an input file containing the inputs to the install script. To do so follow the following process:

Step 7. Edit the file **install.config"**.

The input file will need five mandatory inputs out of a total seven inputs as explained below

- **"Mode"** = "**host**"
- **"INST_TYPE"** = "**CS**" or "**PS**" or "**both**"
- **"CS_PORT"**= http port on which the CS operates
- **"CS_IP_FOR_NIC"**= IP address of the CS server
- **"PS_IP_FOR_NIC"**= IP address of the PS server

The two optional inputs are
- Action to be performed = "**U**" to upgrade to newer version
- MySQL password= to protect the database

```
[root@imits030 Scout-CX-RHEL5U3-32]# cat install.config
# This is the CS,PS or CS/PS installation main configuration file for silent installations.
# Please specify the Mode of Installation: whether Fabric or Host Based installation

# Mode can be host or fabric - For Fabric installation 'both' (CS-PS) will be installed
MODE=host

# Installation type can be CS,PS or both
INST_TYPE=both

# This is the CS port number (required in all values of INST_TYPE)
CS_PORT=80

# This is the CS IP address for the PS to use (required in all values of INST_TYPE)
CS_IP_FOR_NIC=10.0.1.30

# This is the PS IP address. Required for PS or 'both'
PS_IP_FOR_NIC=10.0.1.30

# Action to  be performed -- U for "Upgrade"
ACTION_TO_BE_PERFORMED=

# MySQL password
MYSQL_PASSWORD=
[root@imits030 Scout-CX-RHEL5U3-32]#
```

Figure 12:

Step 8. Execute the command **" ./install.sh install.config"**. This will start installing the CX Server.

```
[root@imits030 Scout-CX-RHEL5U3-32]# ./install.sh  install.config
Checking if RX server is already installed or not in the setup ...
Checking for installation platform compatibility ...
Checking for an existing CX server installation ...
Creating mailbox file: File exists
NOTE: Changing the document root in /etc/httpd/conf/httpd.conf from /var/www/html to /home/svsystems/a
dmin/web ...
NOTE: Saved a copy of the previous httpd.conf file to /etc/httpd/conf/httpd.conf.install_save ...
Creating CX server database ...
VX seems to be installed on this machine already. Will re-use the host id in drscout.conf ...
Updating version number...
Starting sendmail:
Starting proftpd:                                          [  OK  ]
Starting MySQL:                                            [  OK  ]
Stopping httpd:                                            [  OK  ]
Starting httpd:                                            [  OK  ]
Starting inmsync                                           [  OK  ]
Starting replication servers and monitor                   [  OK  ]
Starting process servers and monitor services              [  OK  ]
Starting disk monitor services                             [  OK  ]
Starting volume replication                                [  OK  ]
Starting file replication                                  [  OK  ]
Starting BPM Module                                        [  OK  ]
Starting MRTG                                              [  OK  ]
Starting reporter                                          [  OK  ]
Starting Push Server                                       [  OK  ]
Combined Configuration-Process Server installation is successful.
[root@imits030 Scout-CX-RHEL5U3-32]#
```

Figure 13: CX Installation

5.3.6 Verify installation

Once the installation completes you may verify the installation before using it.
Verify whether all the processes are running, by running **"service tmanagerd status"** command at the prompt. The system displays the status of services used by Hitachi Dynamic Replicator- Scout CX server.

```
[root@imits030 Scout-CX-RHEL5U3-32]# service tmanagerd status
tmanager.pl (pid 26737 26647 26571 26563 26515 26494 26451 26402 26393 26335 26315 26270 26015 26007 2
5959 25938 25895 25846 25837 25780 25762 25671 25623 25615 25504 25501 25498) is running...
bpm.pl (pid 25519) is running...
gentrends.pl (pid 25527) is running...
scheduler (pid 25514) is running...
httpd (pid 25557 25554 25553 25552 25551 25550 25549 25548 25547 25546 25545 25544 25533 25532 25531 2
5530 25529 25469) is running...
mysqld (pid 25085) is running...
inmsync (pid 25517) is running...
proftpd (pid 25459 25378 25363) is running...
mrtg (pid 27088) is running...
pushinstalld (pid 25540) is running...
[root@imits030 Scout-CX-RHEL5U3-32]#
```

Figure 14: Verifying CX Server Status

The same command is used on the process server to check the status of the services.

5.3.7 Add /remove PS

You may use the same install script which internally calls the "**csps_merge_split.sh"** to

- Install a process server when a CX-CS alone is installed
- Remove a process server when CX-CS and CX-PS are both installed

```
[root@imits030 Scout-CX-RHEL5U3-32]# ./csps_merge_split.sh

The machine is having CS installed ...
Do you wish to add the PS ( Y|N ) ?
y

 The Configuration Server IP address is 10.0.1.30
 The Configuration Server Port is 80
 Validating existing Configuration Server ....
Do you wish to continue with the PS server Installation( Y|N ) default (Y) ?
y
Stopping the services ...
Installing the Process server rpms ...
Starting the services ...
Starting proftpd:                                          [  OK  ]
The PS Installation is successful ...
[root@imits030 Scout-CX-RHEL5U3-32]#
```

Figure 15: Adding CX/PS

To merely unregister the process server from the CX-CS without uninstalling, you may use the "**unregisterps.pl"** script found under the "**/home/svsystems/bin**" directory

5.3.8 Upgrade /reinstall CX

To up-grade from older version of CX server to the newer one follow the usual installation process. Installers will check for already installed version of CX server and prompt for up-gradation to newer version. Enter **"y"** to start the up-gradation. Enter **"N"** to exist installation process.

```
[root@imits030 Installers]# cd Scout-CX-RHEL5U3-32/
[root@imits030 Scout-CX-RHEL5U3-32]# ./install.sh
Checking if RX server is already installed or not in the setup ...
Checking for installation platform compatibility ...
Checking for an existing CX server installation ...

DR Scout CX server is already installed in this setup ...

Would you like to proceed with an Upgrade ? (Y|N) default:(N)
y
Initializing upgrade ...
Checking previous installation...
Checking for build compatibility...
Stopping CX Server for upgrade...
Taking the backup of the files amethyst.conf,version,my.cnf and proftpd.conf ...
Taking backup of web/sw folder ...
Taking database backup ...
Taking backup of /home/svsystems/etc/amethyst.conf...
Taking backup of /home/svsystems/etc/version...
```

Figure 16: Up-gradation of CX Server

5.4 Installing CX-CS and CS-PS on Windows 2003

The CX and PS are installed through the same installer. During the install you will be presented with options to install the CX server alone, PS alone, or both on the same machine.

5.4.1 Prerequisites

Step 9. Ensure that QoS packet scheduler is installed on the network connection. This is required for the CX Bandwidth management module to work.

Step 10. SMTP service for IIS needs to be installed; this is required for CX server to send email alerts.

Step 11. Both the above services need to be running before installation

Step 12. Ensure that FTP service is **"Not Started"** before installing CX server. If the FTP service is not stopped, pro FTP service used by windows CX will refuse to start. The FTP service can be disabled or uninstalled through **"services.msc".**

Step 13. Ensure that port 80 is available for apache installation. If port 80 is occupied by other applications, then you will be prompted to enter a different port number during installation

Step 14. Windows based CX server should not belong to a domain.

Step 15. To install the Windows CX home directory in any other location, download the junction.exe tool from Microsoft website

Installing QoS packet scheduler

Step 16. Open network connections (either through the tray bar icon or through control panel) and click "**Properties**". This opens up the properties window and click **"Install".**

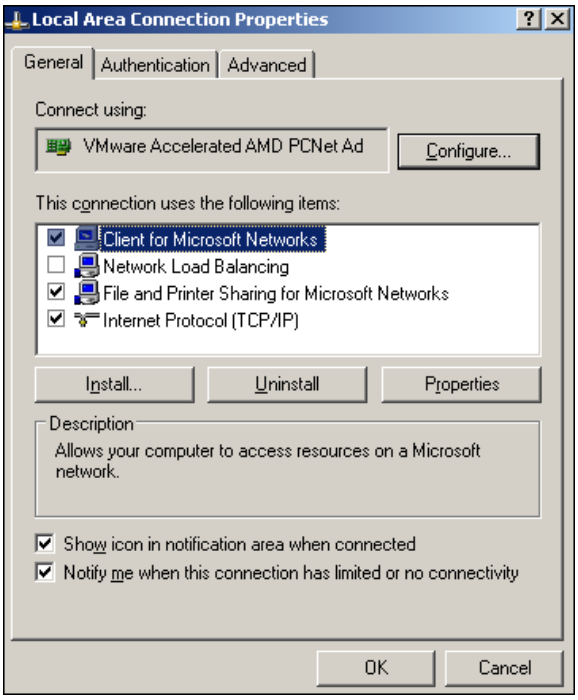

Figure 17: Local Area Connection Properties

Step 17. Select **"Service"** and click on **"Add".**

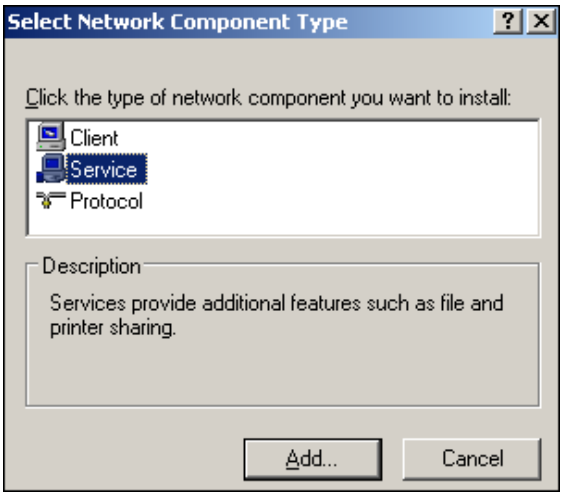

Figure 18: Select Network Component Type

Step 18. This opens up "**Select Network Service**" window, select Microsoft as manufacturer and **"QoS Packet Scheduler"** as Network Service, and click "Ok".

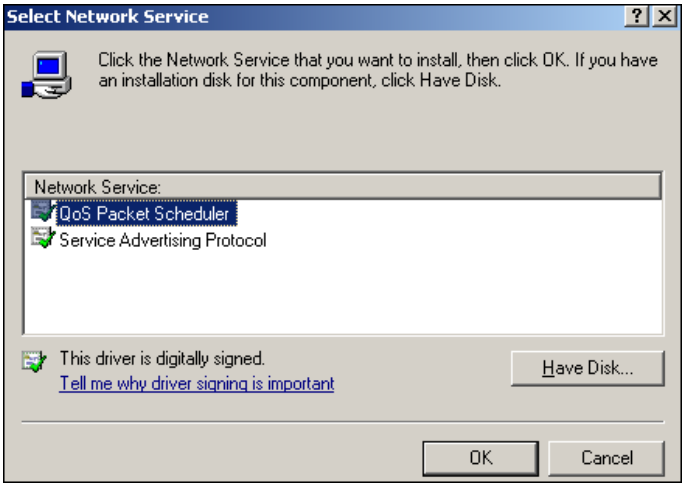

Figure 19: Select Network Service

Step 19. This returns to **"Network properties"** window. You can now see the QoS in the list. Click "**Close**" and the installation is complete.

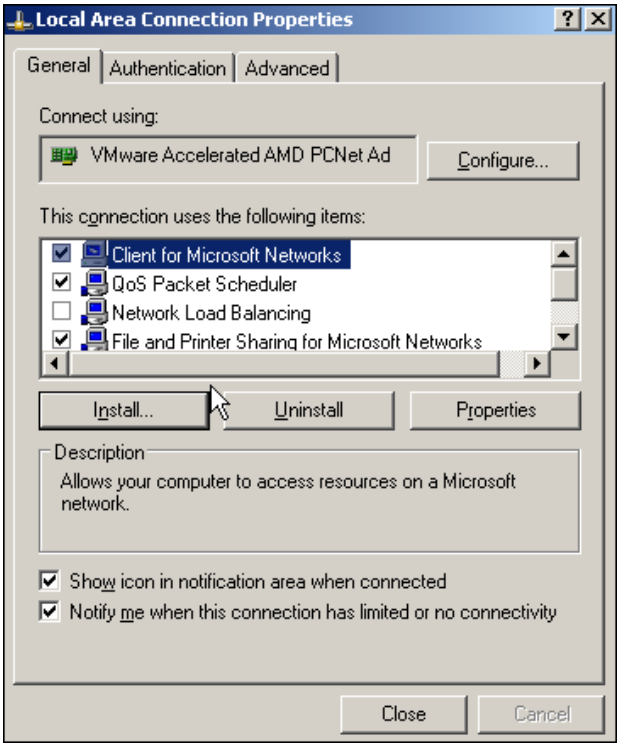

Figure 20: QoS Installation Process Completed

Configuring SMTP service for email notifications

Step 20. Click on "**Start -> programs -> administrative tools -> Internet Information Services (IIS) Manager**"

Step 21. This opens IIS Manager, right click on "**Default SMTP Virtual Server**", and click on **"Properties".**

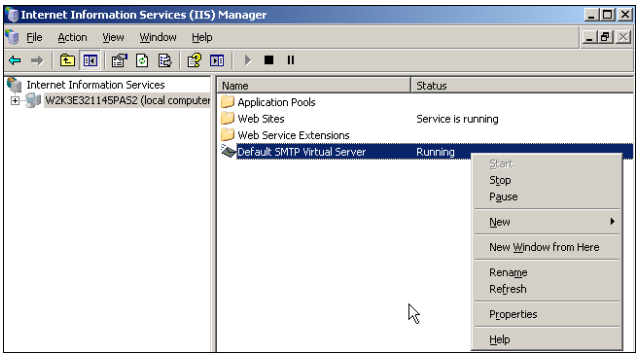

Figure 21: Internet Information Services (IIS) Manager

Step 22. This opens up **"Default SMTP Virtual Server Properties"**, click on Access tab, and click on Relay (or you can do an Alt+E) to open up **"Relay restrictions".**

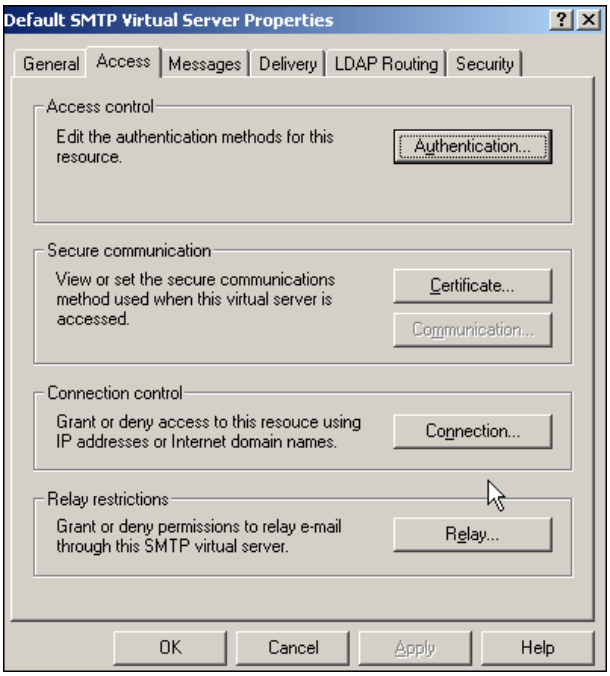

Figure 22: Default SMTP Virtual Server Properties

Step 23. Under relay restrictions select **"All except the list below"** and ensure that the list is empty. Click "**Ok"** to return to the previous screen. Click **"Ok"** again.

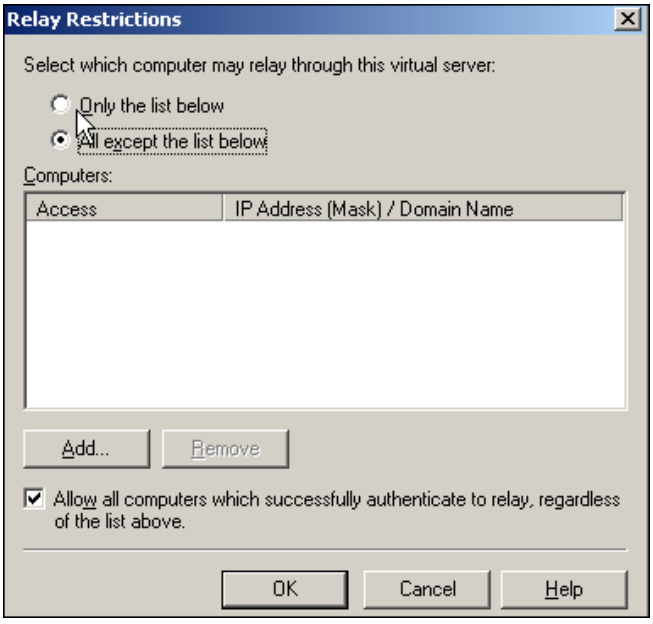

Figure 23: Relay Restrictions

Step 24. This returns you to the IIS manager window. Right click on **"Default SMTP Virtual Server"** to "**stop**" the service and again right click to **"Start"** the service.

Now that both QoS and SMTP are installed continue with Windows CX installer.

5.4.2 Installers

To install windows based CX server, first install the dependencies bundled as "**inmage_CX_thirdparty_XXX"** followed by the CX installation bundled as **"inmage_cx_XXX".**

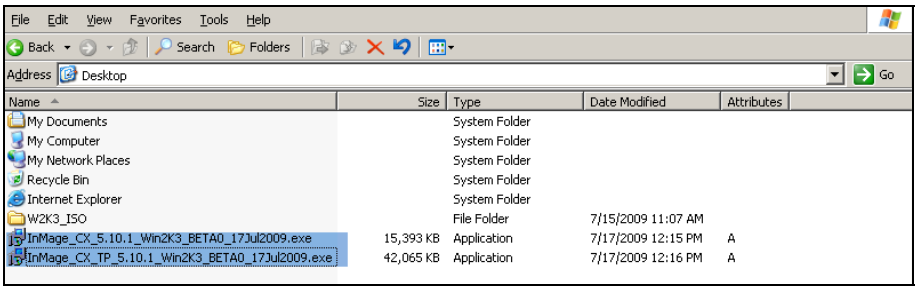

Figure 24: CX and CX-TP Builds

5.4.3 Customize Windows CX install directory

Step 25. To install the Windows CX home directory in any other location, use the junction.exe tool. The syntax is

`Junction.exe c:\home <desired destination>.`

Step 26. This tool shall create the actual files on the desired location and link them to the c:\home path.

```
C:\>junction c:\home z:\home

Junction v1.05 - Windows junction creator and reparse point viewer
Copyright (C) 2000-2007 Mark Russinovich
Systems Internals - http://www.sysinternals.com

Created: c:\home
Targetted at: z:\home
```

Figure 25:

Step 27. Then proceed with the installation.

Notes:

The Junction tool should be used before installing the CX server.

Caution:

Windows based CX server should be installed on a separate system and no other applications (such as oracle, etc) should be installed on it.
Windows based CX server should not be within any domain.

5.4.4 Installing CX dependencies

Step 28. Click "**Next"** to proceed with the installation.

Figure 26: CX_TP Installation

Step 29. Click **"Install"** to proceed with the installation, a progress bar appears, and the next window appears.

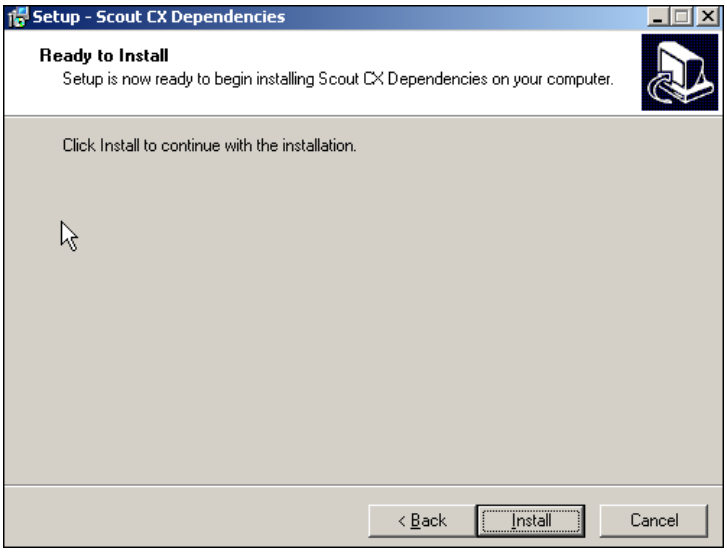

Figure 27: CX_TP Installation

Step 30. Click "**Finish"** to exit the dependency installation.

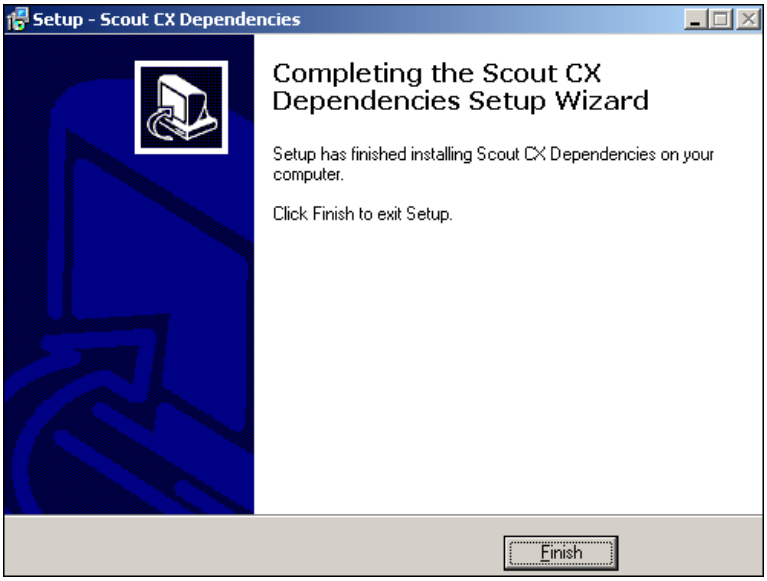

Figure 28: CX_TP Installation Finish

5.4.5 Windows CX interactive install

Step 31. Once the dependency installation is complete, proceed with the CX server installation. Click "**Next".**

Figure 29: CX Server Installation

Step 32. Enter the server's IP address, then the required email address. Click **"Next"** to continue.

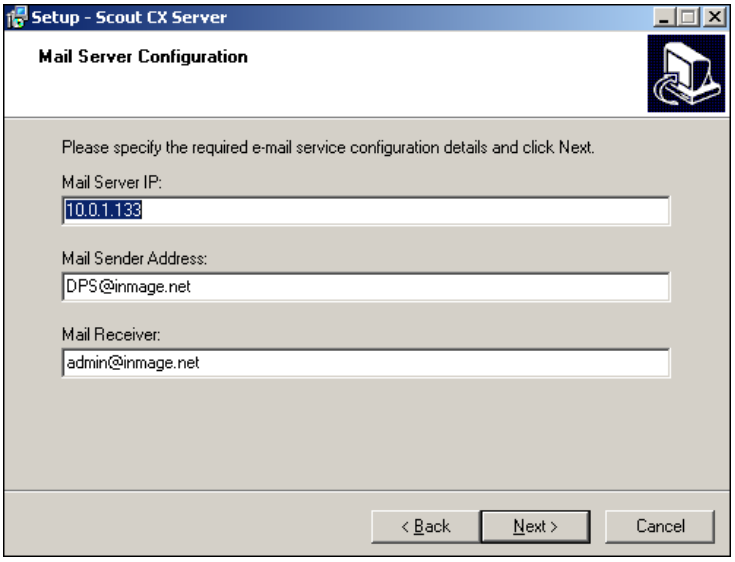

Figure 30: CX Server IP Address

Step 33. You will be presented with three options. Select the **"Configuration Server"** option to install the CX server or **"Process Server"** to install the process server. You may also choose to install both the components on the same machine. Select the desired option and click "**Next"** to continue.

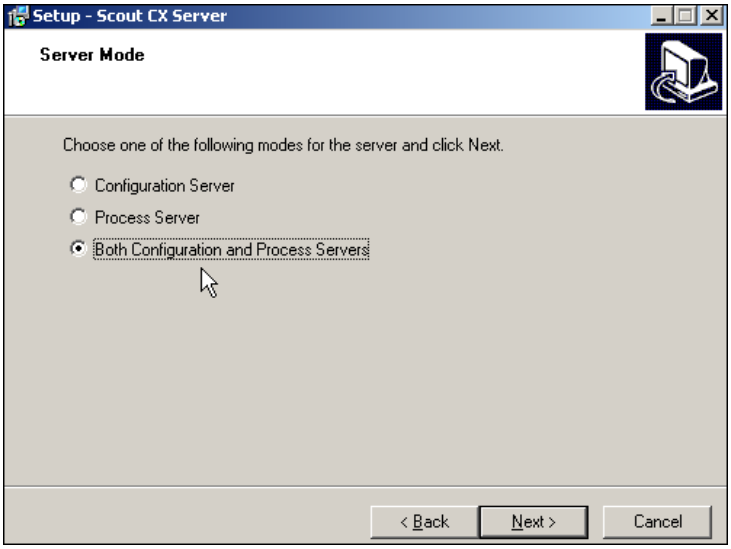

Figure 31: Modes of Configuration Server

Step 34. When the Process Server is being installed either separately or along with the Configuration Server (CS Server), you will be prompted to enter the Configuration server's IP address and HTTP port number. Enter the desired configuration server's IP address and its corresponding HTTP port number. Click **"Next"** to continue.

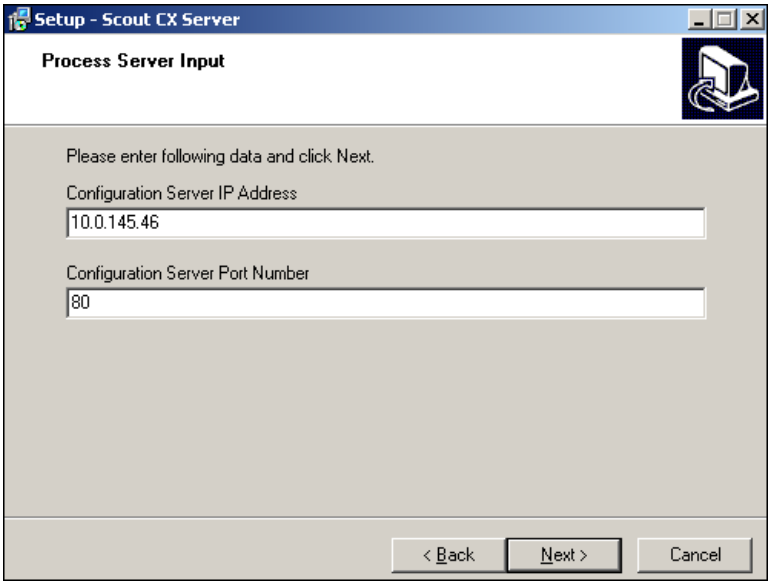

Figure 32: Configuration Server IP Address

Step 35. Click **"Install"** to start the installation.

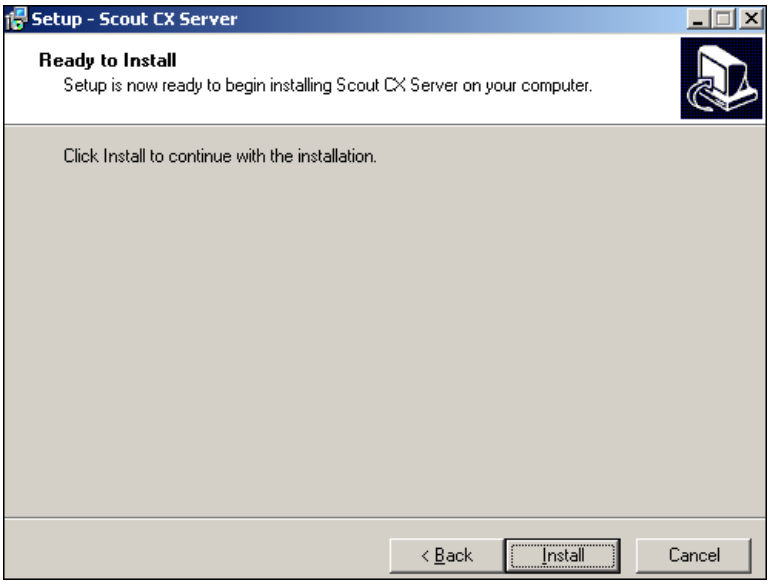

Figure 33: CX Server Install

Step 36. A progress bar appears indicating the status of the installation. You may choose to click **"Cancel"** to stop the installation.

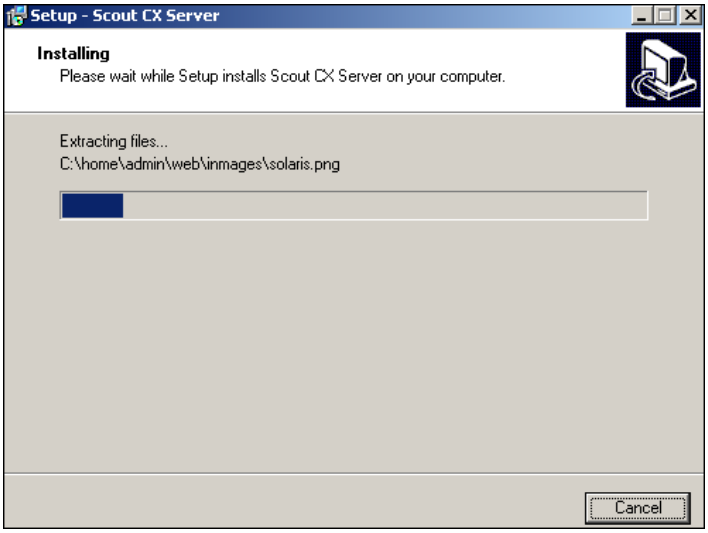

Figure 34: CX Server Installation

Step 37. The installation process will provide the default path for bin files. Just enter 'y'.

Figure 35: CX Server Bin Path

Step 38. The wizard ends by prompting a reboot (which you may skip and reboot manually at a later time).

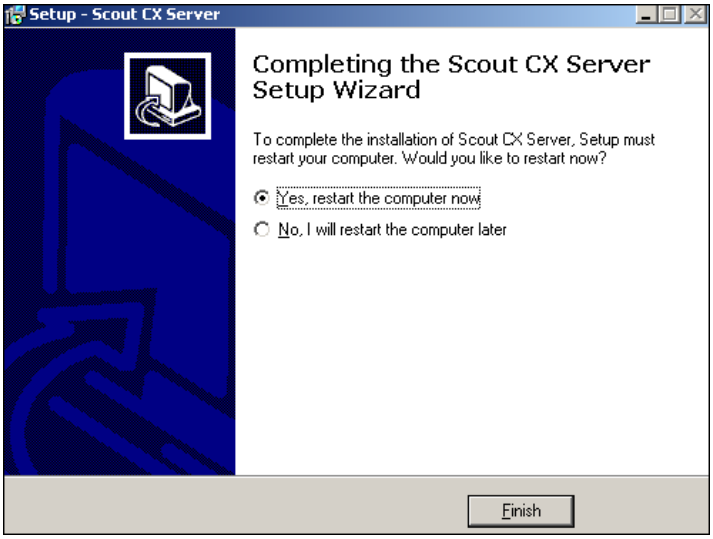

Figure 36: CX Server Installation Finish Wizard

5.5 Optional post install Tasks

5.5.1 Change FTP password for Linux based PS Server

Step 39. Login to the process server as **"root"**

Step 40. At the command prompt execute the command "**`passwd svsystems`**" to change the password for the **"svsystems"** user. You are prompted to enter the new password and then asked to re enter the password to confirm

Step 41. Then edit the file **"/home/svsystems/etc/amethyst.conf "**to set the value of "FTP_PASSWORD_LINUX" as the new password. Ensure that the new password is enclosed within double quotes.

Step 42. Save the file and restart **"proftpd services"** by issuing the command **"service proftpd restart"**

Step 43. After the change is complete, to quickly verify if the new password is working as expected, FTP to the CX server from your desktop, and login with the new credentials. You should be able to login and perform the usual ftp operations.

5.5.2 Change FTP password for Windows based PS Server

- Login to the Windows PS server with administrator privileges
- Access the command prompt and navigate to "**c:\home\svsystems\bin**" to execute the following command

```
C:\>perl ftpasswd.pl --passwd --file=/home/svsystems/etc/ftpd.passwd --
name=inmage123 --uid=1002 --home=/home/svsystems --shell=/bin/false --des --
stdin -F
```

5.5.3 Verifying CX (CS/PS) server status

When you have installed the CX-process server within the same machine as the CX-CS, you will see all the services. When CX-process server is installed on a different machine the number of services listed is relatively less. To check the status of the CX-CS or CX-PS server, access the console then issue the "**`service tmanagerd status`**"command.

```
[root@CX_Server ~]# service tmanagerd status
tmanager.pl (pid 9986 9955 9900 9852 9804 9721 9668 9652 9607 9564 9482 9451 944
0 9394 9357 9336 9308 9217 9158 9088 9074 9039 9014 8993 8866 8861 8851) is runn
ing...
bpm.pl (pid 8929) is running...
gentrends.pl (pid 8997) is running...
scheduler (pid 8891) is running...
httpd (pid 855 854 826 19850 25403 8309 8308 8299 7511 4373 4175 4174 4173 4164
4163 4162 4161 4160 8826) is running...
mysqld (pid 8238) is running...
inmsync (pid 8846) is running...
proftpd (pid 8703) is running...
mrtg (pid 13310) is running...
[root@CX_Server ~]#
```

Figure 37: tmanagerd status

Caution:

To stop the service "**`service tmanagerd stop`**" to start, use the command "**`service tmanagerd start`**".
All the required services are monitored by tmanagerd and all services should be running at all times.

5.6 Uninstall CX server

5.6.1 Windows 2003

Un-installation is a two step process and is as given below

- Removing CX Server
- Removing Dependencies

Removing Windows CX Server

Step 44. Navigate to **"Start menu -> settings -> control panel -> add/ remove programs",** then select **"InMage Systems Scout CX Server"** and click on **"Remove"**. A message box appears, click on **"Yes"** to start the un-installation process.

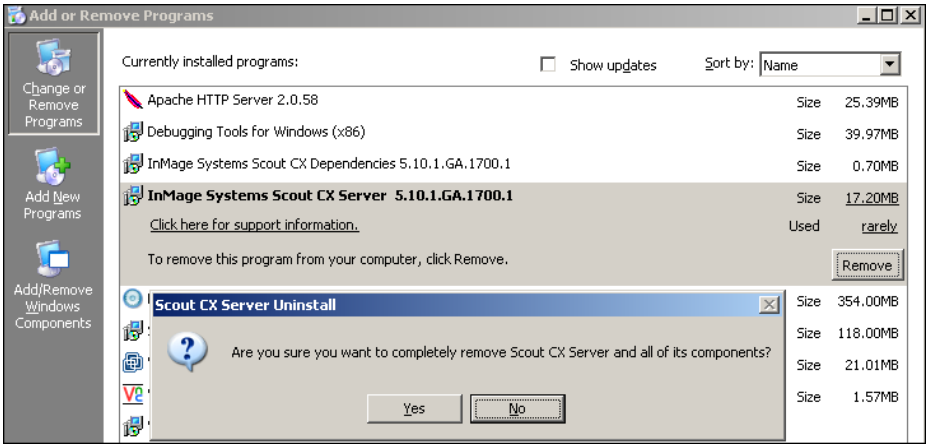

Figure 38: Removing CX Server

Finally, a message box appears confirming successful un-installation stating the outcome of the operation.

Removing Windows CX Server Dependencies

Step 45. Click on "**Start menu -> settings -> control panel -> add/ remove programs**", then select "**InMage Systems Scout CX Dependencies**" and click on **"Remove"**. A message box appears click on **"Yes"** to start the un-installation process.

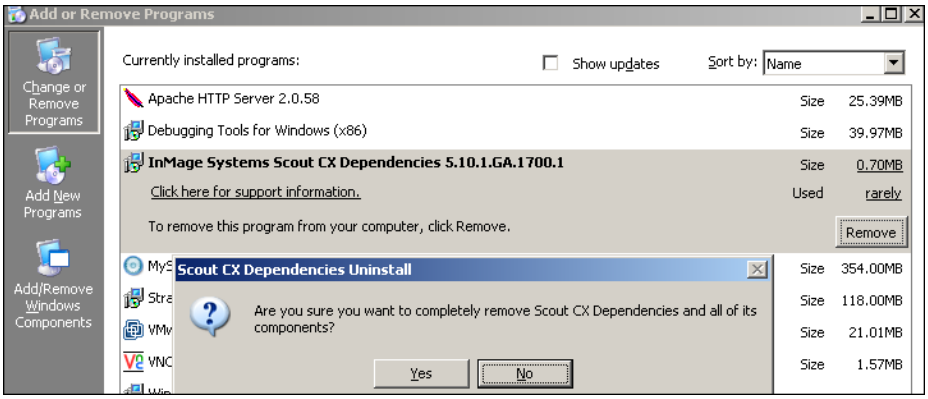

Figure 39: Removing CX Server Dependencies

Step 46. Click on **"Yes"** a progress bar appears followed by a message box indicating successful removal of dependencies.

Step 47. Before uninstalling each component a dialogue box appears to confirm uninstall, click on **"Yes"**. Then, a series of automated DOS screens appear, and close. Finally, a dialogue box appears indicating successful un-installation.

5.6.2 Linux

To uninstall CX-CS or CX-PS from a Linux machine, follow the steps below.

Step 48. Navigate to the **"/home/svsystems/bin"** folder on the CX server (CS or PS)

Step 49. Execute the **"uninstall.sh"** script.

Step 50. You will be prompted for confirmation, hit **"Y"** to uninstall or **"N"** to abort uninstalling.

Figure 40: Un-installing Linux Based CX Server

6 The Unified Agent

Unified Agent is the combination of VX and FX agents. Installing the unified agent will install both VX and FX. When an older version of VX or FX exists on the machine, the unified agent installer will upgrade existing agents and installs the missing VX or FX agent.

6.1 Installing unified agent on Linux

The unified agent may be installed in four different ways.

- **Interactive Install**: The installer prompts for required inputs while installing.
- **Command line Install**: All inputs are passed as parameters.
- **Silent Install**: All inputs are taken from a file. You will not be prompted for any inputs.
- **Push install**: Installing the unified agent through the CX UI.

6.1.1 Extract the binary

You will need to uncompress the Unified Agent binary file before proceeding with the installation. You may uncompress it by using the tar command. For example **"tar –xvzf <File name>".** This result in following twelve files:

- **InMageFX-5.10-1.i386.rpm:** This package contains the FX agent for Linux.
- **InMageVX-5.10-1.i386.rpm:** This package contains the VX agent for Linux.
- **.fx_build_manifest:** List of files used in the build.
- **install:** Install scripts
- **uninstall.sh:** Uninstall scripts
- **install_fx:** The FX install script that is called through the install script
- **install_vs:** The FX install script that is called through the install script
- **EULA.txt:** End user license agreement
- **Conf_file:** Used for silent installation
- **.vx_version:** Used for VX up-gradation
- **.fx_version:** Used for FX up-gradation
- **OS_details.sh:** Used during installation to gather OS details

```
[root@imits030 temp]# ls
InMage_UnifiedAgent_5.10.1_i386_RHEL5U3-32_GA_29Aug2009_release.tar.gz
[root@imits030 temp]# tar -xvzf InMage_UnifiedAgent_5.10.1_i386_RHEL5U3-32_GA_29
Aug2009_release.tar.gz
InMageFx-5.10-1.i386.rpm
InMageVx-5.10-1.i386.rpm
.fx_build_manifest
install
uninstall.sh
install_fx
install_vx
EULA.txt
conf_file
.vx_version
.fx_version
OS_details.sh
[root@imits030 temp]#
```

Figure 41: Un-compress Unified Agent Binary File

6.1.2 Interactive install

Step 51. Run the script **"./install".** Specify the agent type for installation and this can be FX, VX, or both. Choose the option "3" to install both VX and FX agents.

```
[root@imits030 temp]# ./install


                You can install the following  :

                1. File Replication Agent
                2. Volume Replication Agent
                3. Both

Please make your choice (1 or 2 or 3) here . Default [3]:
```

Figure 42: Choosing Agents

Step 52. You should be prompted to accept the license agreement. Hit **"Y"** to agree to it.

```
"Agent Software" means InMage's commercially released proprietary data replicati
on desktop software, in machine readable object code form.

"Appliance Product" means InMage's then-current commercially released data repli
cation appliance product, which is comprised of the Software as installed on app
ropriate computer hardware.

"Computing Devices" means laptop, tablet or desktop computers used by Customer's
 employees that have been designated by Customer to receive the Agent Software.

Please press (Y/y) if you agree to the license terms and conditions: y
```

Figure 43: Agreeing to License Agreement

Step 53. The installer will then prompt for the location to install the unified agent. Hit the enter key to install under the default location "**/usr/local/InMage**".

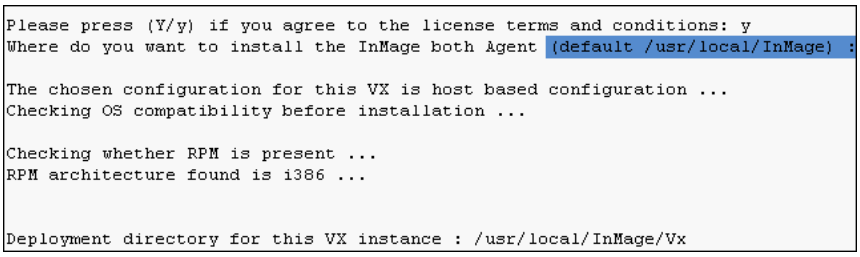

Figure 44: Unified Agent Installation Path

Step 54. The installer will prompt for **"Full Device Option".** Hit **"N"** to make available all the logical partitions for replication. Hit **"Y"** to replication complete device. This is required only in case of ESX server.

```
Do you wish to enable the Report Full Device option. [ This is applicable
 for protecting Virtual Machines resided on ESX/ESXi ] Y/N [Default N] ? N

New RPM package InMageVx-5.10-1 has been successfully installed...

Created the service script /etc/init.d/vxagent ...
RHEL5U3-32
```

Figure 45

Step 55. The host agent configuration interface is displayed; you need to enter the CX server's IP address and the HTTP port of the CX server. This can also be invoked at a later time through the **"./hostconfigcli"** script under the VX agent install path. Then "**Quit**" to proceed to installation process.

```
        Host Config Interface
Pick the command you wish to run.
          Press ? for help.

    Global Agent NAT Logging Quit

CX Server settings

     Enter IP Address
IP: 10.0.1.30_____

Enter Port number
Port: 80_____
```

Figure 46: Host IP Configuration

Step 56. You will be prompted to start VX agent, hit "y".

```
Do you want to start InMage VX Agent (Y/N) ? [Y] : y
Filter driver kernel module is not loaded. Attempting to load it, please wait...
Filter driver kernel module loaded successfully...
InMage VX Agent daemon is not running!
Starting InMage VX Agent daemon ...
kernel.hotplug =
Virtual snapshot kernel module is not loaded. Attempting to load it, please wait
...
Virtual snapshot kernel module loaded successfully...
Running the command : /usr/local/InMage/Vx/bin/svagents

InMage VX Agent daemon is running...
```

Figure 47: Prompt for VX Agent

Step 57. You will be prompted to start FX agent, hit "y". This completes the Unified Agent installation process.

```
Do you want to start InMage FX Agent (Y/N) ? [Y] :y
Starting InMage FX Agent daemon.....
Running the command :
/usr/local/InMage/Fx/svfrd /usr/local/InMage/Fx/sv.log /usr/local/InMage/Fx/conf
ig.ini

Installation process has finished.
```

Figure 48: Prompt for FX Agent

6.1.3 Command line install (Silent Mode)

To install Unified Agent on a Linux platform through command mode, provide the following command.

"./install –t < Type of Agent installation> –a <Chosen Agent Mode Host> –d <Installation Directory> –I <CX IP Address> –p <CX Port Number> –s <Start the Agent after Installation Y/y> –E <Full Device Option Y/N> N"

- **TYPE_OF_THE_AGENT:** Specify the agent type. It can be VX, FX, or both.
- **INSTALLATION_MODE:** enter the value as "host"
- **DEPLOYMENT_DIR**= Specifies the path. By default "**/usr/local/InMage**" is displayed.
- **CX_SERVER_IP_ADDRESS**: CX-CS IP address
- **CX_SERVER_PORT_NUMBER**: CX HTTP port number. (Default port number is 80. Enter the port number for port number other than 80)
- **NAT_IP**: NAT IP
- **NAT_HOST_NAME**: NAT Host Name
- **START_AGENT**: Starts the agent.
- **MIN_ROOT_FREE_SPACE_IN_MB**: The installer by default checks for a free space of 2 GB on "/root" before installing. You may increase or decrease this by filling up this field.
- **ACTION**: Either "**r**" or "**u**" (r for reinstall and u for upgrade)
- **Full Device Option**: Enter value **"N"** to enable all the system partitions for replication. Enter "Y" for full device replication. Value "Y" should be entered in case of ESX/ESXi server.

```
[root@imits030 test1]# ./install -t both -a host -d /usr/local/InMage/
 -i 10.0.1.30 -p 80 -s Y -E N
Agent type of Installation is both
Agent Mode of Installation is host
Installation Directory is /usr/local/InMage/
CX server IP address is 10.0.1.30
CX server Port number is 80
Report Full Device option is set to N
To start the agent after installation is choosen as Y
```

Figure 49: Unified Agent Installation on Linux Platform Through Command Line

6.1.4 File based install (Silent Mode)

To install Unified Agent on Linux platform through file based silent mode you will need to edit the "**conf_file"** found under the uncompressed location.

```
[root@imits030 test1]# vi conf_file
# Specify the type of the Agent to be installed
#       1. FX for File Replication Agent
#       2. VX for Volume Replication Agent
#       3. both for FX and VX
TYPE_OF_THE_AGENT=both
# Specify the Installation Mode
# Installation mode can be host or fabric
INSTALLATION MODE=host
# Installation Directory
DEPLOYMENT_DIR=/usr/local/InMage
# CS IP address
CX_SERVER_IP_ADDRESS=10.0.1.30
# CS port
CX_SERVER_PORT_NUMBER=80
# NAT IP address
NAT_IP=
# NAT Hostname
NAT_HOST_NAME=
# Enable Report Full Device option for ESX
# This is applicable for protecting Virtual Machines resided on ESX/ESXi
ESX_REPORT_FULL_DEVICE=N
# Start the Agent now
START_AGENT_TYPE=Y
# Log file name to store the log information during Installation
LOG_NAME=
# Action to be performed
# Default action to be performed is Installation
# For Upgrade, use U
ACTION=
```

Figure 50: Unified Agent Installation on Linux Platform through File Based Silent Mode

- **TYPE_OF_THE_AGENT:** Specify the agent type. It can be VX, FX, or both.
- **INSTALLATION_MODE:** enter the value as "host"
- **DEPLOYMENT_DIR=** Specifies the path. By default "**/usr/local/InMage**" is displayed.
- **CX_SERVER_IP_ADDRESS**: CX-CS IP address
- **CX_SERVER_PORT_NUMBER**: CX HTTP port number. (Default port number is 80. Enter the port number for port number other than 80)
- **NAT_IP**: NAT IP
- **NAT_HOST_NAME**: NAT Host Name
- **START_AGENT**: Starts the agent.
- **MIN_ROOT_FREE_SPACE_IN_MB**: The installer by default checks for a free space of 2 GB on "/root" before installing. You may increase or decrease this by filling up this field.
- **ACTION**: Either "**r**" or "**u**" (r for reinstall and u for upgrade)
- **Full Device Option**: Enter value "N" to enable all the system partitions for replication. Enter "Y" for full device replication. Value "Y" should be entered in case of ESX/ESXi server.

After filling the "conf_file", pass this file to the install script as an argument and the install will progress without prompting for any inputs.

 **Notes:**

To disable "Full Device" mode, navigate to VX install directory (i.e., usr/local/InMage/Vx/etc). Find the drscout.conf file and set the value for "Full Device" to zero. Save this edited file and restart the VX services. It will enable all the individual partitions for replication.

6.1.5 Upgrade/reinstall unified agent

The unified agent is also capable of detecting older versions of FX, VX, UA and will prompt for an upgrade. Ensure that no FX jobs are running while the unified agent is being upgraded to avoid any job failures.

Step 58. Run the install script of the unified agent. When an older version is detected the installer prompts for an upgrade. Enter "Y" to proceed with the upgrade.

```
[root@imits030 Installers]# ./install

UA is installed in the setup ...
Would you like to upgrade UA ? (Y/N) default [ N ]: Y
```

Figure 51: Unified Agent Installers Up-gradation

Step 59. Accept the license agreement to start the upgrade.

```
Please press (Y/y) if you agree to the license terms and conditions: y
Checking OS compatibility before installation ...


Beginning Upgrade process...
All the job log files shall be preserved and a tar ball of the existing installa
tion
is created as backup in /tmp/Installers/TEMP
Existing installation directory is /usr/local/InMage/Fx
```

Figure 52: Unified Agent up-gradation License Agreement

Step 60. The FX agent is first upgraded followed by the VX agent. Each time before the upgrade, you will be asked for confirmation.

```
New RPM package InMageFx-5.10-1 has been successfully installed...
Do you want to start InMage FX Agent (Y/N) ? [Y] :y
Starting InMage FX Agent daemon.....
Running the command :
/usr/local/InMage/Fx/svfrd /usr/local/InMage/Fx/sv.log /usr/local/InMage/Fx/conf
ig.ini

Upgrade process has finished.
```

Figure 53: FX Agent Starting

```
Do you want to start InMage VX Agent (Y/N) ? [Y] : y
Filter driver kernel module seems to loaded already. After this program is co
ete, a REBOOT will be required for the newly installed filter driver kernel m
le to take effect!!!
InMage VX Agent daemon is not running!
Starting InMage VX Agent daemon ...
kernel.hotplug =
Running the command : /usr/local/InMage/Vx/bin/svagents

InMage VX Agent daemon is running...
```

Figure 54: VX Agent Starting

6.2 Installing unified agent on Windows

6.2.1 Interactive install

Step 61. Run the Unified Agent Installation File (InMage_UA_5.10.1_Win2K3_XXXX.exe). The installation wizard appears. Click **"Next"** to proceed further.

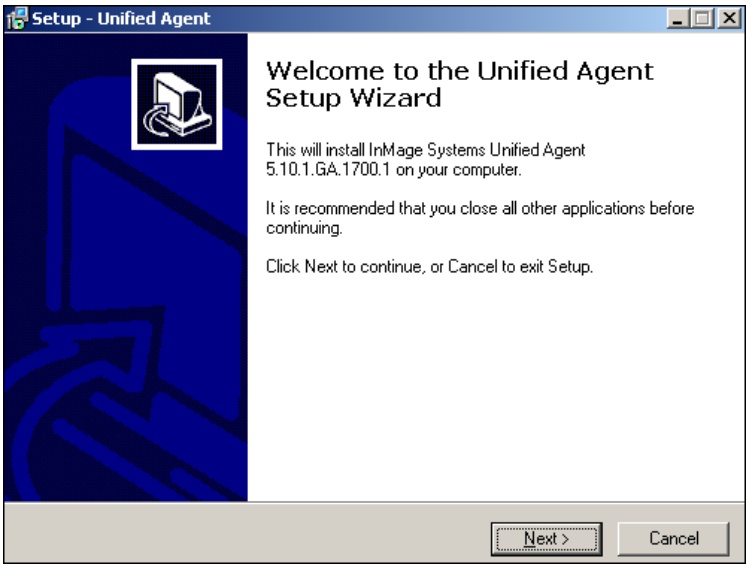

Figure 55: Unified Agent Windows Installation Wizard

Step 62. The unified agent is a combination of both VX and FX agents. However you may choose to select either FX, or VX or both. Select the desired option and click "**Next".** This will prompt for license agreement.

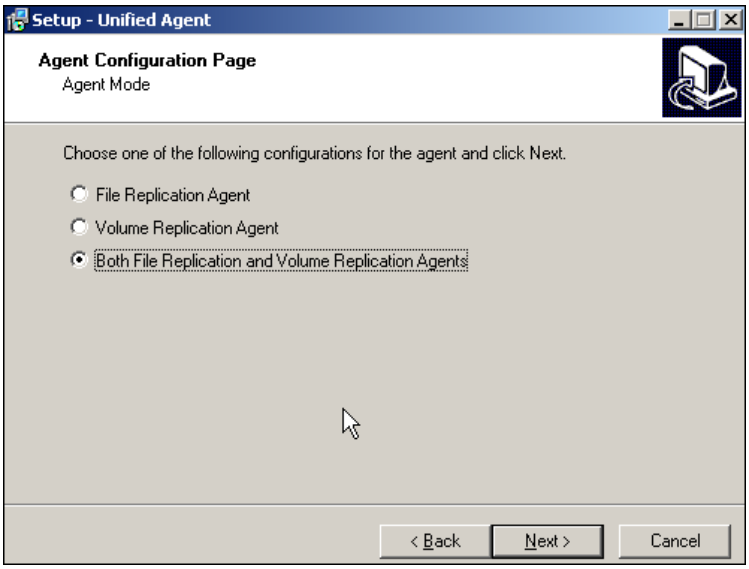

Figure 56: Choosing Agents

Step 63. Accept the license agreement and Click "**Next**". This will prompt for path for Unified Agent installation.

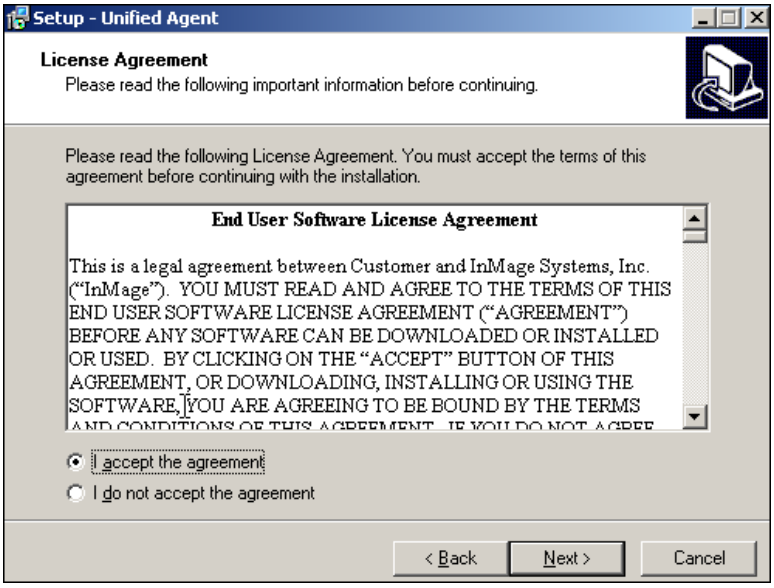

Figure 57: License Agreement

Step 64. Application will prompt the default path for Unified Agent installation. You can change the default path through **"Browse".** Click **"Next".** This will prompt for installation path.

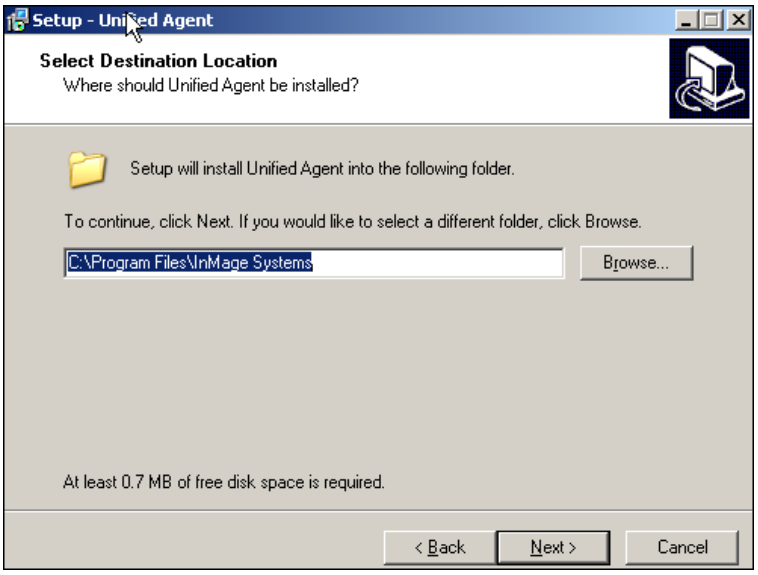

Figure 58: Unified Agent Installation Path

Step 65. Click **"Install"** to proceed with installation or click **"Back"** to go back and edit path.

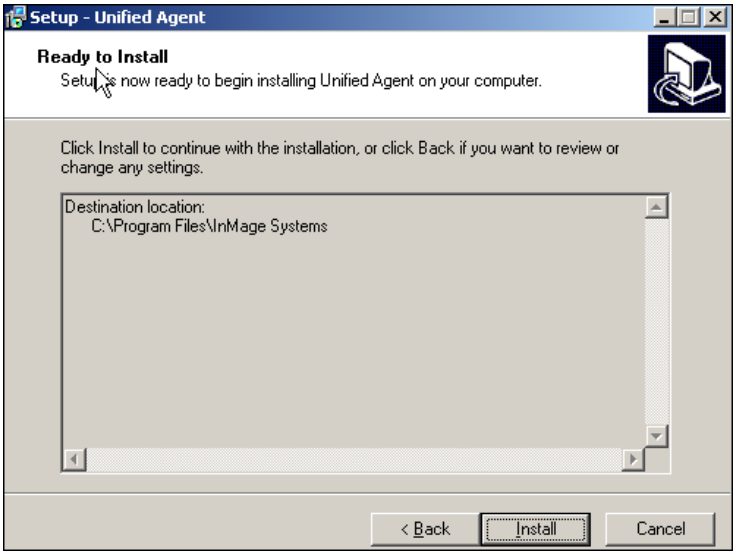

Figure 59: Unified Agent Install Wizard

Step 66. The installer will prompt to enable the Full device option. Click "**Yes**" if this install is part of protecting ESX/ESXi sever. This will expose the system volume to the CX UI.

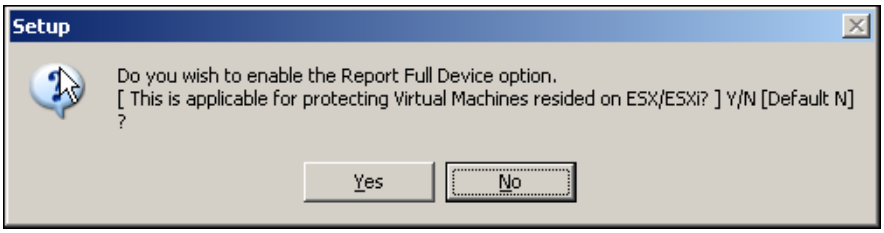

Figure 60

Step 67. The "**Host Agent Config**" appears, you will need to enter the CX-CS Server's IP address and it's HTTP port number. Click **"OK".**

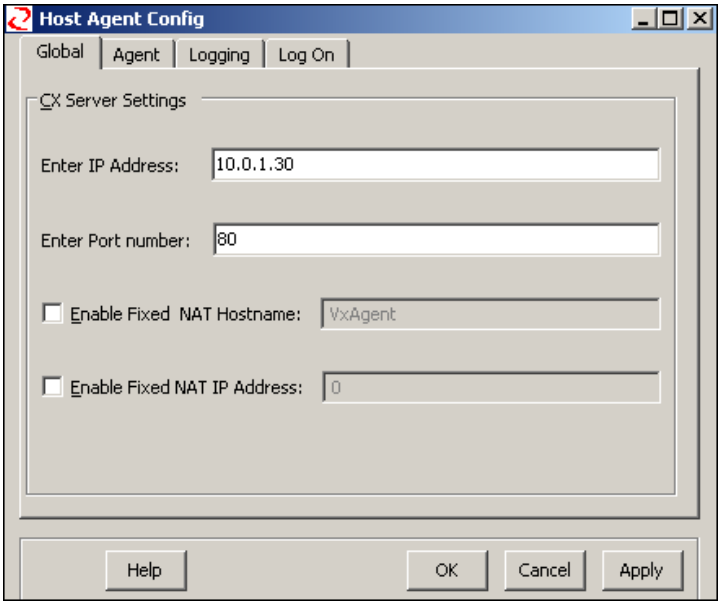

Figure 61: CX Server Configuration

Step 68. Installation completion wizard appears prompting for a reboot. Click **"Finish"** to complete installation process. A reboot is required for the agent service to become fully functional.

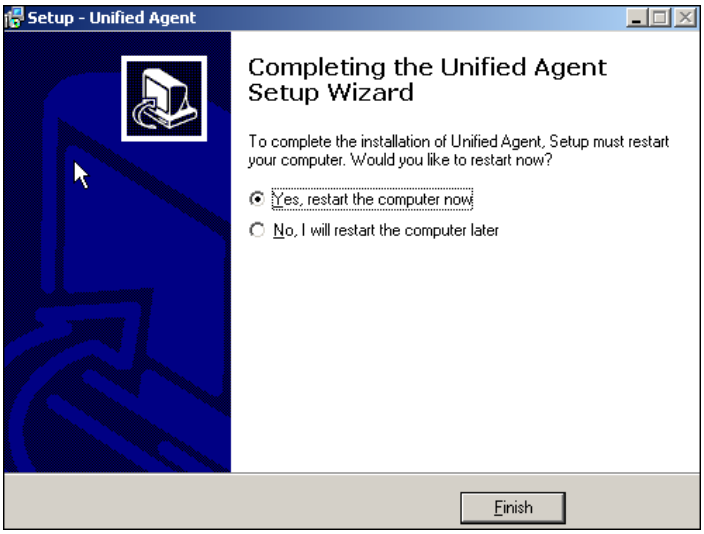

Figure 62: CX Server Configuration

6.2.2 Command line install (Silent Mode)

You can also install the unified agent silently through the command prompt. To check the syntax pass the argument "**/silent /help**" to the installer

`<Unified agent installer> /silent /help`

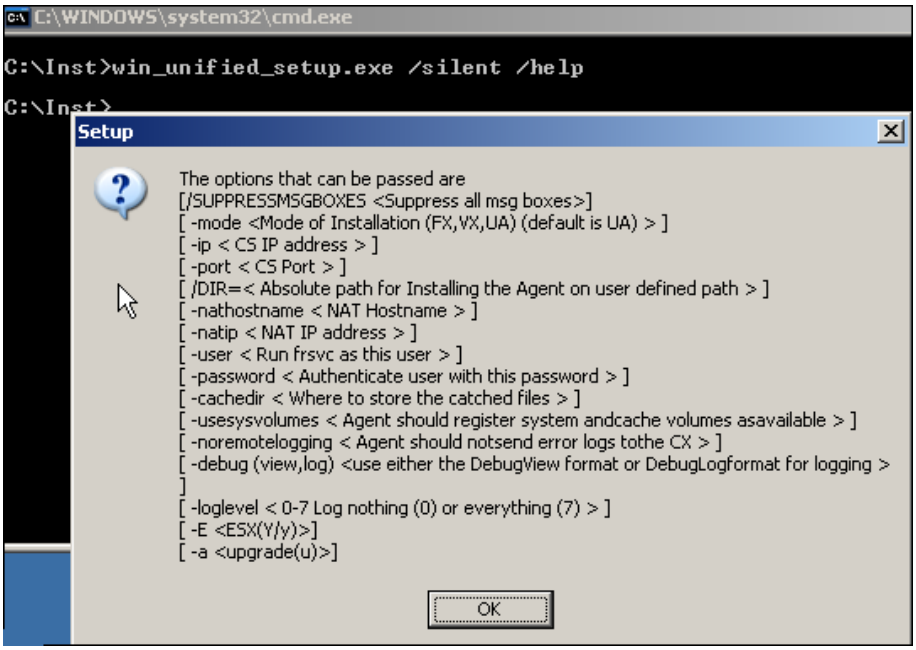

Figure 63

To install Unified agent on Windows platform through command mode, use the following syntax

`C:\<InMage_UA_xxxx_Win2k_xxxx.exe> /silent mode <FX, VX or UA> -ip <IP Address of CX-CS> -port <http port number of CX-CS>`

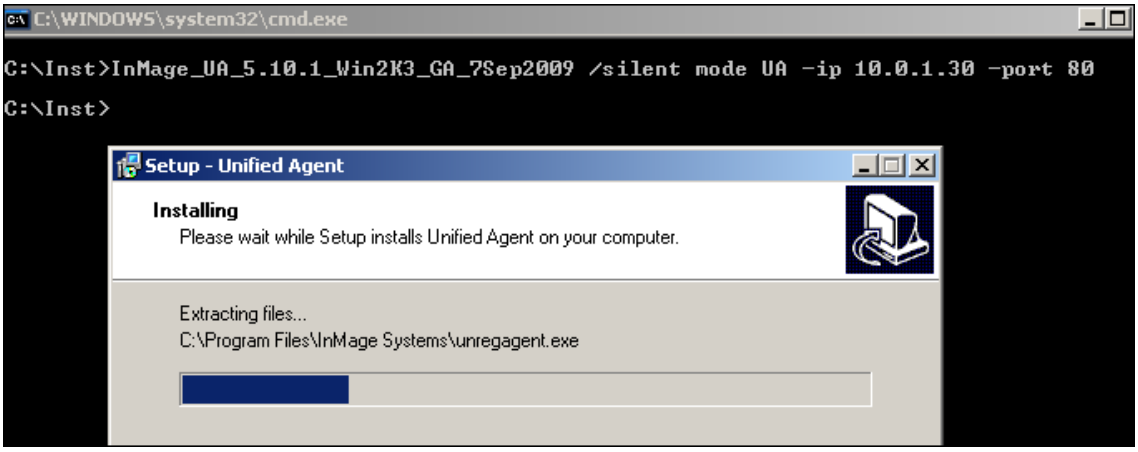

Figure 64

6.2.3 Upgrade / reinstall unified agent

Ensure that no FX jobs are running while the unified agent is being upgraded to avoid any job failures.

To upgrade the existing version of Unified Agent to newer version, run the new unified agent installer. You will be prompted for an upgrade. Click **"Yes"** to proceed with up-gradation process and Click **"No"** to exist set up.

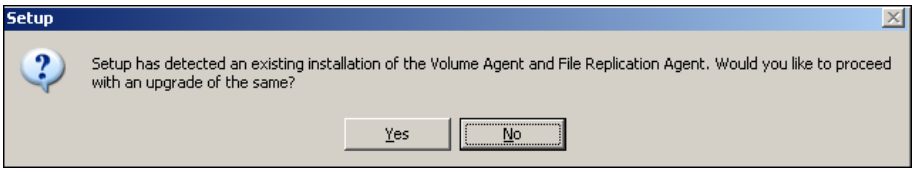

Figure 65: Unified Agent Up-gradation on Windows Platform

6.3 Installing unified agent on Solaris

6.3.1 Before you begin

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

6.3.2 Extract the binary

You will need to uncompress the binary file before proceeding with the installation. You may uncompress it by using the gunzip command. For example:

gunzip <*Install Binary*>

```
-bash-3.00# ls
InMage_UnifiedAgent_5.10.1_Solaris-5-10-x86-64_GA_07Sep2009_release.tar.gz
-bash-3.00# gunzip InMage_UnifiedAgent_5.10.1_Solaris-5-10-x86-64_GA_07Sep2009_r
elease.tar.gz
-bash-3.00#
```

Figure 66: Unified Agent on Solaris

Use the "**tar xvf** <*name of tar file*>" to uncompress the installer.

```
-bash-3.00# tar xvf InMage_UnifiedAgent_5.10.1_Solaris-5-10-x86-64_GA_07Sep2009_
release.tar
x InMage_FX_5.10.1_Solaris-5-10-x86-64.tar, 17552896 bytes, 34283 tape blocks
x InMage_VX_5.10.1_Solaris-5-10-x86-64.tar, 111379456 bytes, 217538 tape blocks
x OS_details.sh, 10188 bytes, 20 tape blocks
x conf_file, 198 bytes, 1 tape blocks
x EULA.txt, 13554 bytes, 27 tape blocks
x install_fx, 48527 bytes, 95 tape blocks
x install_vx, 31469 bytes, 62 tape blocks
x install, 16702 bytes, 33 tape blocks
x uninstall.sh, 1627 bytes, 4 tape blocks
x .fx_version, 305 bytes, 1 tape blocks
x .fx_build_manifest, 35123 bytes, 69 tape blocks
x .vx_version, 320 bytes, 1 tape blocks
-bash-3.00#
```

Figure 67

You will find thirteen files after extracting the installer.

```
-bash-3.00# ls -a
.
..
.fx_build_manifest
.fx_version
.vx_version
EULA.txt
InMage_FX_5.10.1_Solaris-5-10-x86-64.tar
InMage_UnifiedAgent_5.10.1_Solaris-5-10-x86-64_GA_07Sep2009_release.tar
InMage_VX_5.10.1_Solaris-5-10-x86-64.tar
OS_details.sh
conf_file
install
install_fx
install_vx
uninstall.sh
-bash-3.00#
```

Figure 68: Unified Agent on Solaris

- "**.fx_build_manifest**"
- "**.fx_version**"
- "**.vx_version**"
- "**EULA.txt**": End user license agreement.
- "**InMage_FX_5.10-1_Solaris**-<version_architecture>.tar": This package contains the FX agent for Solaris.
- "**InMage_VX_5.10.1_Solaris**-<version_architecture>.tar": This package contains the VX agent for Solaris.
- "**InMage_UnifiedAgent_5.10.1_Solaris**-<version_architecture>_GA_<BUILT_DATE>_release.tar": This package contains the VX & FX agent for Solaris. "**OS_details.sh**": Used during the installation to gather operating system details.
- **"conf_file**": Used for Silent install.
- "**install**": Installs script.
- "**install_fx**": The FX install script that is called through the install script.
- "**install_vx**": The VX install script that is called through the install script
- "**uninstall.sh**": The uninstall script for the unified agent.

6.3.3 Interactive install

Step 69. As soon as you start the install script, you will be prompted to select between three choices as shown in the picture below. You will need to enter the desired choice and hit enter to continue. By default the FX and VX agents are both installed when you hit enter without specifying any option.

```
-bash-3.00# ./install

        You can install the following  :

        1. File Replication Agent
        2. Volume Replication Agent
        3. Both

Please make your choice (1 or 2 or 3) here . Default [3]: 3
End User Software License Agreement
```

Figure 69: Unified Agent on Solaris

Notes:

While the option 1 installs the FX agent, the option 2 installs only the VX agent before returning you back to the command prompt
Option 3 installs both the VX followed by the FX agents

Step 70. Accept the license agreement to continue then you will be prompted for a location where the VX agent is to be installed, hit enter to install under the default "**/usr/local/InMage/Vx**" path or specify a desired path and hit enter.

```
ion server software, in machine readable object code form.

Please press (Y/y) if you agree to the license terms and conditions: y

Where do you want to install the InMage VX Agent ? (default (/usr/local/InMage)
:
Enough space in root(/) partition
Enough space in installation directory(/usr/local/InMage/Vx)
x bin, 0 bytes, 0 tape blocks
```

Figure 70: Unified Agent on Solaris

Step 71. The installation should continue and take you to the "**host config interface**" as shown in the picture below. Enter the CX-Configuration server's IP address, port number here. Enter the clustered IP address when CX HA is deployed, then choose "**Quit**"

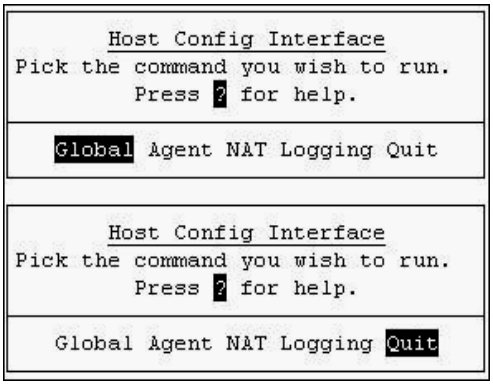

Figure 71: Host Agent Configuration

Step 72. After installing the VX agent, the installer starts to install the FX agent (for option 3). You will be prompted to enter the FX agent's install location. Hit enter to install under the default "**/usr/local/InMage/Fx**" location or optionally you may also specify a desired location and hit enter

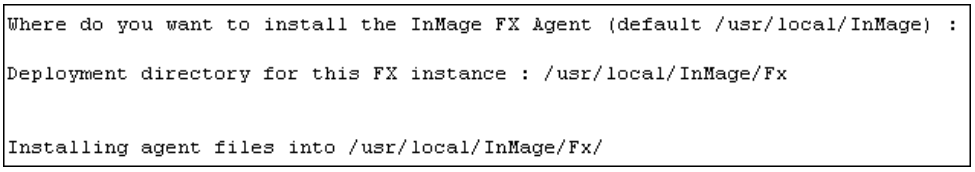

Figure 72: Unified Agent on Solaris

Step 73. You will be prompted to enter the CX configuration server's IP address and the HTTP port. Finally you will be prompted to start the FX agent service. The installer should return you back to the command prompt here.

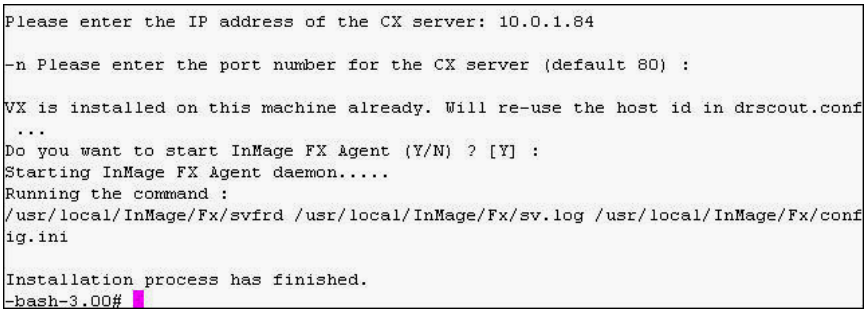

Figure 73: Unified Agent on Solaris

When both VX and FX are installed, then the VX agent will use the CX information given for the FX agent

6.3.4 Command line install (Silent mode)

Run the script **"./install –h"** to display the syntax. Run the syntax given below:

Usage:
./install [-t <*Type of the Agent Installation FX|VX|both***>] [-d <***Installation Directory***>] [-i <***IP Address of the CX***>] [-p <***CX Server Port Number***>] [-N <***NAT IP address***>] [-H <***Nat Hostname***>] [-k <***Min-FreeSpace-On-Root-To-Be-Checked - in KB***>] [-m <***Min-FreeSpace-On-Root-To-Be-Checked - in MB***>] [-g <***Min-FreeSpace-On-Root-To-Be-Checked - in GB***>] [-s <***Start the agent after installation Y|y***>] [-A <***Action to be Performed***>]**

For example: **./install –t both –d /usr/local/InMage –i 10.0.1.95 –p 80 –s y**

```
bash-3.00# ./install -t both  -d /usr/local/InMage -i 10.0.1.95 -p 80 -s y

Agent type of Installation is both
Installation Directory is /usr/local/InMage
CX server IP address is 10.0.1.95
CX server Port number is 80
To start the agent after installation is choosen as y

OS check passed

x bin, 0 bytes, 0 tape blocks
x bin/cachemgr, 8317877 bytes, 16246 tape blocks
x bin/cdpmgr, 7964438 bytes, 15556 tape blocks
x bin/cdpcli, 8429419 bytes, 16464 tape blocks
x bin/dataprotection, 9926559 bytes, 19388 tape blocks
x bin/hostconfigcli, 3242587 bytes, 6334 tape blocks
x bin/s2, 8516390 bytes, 16634 tape blocks
```

Figure 74: Unified Agent on Solaris

Notes:

By default the installer checks for a free space of 2GB on the "/root", you may suppress this by adding the extra switch "-k <space in kbs>" or "-m <space in mbs>" or "-g <space in gbs>"

You may also install only the VX or the FX agent through the command line

6.3.5 File based install (Silent mode)

Step 74. Apart from the command line install, you may pass an argument file to the install script. Edit the file "**conf_file".** This file contains nine inputs.

```
bash-3.00# cat conf_file
TYPE_OF_THE_AGENT=both
DEPLOYMENT_DIR=/usr/local/InMage
CX_SERVER_IP_ADDRESS=10.0.1.95
CX_SERVER_PORT_NUMBER=80
NAT_IP=
NAT_HOST_NAME=
START_AGENT=Y
MIN_ROOT_FREE_SPACE_IN_MB=2048
ACTION=
bash-3.00#
```

Figure 75: Unified Agent on Solaris

- **TYPE_OF_THE_AGENT:** Specify the agent type. It can be VX, FX, or both.
- **DEPLOYMENT_DIR=** Specifies the path. By default "**/usr/local/InMage**" is displayed.
- **CX_SERVER_IP_ADDRESS**: CX IP address
- **CX_SERVER_PORT_NUMBER**: CX HTTP port number. (Default port number is 80. Enter the port number for port number other than 80)
- **NAT_IP**: NAT IP
- **NAT_HOST_NAME**: NAT Host Name
- **START_AGENT**: Starts the agent.
- **MIN_ROOT_FREE_SPACE_IN_MB**: The installer by default checks for a free space of 2 GB on "/root" before installing. You may increase or decrease this by filling up this field.
- **ACTION**: Either "**r**" or "**u**" (r for reinstall and u for upgrade)

Step 75. Run the script **"./install conf_file".** The figure below is shown. The installation should complete without prompting for any inputs and return you to the command prompt.

```
bash-3.00# ./install conf_file
The Configuration file that is passed to start the installation is conf_file

Agent type of Installation is both
Installation Directory is /usr/local/InMage
CX server IP address is 10.0.1.95
CX server Port number is 80
Minimum Root space to be checked is 2097152 kb
To start the agent after installation is choosen as Y
```

Figure 76: Unified Agent on Solaris

6.4 Uninstall unified agent

6.4.1 Linux

To un-install Unified Agent on a Linux platform, navigate to the Unified Agent/Installers folder and execute the command "./uninstall.sh". It will prompt for confirmation, hit "y".

```
[root@imits030 Installers]# ./uninstall.sh
Do you really want to uninstall the InMage Unified agent? (Y/N) [default N] : y
Uninstalling the InMage VX agent ...

InMage VX Agent daemon is running...
Stopping InMage VX Agent daemon ...
```

Figure 77: Uninstalling Unified Agent on Linux

6.4.2 Windows

To un-install Unified Agent on windows platform navigate to **"Start→Settings→Control Panel→Add and Remove Programs→InMage Systems Unified Agent 5.10.1.xxxxxx".** Click **"Remove".** You will be prompted with confirmation for UA un-installation. Click **"Yes"** to completely un-install the Unified Agent.

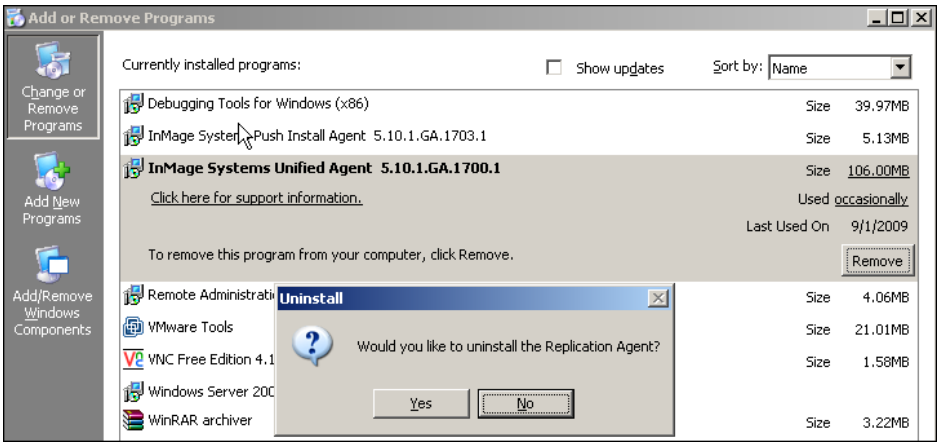

Figure 78: Un-installation of Unified Agent on Windows Platform

6.5 Installing unified agent through CX UI

6.5.1 Before you begin

- For installing the unified agent through the CX UI on windows platforms, you will need to determine the server that will act as a proxy server. This is not required for Linux clients
- Windows firewall should be off on the host to which you want to install
- If your host is configured using DHCP, change it to static IP
- Make sure to add credentials of the account (that you use for pushing) to your local system administrators group. (To do so navigate to "Control Panel→Administrative Tools →Computer Management", click on Local Users and Groups and Click on Administrator, and add the user account you use in UI to the administrator group)
- Prepare the list of machines where the unified agent is to be installed
- Ensure that none of the machines are offline or rebooted while installing, else the installation will fail
- On Linux platform always allow incoming SSH connections through the firewall

Introduction for CX based installation (push installation)

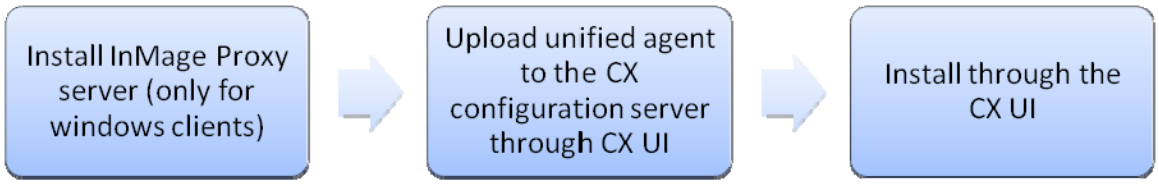

Figure 79: Push Installation

You will be able to install the unified agent on both windows and Linux platforms through the CX UI. The unified agent installer is located on the CX server. The proxy server (windows machine) is used to perform installs on the windows clients. You will need to enter the IP address range of the clients, domain name, user name and password.

The CX server transfers the unified agent to the windows clients through the proxy server, however this is not required for Linux clients. The agent installer is started once it reaches the client machine. After installing, these agents are pointed to the CX server. You will need to assign appropriate licenses before using the agents

Notes:

Push Agents cannot be un-installed from CX UI.

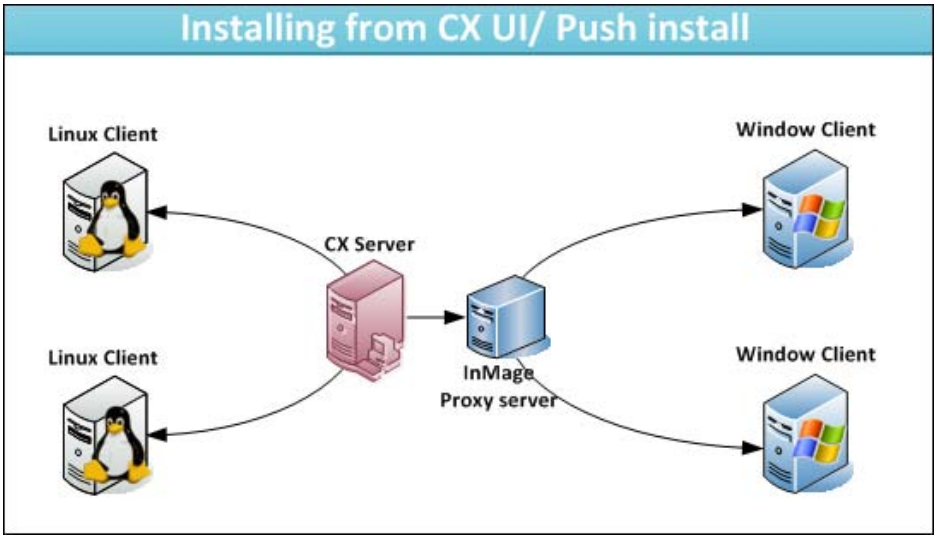

Figure 80: Installing Agent from CX UI

6.5.2 Install Hitachi Dynamic Replicator proxy

Step 76. You may install the Hitachi Dynamic Replicator Proxy server either on a separate box or any of the windows clients where you intend to perform an agent install. Execute the "**Win_proxy_setup.exe**". The first screen appears, click "**Next"**

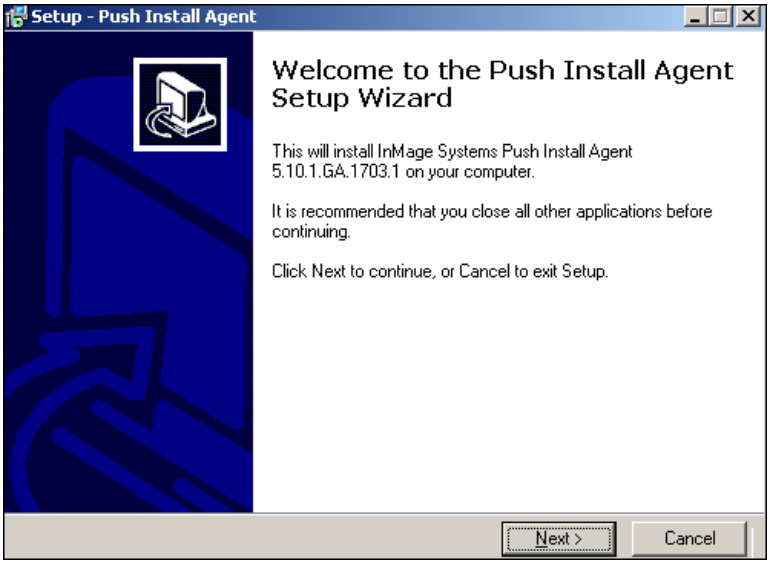

Figure 81: Push Install Agent

Step 77. Enter the CX server's IP address then enter the HTTP port on which CX UI is accessible. Enter the user domain user name and password then click on "**Next"**

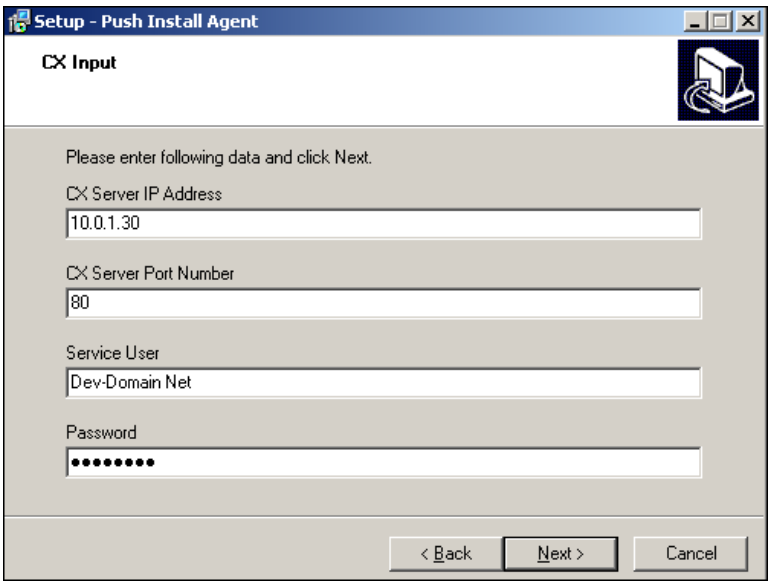

Figure 82: Push Install Agent

Step 78. Click "**Next"** to install proxy server on the default location. You can change the installation location through **"Browse"** tab.

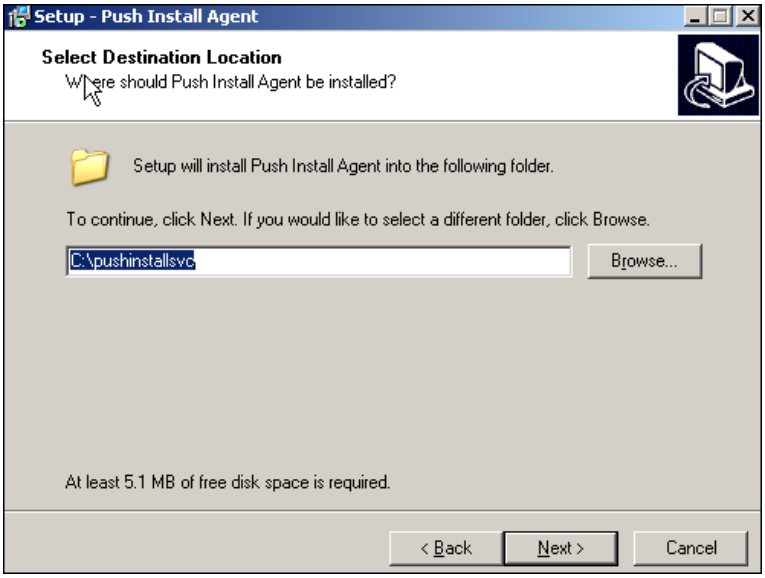

Figure 83: Push Install Agent

Step 79. Click on "**Install"** to start installing the proxy server.

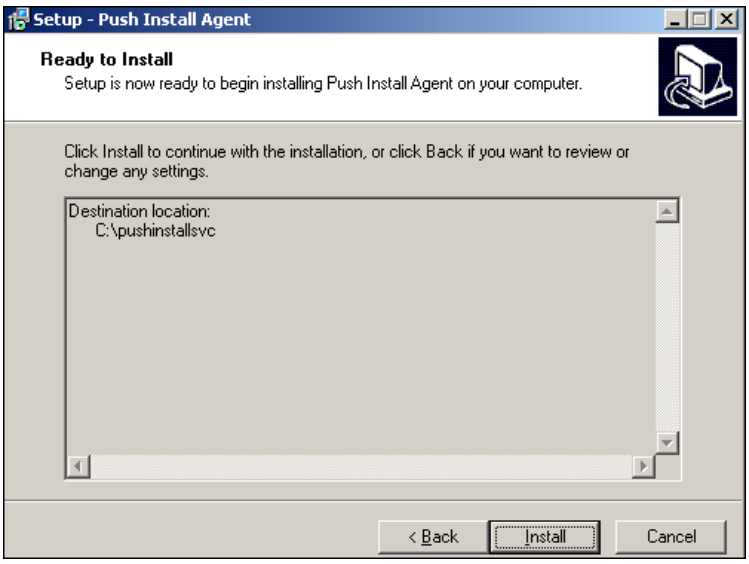

Figure 84: Push Install Agent

Step 80. The last screen appears after Click "**Finish"** to exit the installer

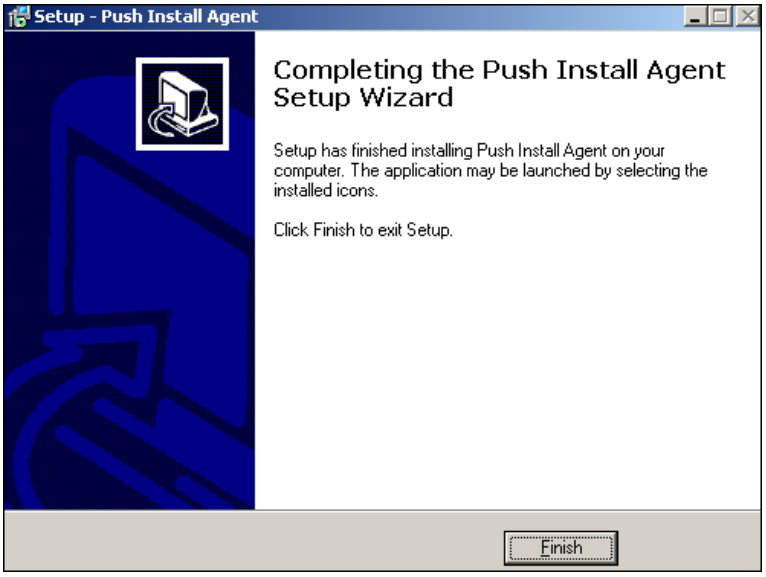

Figure 85: Push Install Agent

Notes:

Ensure that the required unified agent installer is uploaded to the CX Server.

6.5.3 Install through CX UI

To install agents through CX UI do the following:

Step 81. Access the CX UI and then navigate to "**System-> Installers".** You should now see the **"Manage"** and **"Settings**" tabs. Click **"Settings".**

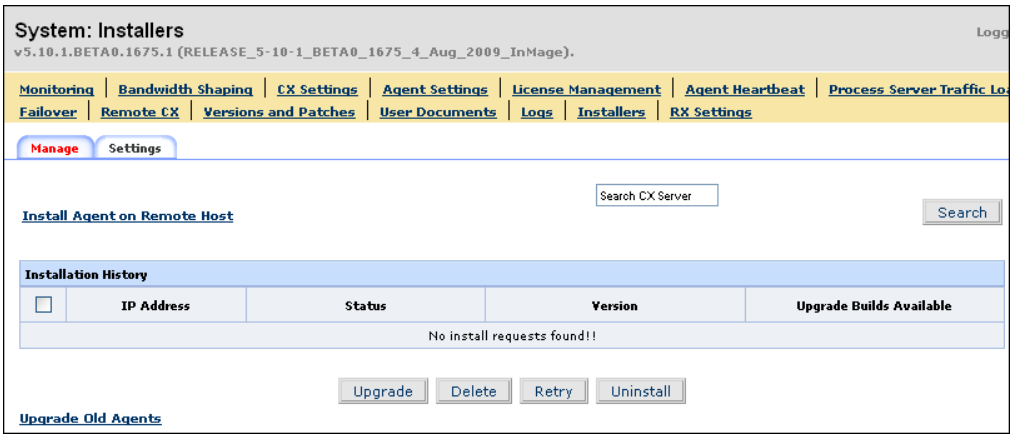

Figure 86: Installers-Manage Tab

Step 82. To install the unified agent on windows clients you will need to select the Hitachi Dynamic Replicator proxy server from "**choose a push server for installation**" drop down. For installing unified agent on Linux hosts you do not need to select a proxy server.

Step 83. Upload the desired installers through **"Upload Installers"**.

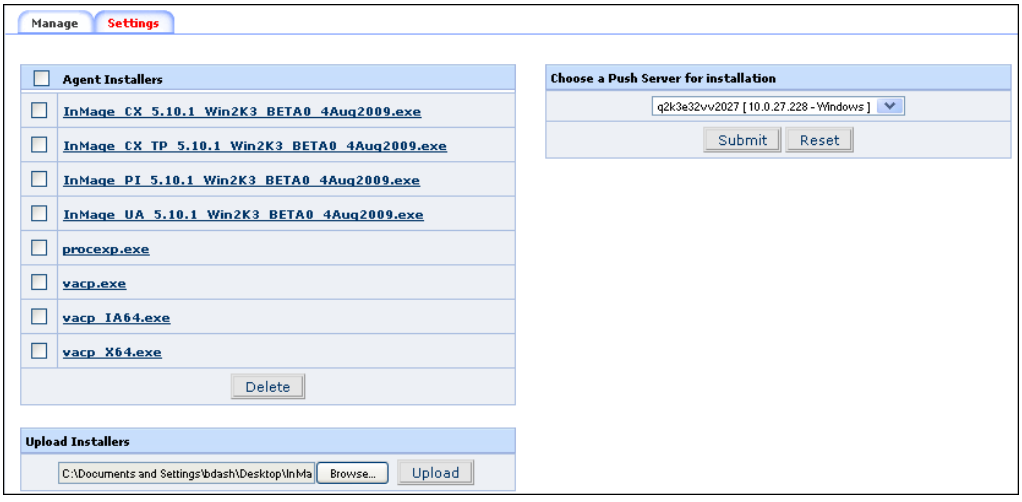

Figure 87: Installers-Settings Tab

Step 84. Click **"Manage"** tab, and then click "**Install Agent on Remote Host**"

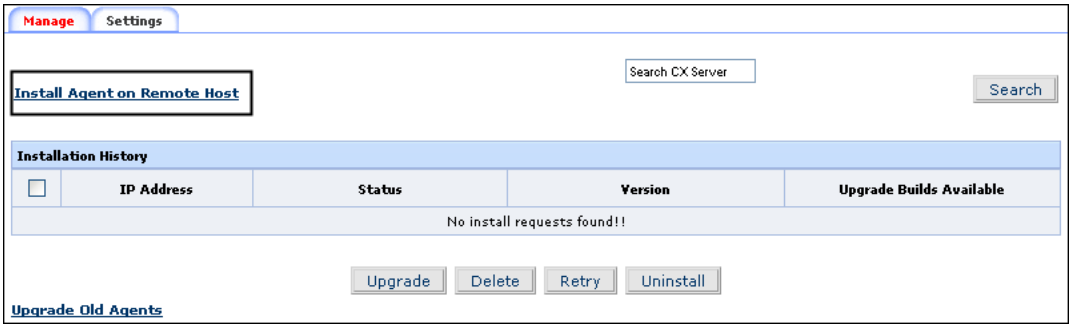

Figure 88: Install Agent on Remote Host

Step 85. The interface changes to a three step process to install the unified agent from the CX UI.

- Select the desired OS type as Windows or Linux from the drop down.
- Enter the range of IP address
- Enter the host name when you want to install only on a single machine. You do not need to mention the IP range while installing on only one machine.
- Enter the name of the domain
- Enter the user name for the "**Remote Server User Name"** field
- Enter the corresponding user's password for the "**Remote Server Password**" and click "**Discover"**

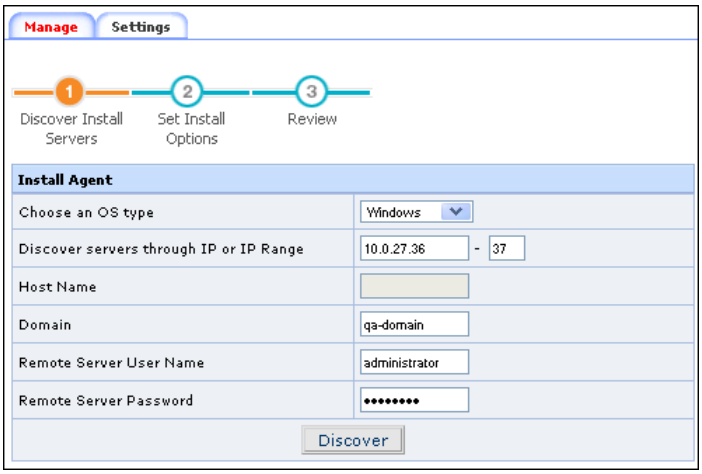

Figure 89: Agent Installers

Step 86. The list of clients is displayed as a search result. Check the required IP address to install agents. Click **"Next".**

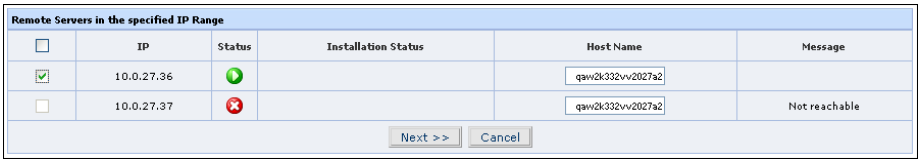

Figure 90: Agent Installers

Step 87. Check the box for **"Reboot Required".** Click **"Next".** This will reboot the client machine

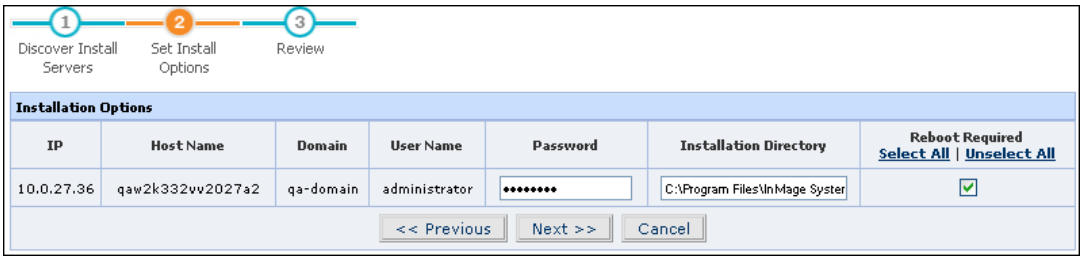

Figure 91: Agent Installers

Step 88. Check the required IP address for agent installation and click **"Submit".**

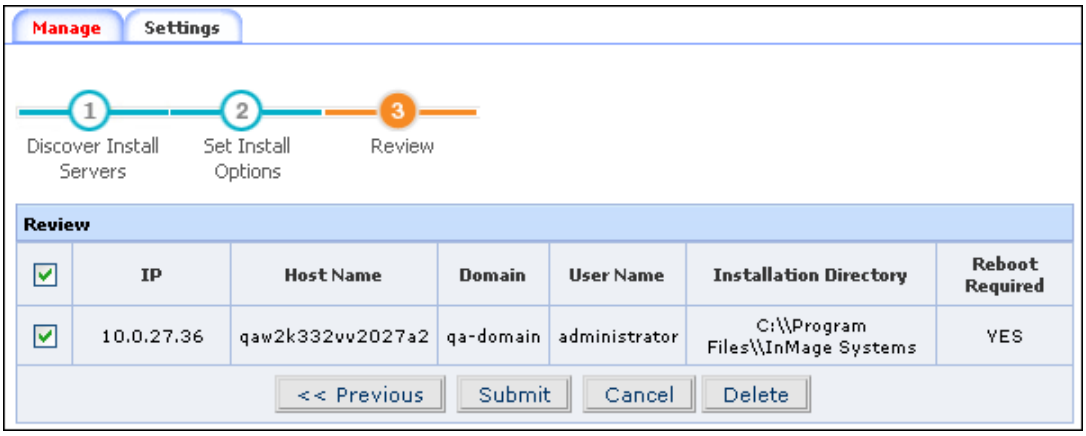

Figure 92: Agent Installers

Step 89. The successful installation will display the **"Installation Completed"** message as shown below.

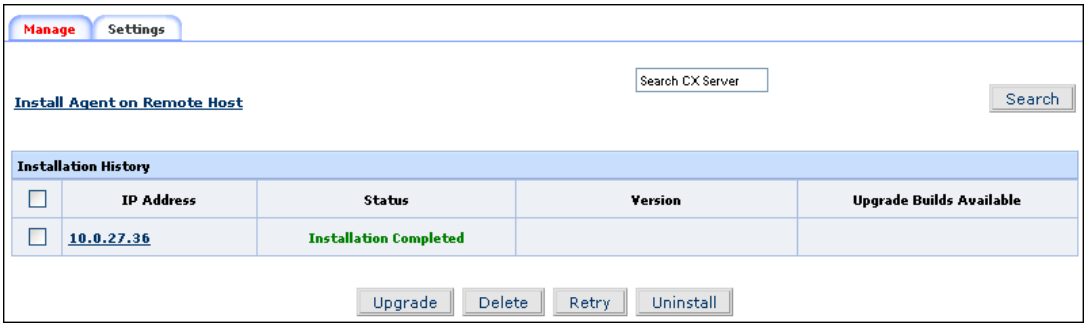

Figure 93: Agent Installation Completed

Step 90. To view the installation details click the IP address of the required agent. You will able to see the details as shown below.

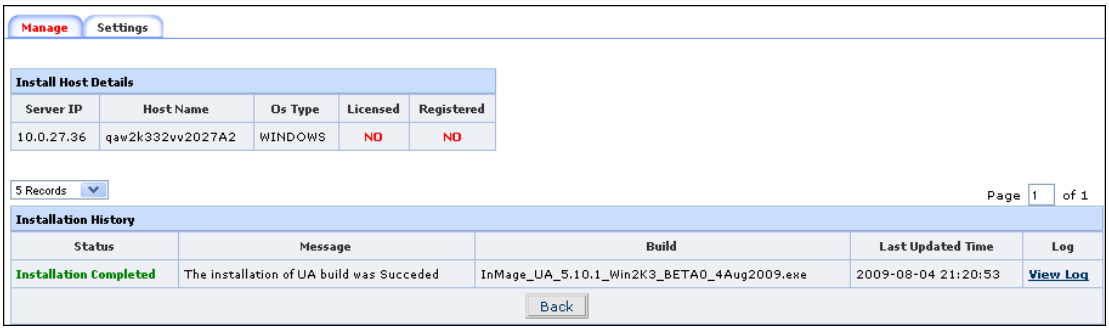

Figure 94: Installed Agent Details

To view log details click "**View Log**" in the above UI.

Notes:

Push installation through CX UI is supported for both Linux and Windows agent on windows CX server, where as push installation for Windows agent is not supported for Linux CX server.

When a machine has older agents, you can use the "Upgrade old agents" link to upgrade them.

6.5.4 Uninstalling Push agent

To uninstall the "**Push Install Agent**" do the following:

Step 91. Navigate to **"Start→Programs→InMage Systems→Push Install".** Click "Uninstall Agent".

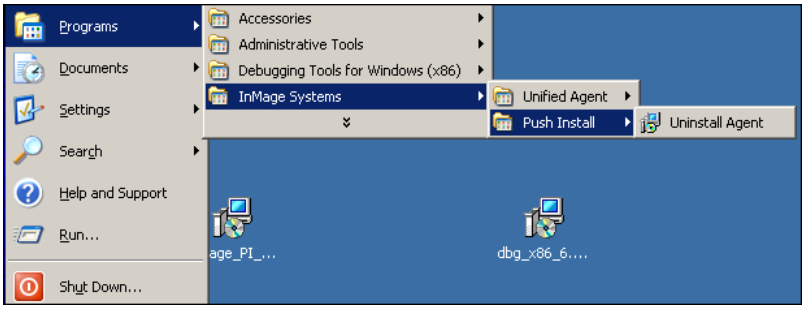

Figure 95

You will be prompted for a confirmation, choose "Yes" to uninstall the "**Push Agent**" from your CX UI.

Caution:

For Unix gunzip and scp must be installed at system's default path, added to $PATH variable and mut be added in ./etc/profile.

7 CX High Availability

7.1 Uncompress the CX HA installer

Before installing HA ensure that all the configuration servers, VX agents and FX agents are pointed to the cluster IP address rather than the individual CX.

This will require two separate identical systems. After installing the primary CX server, proceed to install the CX HA (high availability) binaries which are bundled separately. Uncompress the HA binary. This can be done by the following command

`tar -xvzf <name of the HA binary>`

```
[root@R5U1HA1 ~]# cd /home/installer/
[root@R5U1HA1 installer]# ls
InMage_CX-HA_5.10.1_RHEL5U1-64_BETA0_06Aug2009.tar.gz
[root@R5U1HA1 installer]# tar -xvzf InMage_CX-HA_5.10.1_RHEL5U1-64_BETA0_06Aug20
09.tar.gz
ha_module/
ha_module/nodentwd
ha_module/haupgrade42to50.pl
ha_module/node_ntw_fail
ha_module/Constants.pm
```

Figure 96: Un-compressing CX HA binary

You will find a folder "**ha_module"** containing all the HA installation files and two tar files, one for installing the FX agent while the other for installing the CX server.

```
[root@R5U1HA1 installer]# ls
ha_module
InMage_CX_5.10.1_RHEL5U1-64_BETA0_06Aug2009.tar.gz
InMage_CX-HA_5.10.1_RHEL5U1-64_BETA0_06Aug2009.tar.gz
InMage_FX_5.10.1_x86_64_RHEL5U1-64_BETA0_06Aug2009_release.tar.gz
install_ha.sh
unified_uninstall.sh
```

Figure 97: Un-compressing CX HA binary

7.2 Fresh installation

Step 92. Start the "**install_ha.sh**" script to start the install process. The installer first checks for existing versions of CX server. When there are no older CX versions present, you will be prompted to install a fresh CX server.

```
[root@R5U1HA1 installer]# ./install_ha.sh
Checking for an existing CX server installation ...
CX server should be installed for starting the HA Installation ...
Do you want continue with CX Installation...? (Y|N) default:(N)
y
Checking if RX server is already installed or not in the setup ...
Checking for installation platform compatibility ...
Checking for an existing CX server installation ...
End User Software License Agreement

This is a legal agreement between Customer and InMage Systems, Inc. ("InMage").
 YOU MUST READ AND AGREE TO THE TERMS OF THIS END USER SOFTWARE LICENSE AGREEMEN
T ("AGREEMENT") BEFORE ANY SOFTWARE CAN BE DOWNLOADED OR INSTALLED OR USED.  BY
CLICKING ON THE "ACCEPT" BUTTON OF THIS AGREEMENT, OR DOWNLOADING, INSTALLING OR
 USING THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS AND CONDITIONS OF
```

Figure 98: HA Installation

Step 93. The CX server will be installed first. You will be prompted to install the CX configuration server or the process server or both. Ensure that you select option 3 to install both the CX and PS on the same machine.

```
Do you agree to the above-displayed terms and conditions? : [Y|N] y

    You can install the following  :

    1. CX-Configuration Server
    2. CX-Process Server
    3. Both

Please make your choice (1 or 2 or 3) here : 3
Enter Configuration Server port [default 80]:
```

Figure 99: HA Installation

Step 94. You will be presented with the list of NICs present on the machine. Choose the NIC to be used by the CX server.

Step 95. You will be asked to enter the CX server's IP address. Ensure that you enter a clustered IP address here rather than the CX IP address. A clustered IP address is a common IP address for both the primary and secondary CX servers. You will need to enter the same clustered IP address while HA is being installed.

```
  The following master/free NICs were detected as active on this system:

       1 : eth0 10.0.161.98

  The network device and IP address present on the system are : eth0 and 10.0.16
1.98

From function SetNICDetails of install.sh - Modified amethyst.conf successfully
Generating host guid afresh ...
Please enter the IP address of the Configuration Server here : 10.0.161.100
```

Figure 100: HA Installation

Step 96. After the CX server is installed, the installer proceeds installing the HA binaries. During installation you will be prompted for six inputs as marked in the picture below.

- Host name for primary node: Enter the primary CX server's complete host name
- Host name for secondary node: Enter secondary CX server's complete host name
- Multicast group IP address: Enter a multicast group IP address. This should be used only by the primary and secondary CX servers. Other CX cluster servers should use a different multicast IP address. A multicast IP address range from 224.0.0.0 to 239.255.255.255 can be used when prompted for an input
- For hosts with more than one NIC, enter the desired NIC.
- IP address of a ping node: A common IP address that can be pinged by both primary and secondary CX servers. If the active node (primary CX server) cannot ping to this node then a failover is performed to the secondary CX server.
- Cluster IP address: Enter an unused IP address. Going forward this IP address will be used to access the CX server. Recall that the same IP address was given while installing the CX server in the previous step.

```
Starting the installation of the HA CX server
Preparing...                ########################################### [100%]
   1:heartbeat-pils         ########################################### [100%]
Preparing...                ########################################### [100%]
   1:heartbeat-stonith      ########################################### [100%]
Preparing...                ########################################### [100%]
   1:heartbeat              ########################################### [100%]
Taking the backup of the existing /home/svsystems/admin/web/config_menu.php.
Copying the CX HA related config_menu.php.
Checking for Linux HA packages
heartbeat-pils... OK
heartbeat-stonith... OK
heartbeat-2.0... OK
Configuring Linux HA...
Enter hostname of primary node: R5U1HA1
Enter hostname of secondary node: R5U1HA2
Enter multicast group IP address: 239.0.0.30
Enter network interface: eth0
Enter IP address of ping node [ Please choose an IP which is highly available fo
r ping node ]: 10.0.0.5
Enter cluster IP address: 10.0.161.100
Stopping High-Availability services:
                                                           [  OK  ]
logd is already stopped
```

Figure 101: HA Installation

Notes:

You can edit the file ha.cf or haresources in /etc/ha.d for any wrong input for CX HA installation. For Primary Node host name and Cluster IP address edit both ha.cf and harecources files. For Secondary Node host name, Multi cluster IP address, Network Interface and Ping Node IP address edit only ha.cf file.

Step 97. Finally the FX agent is installed; you will be prompted for the install location, to start the FX agent on reboot and to start the FX agent after install. Choose accordingly and the installation should proceed to completion. Ensure that the FX agent is set to start after reboot.

```
Where do you want to install the InMage FX Agent (default /usr/local/InMage) :

Deployment directory for this FX instance : /usr/local/InMage/Fx


Installing the RPM package InMageFx-5.10-1 into /usr/local/InMage/Fx/

New RPM package InMageFx-5.10-1 has been successfully installed...
CX server seems to be installed in this machine ...
HostId is present in the amethyst.guid file ...
Using this for FX agent too ...

Do you want to start InMage FX Agent (Y/N) ? [Y] :y
Starting InMage FX Agent daemon.....
Running the command :
/usr/local/InMage/Fx/svfrd /usr/local/InMage/Fx/sv.log /usr/local/InMage/Fx/config.ini

Installation process has finished.
[root@R5U1HA1 installer]#
```

Figure 102: HA Installation

Notes:

A multicast address is associated with a group of interested receivers. According to RFC 3171, addresses 224.0.0.0 to 239.255.255.255 are designated as multicast addresses

Now switch on to the secondary CX server to repeat the same process. The configuration will be exactly the same as mentioned above with the same values. Once HA installation is complete on the backup CX server then confirm that the CX and HA services are running on both the primary and backup CX servers

Caution:

When NICs are bonded after installing the CX HA binaries, you will need to edit the file "**/etc/ha.d/ha.cf**" and change the line
`mcast eth0 239.0.0.2 694 1 0` (if eth0 is used) to
`mcast bond0 239.0.0.2 694 1 0` (to reflect bonded NIC)
Ensure that you reload the HA services for the new change to take effect using the command "**service heartbeat reload**"

7.3 Adding HA to existing CX

This section describes steps involved in installing CX High Availability also called CX HA on an existing CX server. This will require an additional box identical to the primary CX to be deployed alongside the primary node (existing CX server).

This is achieved in three steps:

Install CX HA
Install the CX HA on the primary and secondary nodes

Configure Agents
Point all VX and FX agents to the clustered IP address

Post installation tasks
Restart the tmanagerd service on the primary and secondary nodes

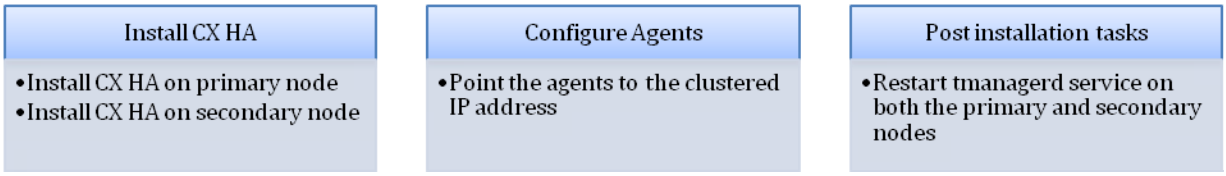

Figure 103: CX HA Up-gradation Sequence

Before you begin

- Determine the cluster IP address to be used.
- Ensure that the same installer is used on both the primary and secondary nodes.
- Ensure both nodes have the same time.

7.3.1 Install CX HA on primary node

Phase 1: Checking/Installing CX Server

The installer will check for an existing CX server and skip installing the CX server when an updated version is found.

```
[root@imits145 Installers]# ls
InMage_CX-HA_5.10.1_RHEL5U1-64_GA_07Sep2009.tar.gz
[root@imits145 Installers]# tar -xvzf InMage_CX-HA_5.10.1_RHEL5U1-64_GA_07Sep2009.tar.gz
ha_module/
ha_module/nodentwd
ha_module/haupgrade42to50.pl
ha_module/node_ntw_fail
ha_module/Constants.pm
ha_module/db_sync_src_pre_script.pl
ha_module/setresync
```

Figure 104: HA Installation

Phase 2: Installing CX HA

CX HA is installed in the second phase, you will be prompted for six inputs during this phase

- Host name for primary node: Enter the primary CX server's complete host name
- Host name for secondary node: Enter secondary CX server's complete host name
- Multicast group IP address: Enter a multicast group IP address. This should be used only by the primary and secondary CX servers. Other CX cluster servers should use a different multicast IP address. A multicast IP address range from 224.0.0.0 to 239.255.255.255 can be used when prompted for an input
- For hosts with more than one NIC, enter the desired NIC.
- IP address of a ping node: A common IP address that can be pinged by both primary and secondary CX servers. If the active node (primary CX server) cannot ping to this node then a failover is performed to the secondary CX server.
- Cluster IP address: Enter an unused IP address. Going forward this IP address will be used to access the CX server. Recall that the same IP address was given while installing the CX server in the previous step.

```
[root@imits145 Installers]# ./install_ha.sh
Checking for an existing CX server installation ...
Latest CX Server is present continuing with the HA Installation ...
Starting the installation of the HA CX server
Preparing...                ########################################### [100%]
   1:heartbeat-pils         ########################################### [100%]
Preparing...                ########################################### [100%]
   1:heartbeat-stonith      ########################################### [100%]
Preparing...                ########################################### [100%]
   1:heartbeat              ########################################### [100%]
Taking the backup of the existing /home/svsystems/admin/web/config_menu.php.
Copying the CX HA related config_menu.php.
Checking for Linux HA packages
heartbeat-pils... OK
heartbeat-stonith... OK
heartbeat-2.0... OK
Configuring Linux HA...
Enter hostname of primary node: HA1R5U1
Enter hostname of secondary node: HA2R5U1
Enter multicast group IP address: 239.0.0.3
Enter network interface: eth0
Enter IP address of ping node [ Please choose an IP which is highly available for ping nod
e ]: 10.0.0.5
Enter cluster IP address: 10.0.161.102
Stopping High-Availability services:
```

Figure 105: HA Installation

Notes:

A multicast address is associated with a group of interested receivers. According to RFC 3171, addresses 224.0.0.0 to 239.255.255.255 are designated as multicast addresses

Phase 3: Installing FX agent

The FX agent is installed in the last phase of the install. You will be prompted for the location where the FX agent is to be installed

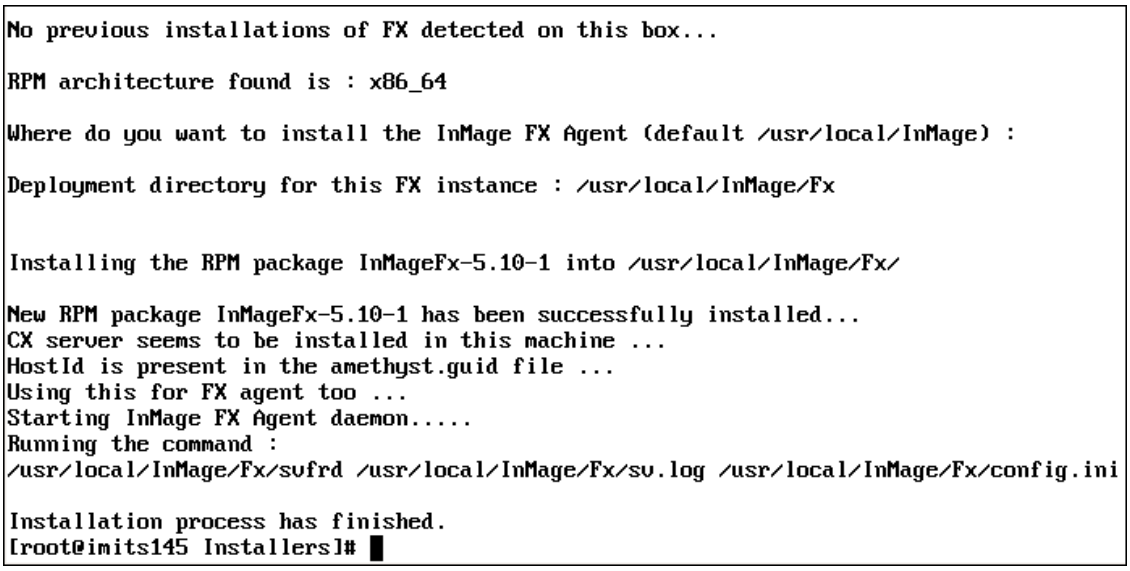

Figure 106: HA Installation

7.3.2 Install CX HA on secondary node

Switch to the secondary node and install the CX HA, since there is no CX server present here, the CX HA installer will start by installing the CX server. You will be prompted for five inputs while installing the CX server.

- Accept the license agreement to proceed.
- Choose the option number 3 to install both the configuration and process servers
- Ensure that you enter the same configuration port number for the secondary node (as entered for the primary node).
- Choose the network card to be used
- Finally enter the configuration server's IP address. Ensure that you enter the clustered IP address here and not the actual secondary node's IP address.

You should see the installer installing CX HA. Ensure that you enter the exact same inputs as in the primary node.

Notes:

After adding HA to the existing CX, If any PS is pointed to CS earlier then DB_Host and CS_IP values in amethyst.conf should be changed to CX-HA Cluster IP.

7.3.3 Configure agents

Point agents to clustered IP address

Access the agent machines command prompt and navigate to the VX agent install path to open the host configuration interface through the "**hostconfigcli"** script.

Through the Global tab, point the agent to the clustered IP address. Similarly repeat the process for all the VX agents

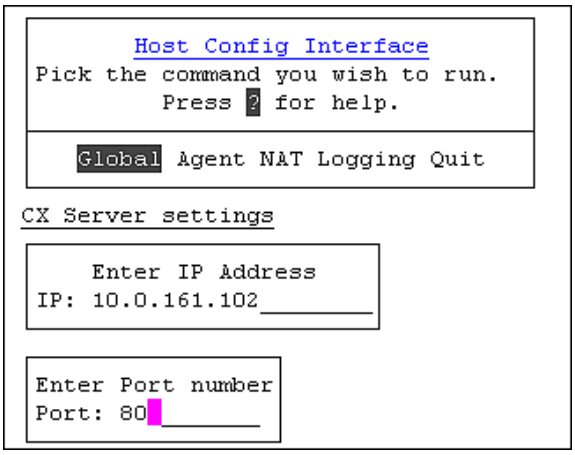

Figure 107: Host Configuration

7.3.4 Post installation tasks

Restart the tmanagerd service on both the primary and secondary nodes using the following command

```
Service tmanagerd restart
```

To check the HA service use the "**`/etc/init.d/heartbeat status`**" command. To check the CX services use the command "**`/etc/init.d/tmanagerd status`**". Both the commands will give the list of services and their respective states. If any service is stopped, start them and verify if all of them are up and running.

Notes:

After upgrading CX HA, the replication pairs show that a resync is required, you may perform a resync at a later time.

7.4 Upgrade HA

Before upgrading CX HA:

- Stop the database sync FX job
- Update the passive node followed by active node.

To update the existing HA to new version of HA, copy the installers to the required installation path.

Step 98. Un-compress the installers using "**`tar -xvzf <`***name of the installer***`>`**" command.

```
[root@C5U164BG1O58CX 5.1GAHA]# ls
InMage_CX-HA_5.1O.1_RHEL5U1-64_GA_1OSep2009.tar.gz
[root@C5U164BG1O58CX 5.1GAHA]# tar -xvzf InMage_CX-HA_5.1O.1_RHEL5U1-64_GA_1OSep
2009.tar.gz
ha_module/
ha_module/nodentwd
tar: ha_module/nodentwd: time stamp 2009-09-10 00:44:50 is 27950 s in the future
ha_module/haupgrade42to50.pl
tar: ha_module/haupgrade42to50.pl: time stamp 2009-09-10 00:44:50 is 27950 s in
the future
ha_module/node_ntw_fail
tar: ha_module/node_ntw_fail: time stamp 2009-09-10 00:44:50 is 27950 s in the f
uture
ha_module/Constants.pm
tar: ha_module/Constants.pm: time stamp 2009-09-10 00:44:50 is 27950 s in the fu
```

Figure 108

Step 99. Execute the command "**install_ha.sh**". It will detect for existing HA and ask to upgrade it. Just hit "Y" to it. It start the HA upgrade process.

```
[root@C5U164BG1O58CX 5.1GAHA]# ./install_ha.sh
Checking for an existing CX server installation ...

Scout CX server is already installed in this setup ...
Would you like to proceed with an Upgrade ? (Y|N) default:(N)
Y
Starting the Upgrade process ...
```

Figure 109

Step 100. Start the database sync job back.

7.5 Uninstall HA

To uninstall HA do the following:

Step 101. Navigate to the directory where the CX HA was uncompressed

Step 102. Execute the **"unified_uninstall.sh"** script.

Step 103. You will be prompted for confirmation to remove HA, hit **"Y"** to uninstall or **"N"** to abort uninstalling. The FX agent will be uninstalled first

```
[root@imits145 Installers]# ./unified_uninstall.sh
 Do you really want to uninstall HA server? [Y/N] [ default N ] :
y

Stopping InMage FX Agent...
Killing SVFRD process 29493 ...

Removing the RPM package InMageFx-5.10-1 ...
RPM package InMageFx-5.10-1 was successfully removed from the machine.
Removing /usr/local/.fx_version...
Removing /usr/local/.fx_build_manifest...
```

Figure 110: Un-install HA

Step 104. You will be prompted for confirmation to remove the HA server , hit **"Y"** to uninstall or **"N"** to abort uninstalling.

```
 Do you really want to uninstall HA server? [Y/N] [ default N ] :
y
grep: /usr/local/.fx_version: No such file or directory
Stopping HA services ...
Stopping High-Availability services:
                                                           [  OK  ]
Reverting the file config_menu.php which is installed in the path /ho
b/
Removing HA packages ...
Removing HA config files ...
Starting MySQL:                                            [  OK  ]
Starting httpd:
```

Figure 111: Un-install HA

Finally you will be prompted to uninstall the CX-CS and CX-PS.

```
 Do you really want to uninstall the CX-Configuration and CX-Process Servers ? [Y/N] [ def
ault N ] :
y
Stopping services ...
Stopping inmsync                                           [  OK  ]
Stopping mrtg                                              [  OK  ]
Stopping file replication                                  [  OK  ]
Stopping BPM Module                                        [  OK  ]
Stopping disk monitor thread                               [  OK  ]
```

Figure 112: Un-install HA

8 Firewall configuration

You can configure your firewall to enable access to the required ports by Hitachi Dynamic Replicator- Scout VX and FX agents. This is a quick reference guide and helps you to configure your firewall.

The following figures show the ports that are used by Hitachi Dynamic Replicator- Scout VX and FX agents and the CX server. If your setup uses a firewall or an equivalent device at either the source or target machine, ensure that you configure the firewall to enable access to the required ports.

Hitachi Dynamic Replicator- Scout uses TCP/IP infrastructure for local and remote data protection. When used for local CDP based protection, both data and configuration communications typically happen over the LAN. When used to implement a remote Disaster Recovery solution, the data and configuration communications happen both over the LAN and the WAN links. The following sections detail the nature of the communications between the VX and FX agents and the CX server.

8.1 VX Agent communications

The source and target VX agents never communicate to each other directly. All the communications between the source and the target VX agents happen through the CX server. This means that the source and target VX agents are essentially unaware of each other.

The VX agents communicate configuration and status information to the CX server over the HTTP protocol. The default out of the box configuration uses HTTP over standard port 80. The source and target VX agents use FTP/FTPS as the data transfer protocol to send and receive data from the CX server. The target VX agents additionally can open connections to port 873 (RSYNC) of the CX server when using offload resync.

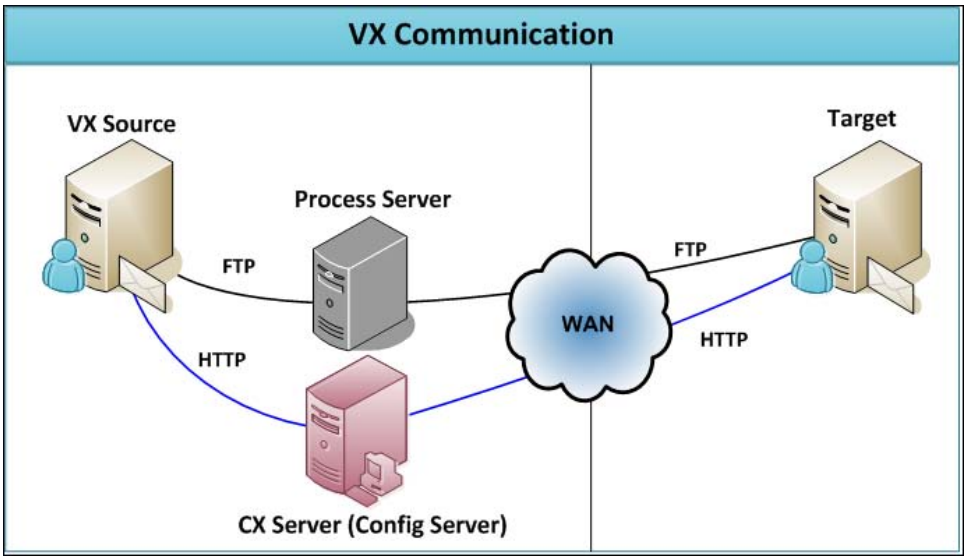

Figure 113: VX communication

HTTP and FTP/FTPS protocols were explicitly chosen as the communication protocols due to their firewall friendly nature. Almost all stateful firewalls come with rules predefined for both HTTP and FTP/FTPS (i.e., there is no need to open a range of ports specifically).

8.2 Active Vs passive FTP

The FTP protocol comes in two flavors, Active and Passive. Active FTP uses fixed ports 20 and 21 on the server side (CX Server). This makes it suitable for environments in which the server side has to be secured well, presumably from unsafe outside client (VX target) access. In the absence of a stateful firewall, the VX target side would have to open up all the ports above 1024 to unsolicited connections from the CX server in order for the protocol to work. In Active, the server initiates connections and the client for the data port.

In Passive, FTP clients initiate all connections, thus no client side firewall settings need to be configured. The clients, however, do need to be able to access port 21, and all ports greater than 1024 on the server side (CX Server).

By default, Hitachi Dynamic Replicator- Scout uses passive FTP connections.

8.3 Restricting passive FTP port range usage

In order to limit the range of ports greater than 1024 to be opened up to all client access, the CX Server can be configured to use a fixed range of ports. This can be done by editing the "**proftpd.conf" file** under "**/etc**" by adding an extra line to the configuration file as shown below.

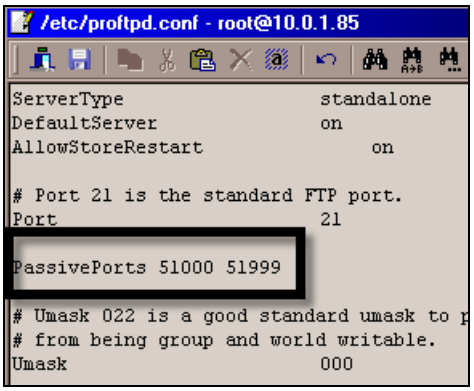

Figure 114: FTP Port Range

The port range is from 51000 to 51999. A service restart is required to see the changes in action. The command "**/etc/init.d/proftpd restart"** performs a service restart. Confining passive FTP to a pre defined set of ports reduces security risk when a stateful firewall is not present and ports ranges have to be specifically opened.

8.3.1 Switching to active FTP

Hitachi Dynamic Replicator- Scout also allows for using Active FTP as the default data transfer protocol. This can be set in the CX UI by navigating to "**System-> CX settings**". The "**FTP Mode**" offers a choice to switch on to "**Active**" while the default is "**Passive"** as shown in the picture below. Select "**Active**" and click on **"Submit".**

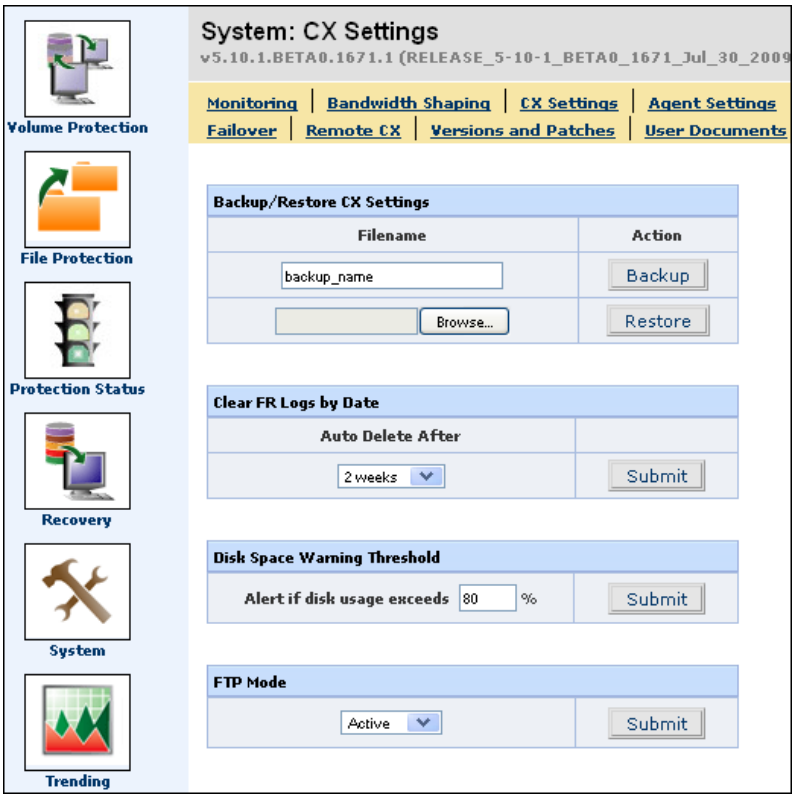

Figure 115: Active FTP

8.3.2 FX Agent communications

The FX agents communicate configuration and status information to the CX server over the HTTP protocol. The source and target FX (unlike the VX) agents communicate directly to each other. The data transfer occurs directly between the source and target FX agents without any intervention of the CX server. The data transfer protocol by default is a single socket connection to port 874 of the source or target. Depending on the FX jobs push/pull configuration setting refer to "**miscellaneous options"** under "**Creating job groups and jobs**".

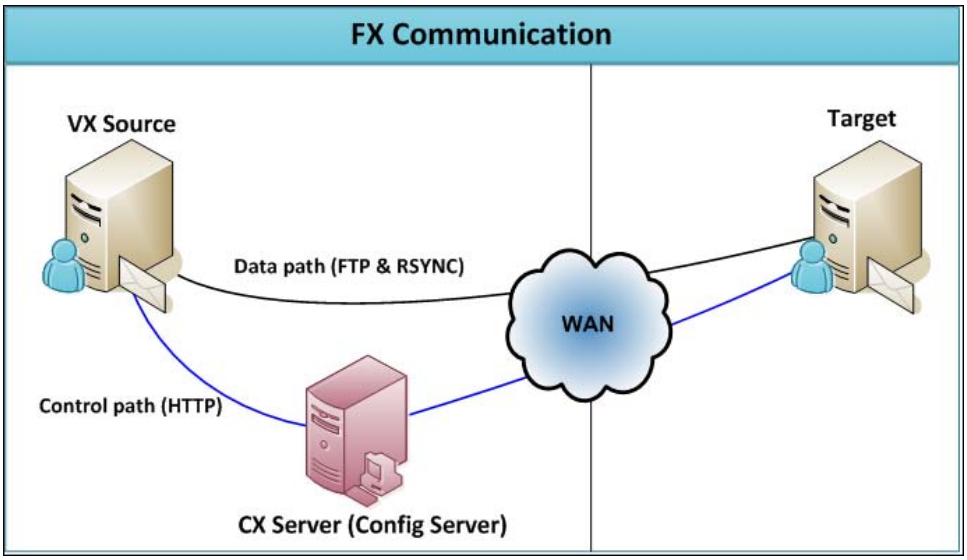

Figure 116: FX Agent Communications

8.4 User interface communications

The Hitachi Dynamic Replicator- Scout user interface is web based and access to the web based interface is through a HTTP server running on port 80 on the CX server.

8.4.1 Firewall configuration summary

The following table summarizes the firewall rules that need to be configured for Hitachi Dynamic Replicator- Scout to function correctly.

Table 13: Firewall configuration

Purpose	CX	Source VX	Target VX	Source FX	Target FX
User Interface	Inbound HTTP (Default: TCP Port 80)	N/A	N/A	N/A	N/A
Configuration	Inbound HTTP (Default: TCP Port 80)	N/A	N/A	N/A	N/A
VX Data (Passive Mode)	Inbound FTP Or TCP (21 + configured Passive port range)	N/A	N/A	N/A	N/A
VX Data (Active Mode)	Inbound FTP Or TCP (20 + 21)	Outbound FTP or (>1024)	Outbound FTP or (>1024)	N/A	N/A
VX Offload Resync	Inbound TCP Port 873	N/A	N/A	N/A	N/A
FX Data (Push)	N/A	N/A	N/A	N/A	Inbound TCP Port 874
FX Data (Pull)	N/A	N/A	N/A	Inbound TCP Port 874	N/A

Optionally port 162 can be allowed through the firewall for SNMP traffic.

8.4.2 Additional firewall configuration for Hitachi Dynamic Replicator- Scout deployment

You should enable the following ports for configuring and remote deployment of Hitachi Dynamic Replicator- Scout during installation and deployment:

Table 14: Additional firewall support

For Unix Target/Source	Secure Shell SSH (Port: 22) Or VNC server with VNC Viewer (Port: 5500)
For Windows Target/Source	Remote Desktop Connection or Terminal Client(3389) or PC Anywhere (TCP 5631 ,UDP 5632)

9 Host configuration

9.1 Host agent configuration on Windows

To configure the host agent navigate to **"Start→Programs→InMage Systems→Unified Agent→Agent Configuration"**, as shown in the following.

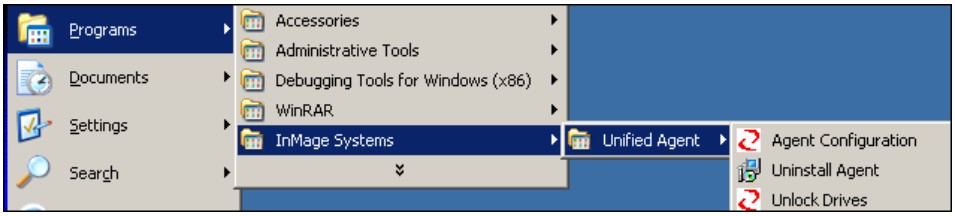

Figure 117: Agent Configuration Tab

The **"Global"** tab has following fields:
Enter IP Address: Enter CX IP address
Enter Port number: Enter http port number, default is port 80
Enable Fixed NAT Hostname: Enable the option to enter the NAT hostname.
Enable Fixed NAT IP Address: Enable the option to enter the NAT IP address next to it.
Click on **"Apply",** applies the changes, and still keep the agent configuration window open.

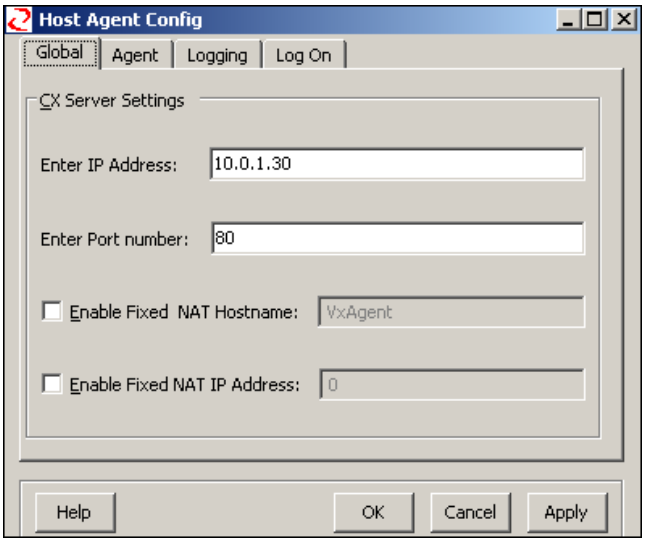

Figure 118: Host Agent Configuration-Global Tab

"Agent" tab has the application cache folder and this is where it may be altered. Checking the **"System and Cache Volumes Registration"** exposes the system volumes to the CX UI. For example C volume is seen in the CX UI.

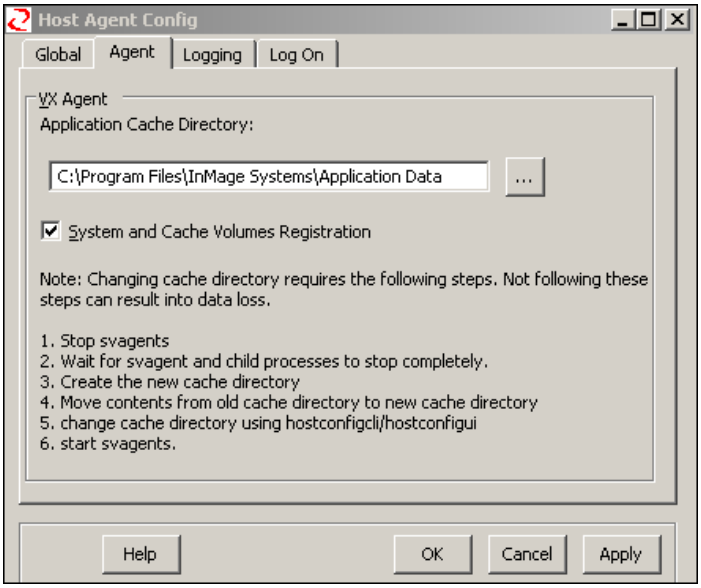

Figure 119: Host Agent Configuration: Agent Tab

Through **"Logging"** tab you will be able to configure VX logging options. Local logging is of two types: "Debug Viewer", and "Debug Log". By default the remote logging is set to 3 and local logging is set to 0. You can change it through scrolled button.

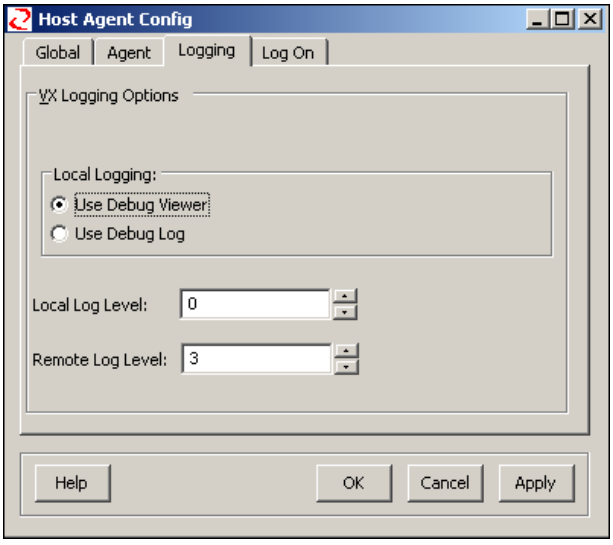

Figure 120: Host Agent Configuration-Logging Tab

The table given below explains log levels

Table 15: Log level and severity of messages

Debug Log Level	Severity of Messages logged into the log file
0	Logging is disabled
1	Only FATAL messages are logged
2	Only FATAL and severe messages are logged
3	Only FATAL, severe and error messages are logged
4	Only FATAL, severe, error and warning messages are logged
5	Only FATAL, severe, error, warning & info messages are logged
6	Only FATAL, severe, error, warning, info & debug messages are logged
7	All messages will be logged

To invoke the agent configuration execute the file "**hostconfigwxwin.exe**" under the agent installation folder.

Through "Log On" tab you can configure FX Agent Log on. Choose "Local System Account" to install FX agent on local system. To install FX agent on different system other than the local system, click "This Account" button and give Login Name and Password for the system.

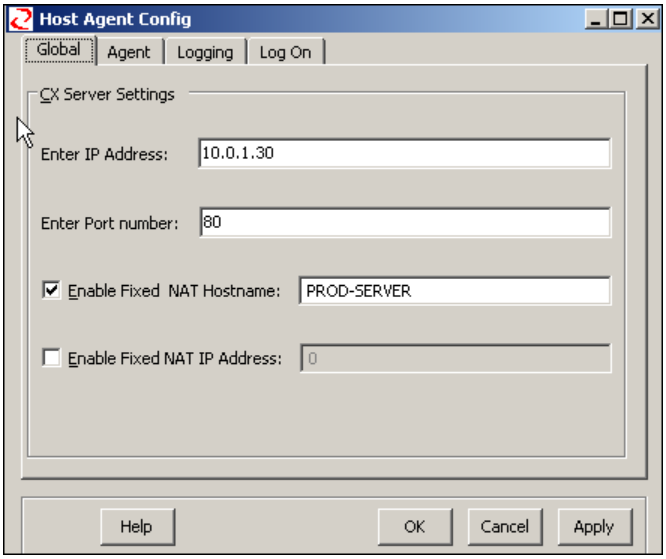

Figure 121: Host Agent Configuration-Log On Tab

9.2 Host agent configuration on Linux

To configure host agent Unified Agent on a Linux platform, you have to configure VX and FX hosts separately.

To configure FX agent, go to "**/usr/local/InMage/FX**" and edit open the file config.ini, and edit the FX Agent IP ID in this.

To configure VX agent go to **"/usr/local/InMage/VX/bin**" and execute the command "**./hostconfigcli**". Change the default CX Server IP address to the required one.

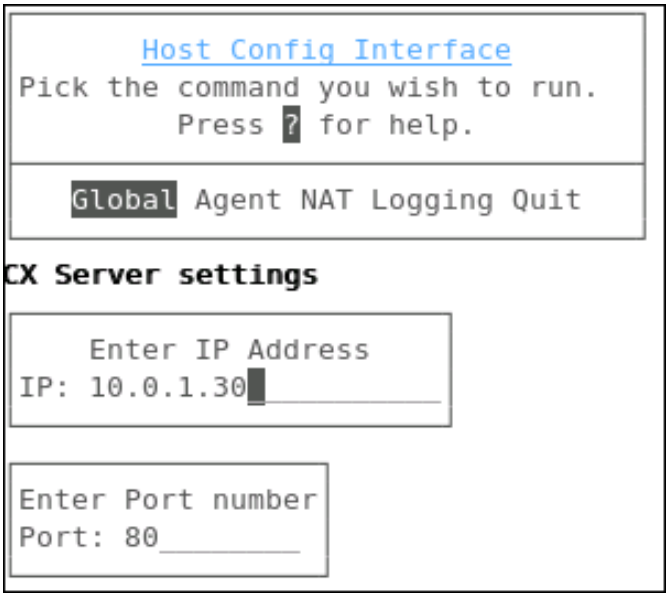

Figure 122: Host Agent Configuration

10 Bypassing Hitachi Dynamic Replicator Driver

If there is system crash (on VX agent side with blue screen errors) due to unstable driver then the driver can be deactivated. The following are the common cases when the driver may crash.

Boot.ini Settings to bypass Volume Filtering:

A boot option can be added to bypass volume filtering by DR-Scout. This option is case sensitive and no spaces should exist between the option name (/INVOLFLT) and option value (BYPASS). That is, the option should be specified as /INVOLFLT=BYPASS.

A typical "**c:\boot.ini"** would be similar to:-

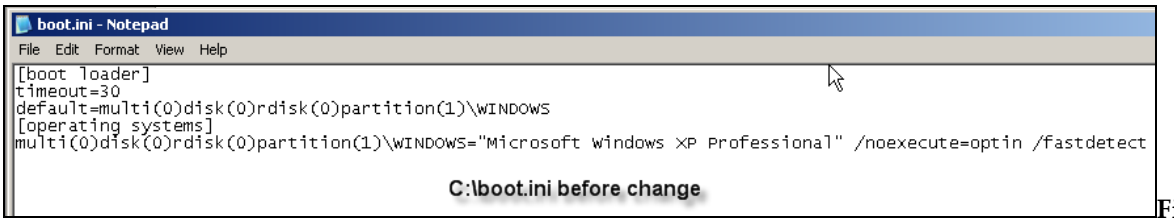

Figure 123:

Boot.ini has to be modified by adding another line to operation systems section. Copy the existing line which ends with **"/fastdetect"** and paste it above it. Then change the description section which is **"Microsoft windows XP professional"** to "**Bypass InMage driver**", and add boot option **/INVOLFLT=BYPASS** to the end of the line

The new line needs to be after "**[operating systems]**"

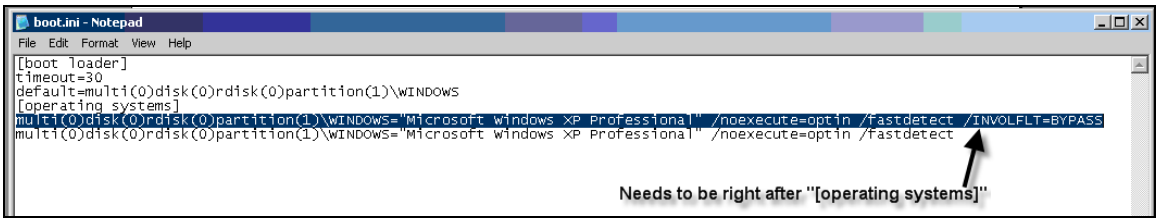

Figure 124:

Then save the file and reboot to see the change in boot menu.

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