

Sterling Integrator



Windows Cluster Upgrade

Version 5.0

Sterling Integrator



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Note

Before using this information and the product it supports, read the information in "Notices" on page 75.

Contents

Chapter 1. Introduction	1	Cluster Setup (Windows).	33
Chapter 2. Pre-Upgrade Information.	3	Patches and Hot-Fixes (Cluster).	36
Before You Begin Upgrading	3	Postinstallation in a Cluster Windows Environment	44
Standard Tasks and Considerations	3	Managing Nodes in a Cluster	48
Special Tasks and Considerations	4	Uninstalling Sterling Integrator from a Cluster	
Creating a Process Output Log	4	Windows Environment	49
Copying a Microsoft SQL Server 2000 Database to		Troubleshooting: Windows Cluster Environment	51
an SQL Server 2005 Database	5	Chapter 4. Installing a Perimeter Server	
Managing Database Passwords	7	in Windows (Cluster).	55
Database Password Encryption Methods	7	Installing a Perimeter Server in Windows (Cluster)	55
Encrypting Database Passwords (Windows)	7	Setting Up Perimeter Servers with Sterling	
Decrypting Database Passwords (Windows)	7	Integrator	55
Verifying System and Database Compatibility	8	Installing a Perimeter Server in a More Secure	
Preparing Your System for the Upgrade	8	Network in a Windows Environment	56
Chapter 3. Upgrading in a Windows		Installing a Perimeter Server in a Less Secure	
Cluster Environment.	11	Network in a Windows Environment	57
Preinstallation Setup Checklist for a Windows		Installing an External Perimeter Server in Silent	
Cluster Environment	11	Mode	58
Checklist for Windows Preinstallation	11	Installing Patches in a Perimeter Server Windows	
Checking System Requirements.	15	Environment	60
Installing the Java 2 Software Development Kit	15	Starting and Stopping Perimeter Servers in	
Security Certificates	16	Windows	61
Downloading the JCE Distribution File	16	Reducing Perimeter Server Security Vulnerabilities	61
Determining Port Numbers	16	Chapter 5. Post-Upgrade Processes	65
Obtaining a License File	17	Adding Third-Party Libraries	65
Upgrading in a Windows Cluster Environment	18	Configuring Services and Adapters	65
Upgrade Scenarios	18	Restoring Performance Tuning Configuration	70
Upgrading in Windows	19	Starting an Upgraded Cluster	70
Upgrading Microsoft SQL Server 2005	20	Final Upgrade Notes	71
Installing the JDBC Driver in SQL Server 2005.	20	Accessing User Documentation for Sterling	
Installing in a Windows Cluster Environment	20	Integrator	73
Installing in a Windows Cluster Environment		Notices	75
(GUI-Based)	21		
Installing in a Windows Cluster Environment			
(Manually Edited Silent Install File)	26		

Chapter 1. Introduction

Use the *Sterling Integrator 5.0 Windows Cluster Upgrade Guide* to upgrade the Sterling Integrator software in a cluster (multiple node) Windows environment. This guide includes the pre-upgrade and post-upgrade processes. It also includes information for using DB2, Microsoft SQL Server and Oracle databases with Sterling Integrator.

For new installations, use the *Sterling Integrator 5.0 Windows Cluster Installation Guide*.

Chapter 2. Pre-Upgrade Information

Before You Begin Upgrading

Before you begin upgrading to Sterling Integrator 5.0, be aware of the following prerequisite tasks and considerations:

- *Standard Tasks and Considerations*
- *Special Tasks and Considerations*
- *Creating a Process Output Log*
- *Copying a Microsoft SQL Server 2000 Database to an SQL Server 2005 Database*

Also, at several points in the upgrade process, you will be asked to download a file from <https://support.sterlingcommerce.com>. After logging in at this web page, click on the following links to reach the file: **Product Support > Gentran Integration Suite > Gentran Integration Suite Product Updates/Downloads**.

Standard Tasks and Considerations

Before you begin upgrading, be aware of the following standard tasks and considerations:

1. You must have a new license file to use the new licensed features of your upgraded installation.
2. Read through this entire document so that you have a clear understanding of what the upgrade requires.
3. Download the following information from the Sterling Integrator 5.0 library page <http://www.sterlingcommerce.com/Documentation/SI50/homepage.htm>.

- *Release Notes*
- *System Requirements*

With each release, Sterling Commerce introduces leading edge technology to improve and enhance its software. Review the System Requirements to confirm that your system and databases meet the requirements, and also to manage any necessary upgrades or changes before upgrading.

4. Archive and purge any unneeded data before upgrading.
Archived data can only be restored from the same version and patch of Sterling Integrator from which it was archived. If you need to restore archived data that was archived prior to performing the upgrade, then you must have a running instance of Sterling Integrator that matches the version and patch from which the archive was taken.
5. Back up your database. Export your business processes, trading partners, maps, etc.
6. Review and note the adapters, business processes, and other configurations in your current version. This will help identify any need for updating transport messages, third-party adapters, or configurations to adapters, such as the File System and Command Line Adapters.
7. If you have edited a pre-defined business process, be aware that the upgrade process overwrites pre-defined business processes. Your customized business process is preserved in the system, but it is no longer the default process.

8. If you have edited any property files (.properties or .properties.in), be aware that the upgrade process overwrites these property files, unless these changes were made using the customer_overrides.properties file. Your previous property file edits might not be applicable in Sterling Integrator 5.0.
9. If you edited any of the following cdinterop files, you must back them up before upgrading. The cdinterop files do not have initialization (*.in) files. After the upgrade, use the backup version of the files in your upgraded installation.
 - cdinterop-proxy-records.properties
 - cdinterop-spoee-auth.properties
 - cdinterop-spoee-policy.properties
 - cdinterop-user-records.properties
10. You should not perform Sterling Integrator upgrade on a hot fix directly. Please apply the latest build (patch) prior to upgrading Sterling Integrator.
11. Always install and test your upgrade in a non-production environment before upgrading your production environment.

Special Tasks and Considerations

Special Tasks and Considerations

Before you begin upgrading, be aware of the following special tasks and considerations, depending on your type of upgrade:

- If you are using Oracle 8i with Gentran Integration Suite 4.0, upgrade to Oracle 9i before upgrading to Sterling Integrator 5.0.
- If you import Oracle 9 or Oracle 10 database while upgrading to Sterling Integrator 5.0, import the database without the indexes. For example, if you are using the Oracle import (imp) tool, you should use the INDEXES=N option. If you attempt upgrading to Sterling Integrator 5.0 with indexes, the upgrade will fail.

Note: If you had created any custom indexes in Oracle database, add them after performing the upgrade as they are not imported.

- If you have LDAP (Lightweight Directory Access Protocol) configuration information in the security.properties file, this information will automatically be moved to the authentication_policy.properties file.
- If your version of Sterling Integrator is integrated with the JBoss™, WebLogic®, or WebSphere® application server.

Sterling Integrator version 5.0 is installed without integration to an application server and does not require an application server for installation or at runtime. However, Sterling Integrator still supports integration with JBoss, WebLogic, and WebSphere. After you upgrade to 5.0, you can restore integration with your application server if desired. To do so, use the Sterling Integrator EJB Adapter. For more information, refer to the documentation for the EJB Adapter.

Creating a Process Output Log

About this task

A log of process activity during the upgrade will help if troubleshooting is required. Output is automatically logged to upgrade.log. Use this procedure to generate a separate output log for each process you want to log.

In Windows, you must redirect the standard output and standard error of each command to create a log file. Do the following:

Procedure

1. To redirect the standard output and standard error to create a log file, type a command similar to the following:

```
process.cmd > processoutput.log 2>&1
```

where *process* is the name of the command and *processoutput* is the name of the output log.

The log-writing process time varies, depending on the size of your database and your system hardware.

CAUTION:

In Windows, if you attempt to view the log while it is being written, the `upgrade.cmd` script stops running and does not create a log of the upgrade process.

2. After you complete the command, you can review the output log using any text editor (for example, Microsoft Notepad).

Copying a Microsoft SQL Server 2000 Database to an SQL Server 2005 Database

About this task

Before upgrading, it is recommended that you first make a backup of your Microsoft SQL Server 2000 database. One way to accomplish this is to make a separate copy of your existing database so that you can preserve your current system. If you are moving from a Microsoft SQL Server 2000 database to an SQL Server 2005 database, use the following procedure. Your existing Gentran Integration Suite instance will no longer function if you upgrade your existing database without making a copy.

After this procedure, you will have two databases:

- A database that you will use in your upgraded version of Sterling Integrator (Sterling Integrator 5.0).
- A database that you can use in your old version of Sterling Integrator.

CAUTION:

This is an optional procedure, and it is the customer's responsibility to perform it. Sterling Commerce Customer Support cannot help with this procedure.

Procedure

1. Perform a full database backup to the file system on the source SQL 2000 server of the source database.
2. Copy the resultant backup (.bak) file from the file system on the source server file system to the file system on the SQL 2005 server.
3. Connect to the SQL 2005 database server as a Windows authenticated user with administrative privileges on the database server using SQL Server Management Studio 2005.
4. Make sure that the destination database is not in use (disconnect any connected applications).
5. Restore the backup of the SQL 2000 database over the existing SQL 2005 database, using the Tasks | Restore | Database wizard. The restore will be from a "device," the file created above. Specify on the **Options** tab the correct

locations for the data and log files (since the locations in the backup may not be the same as the correct locations for files on the on SQL 2005 database server); also select the check box to specify that the existing database is to be overwritten. Confirm that the restore is reported as successful.

6. Check to make sure that existing users in the database match existing users on the server using the command `sp_change_users_login 'report'`. If no rows are returned, go to step 8.
7. If rows are returned, execute the command `sp_change_users_login 'update_one', 'username', 'username'` substituting the unlinked login name in each execution to correct links between existing users in the restored database and existing logins on the server.
8. Examine the users of the database using the SQL Studio or `sp_helpuser`. If the login (existing on the server) who will be working with this database is not currently a user of the restored database, add that login as a user of the database by executing the following commands (*login_name* and *user_name* should generally be the same):

```
USE database_name
Go
EXEC sp_grantdbaccess 'login_name', 'user_name'
Go
EXEC sp_addrolemember 'db_owner', 'username'
Go
CHECKPOINT
Go
USE master
Go
EXEC sp_defaultdb 'username', 'database_name'
Go
```

Note: The spaces in the quoted strings in the SQL commands should not be included in the final procedure, as spaces are significant to the procedure and the commands will fail if they are there (that is, `EXEC sp_grantdbaccess 'login_name', 'user_name'` should be `EXEC sp_grantdbaccess 'login_name', 'user_name'`).

9. Examine the user tables in the SQL 2005 database to determine which schema they currently are in. Using the SQL Studio, the schema will be the prefix before each table listed in the Table tree.

Note: This assumes that the schema of the user objects is not changed, even if it is a schema name with the same name as a user other than the user who will be accessing the data.

10. Execute the following command in the SQL 2005 database to ensure that the default schema for the user who will interact with the database matches the schema containing the restored user objects. If the objects are in the `dbo` schema, use `dbo` as the *schema_name*.

```
USE database_name
Go
ALTER USER user_name WITH DEFAULT_SCHEMA = schema_name
Go
```

Managing Database Passwords

A password is used by the application to connect to its database. The password is stored as clear text in a property file on the system. If the security policies at your company require you to encrypt these passwords, you can do so after you install the Sterling Integrator. Encrypting these passwords is optional.

Database Password Encryption Methods

Database passwords are encrypted using one of two methods, `OBSCURED` or `ENCRYPTED`. The encryption method is decided by the value of the `encryptionPrefix` in `propertyEncryption.properties` or `propertyEncryption.properties_platform_security_ext` file.

Encrypting Database Passwords (Windows)

About this task

To encrypt the database password:

Procedure

1. Stop the Sterling Integrator.
2. Navigate to `\install_dir\install\bin`.
3. Enter `enccfgs.cmd`.
4. Enter `setup.cmd`.
5. Enter `deployer.cmd`.
6. Enter `startWindowsService.cmd` to start the Sterling Integrator.

Decrypting Database Passwords (Windows)

About this task

To decrypt a password in Windows:

Procedure

1. Stop the Sterling Integrator.
2. Navigate to `\install_dir\install\properties`.
3. Open the `sandbox.cfg` file.
4. Copy encrypted password from the `database_PASS` property. Use the text that appears after the `database_PASS=` text. For example, if `database_PASS=OBSCURED:123ABCxyz321`, you would copy the text `OBSCURED:123ABCxyz321`. (`OBSCURED` is the encryption method for the password.)
5. Navigate to `\install_dir\install\bin`.
6. Enter `decrypt_string.cmd encrypted_password`. For `encrypted_password`, use the text that you copied in Step 4.
You are prompted for the Sterling Integrator passphrase.
Your decrypted password appears.
7. Navigate to `\install_dir\install\properties`.
8. Edit the `sandbox.cfg` file to replace the encrypted password with the password that was returned in Step 6.
9. You need to decrypt the entry for `YANTRA_DB_PASS`. Repeat Steps 4 to 8 to decrypt `YANTRA_DB_PASS`.

Note: You should also decrypt any custom database pool passwords present in the `customer_overrides.properties` file or any other properties file.

10. Navigate to `\install_dir\install\bin`.
11. Enter `setupfiles.cmd`.
12. Enter `deployer.cmd`.
13. Enter `startWindowsService.cmd` to start the Sterling Integrator.

Verifying System and Database Compatibility

About this task

To verify system compatibility and prepare for the upgrade, perform the following tasks:

Procedure

1. Review the *Sterling Integrator Release 5.0 System Requirements*. Your system must meet the minimum requirements that are documented, while your database and JDBC driver versions must match the documented requirements. Complete any necessary upgrades or changes in preparation for the upgrade.
2. Collect information on any third-party libraries used for adapter configuration that were added to your current release. You must add each of these libraries to release 5.0 later in the upgrade process.
3. Locate any configuration file changes for the JDBC adapter or the Lightweight JDBC adapter in your current release. Later in the upgrade process, you will copy these changes to release 5.0.
4. Record your performance tuning configuration. You will restore these settings later in the upgrade process.

Preparing Your System for the Upgrade

About this task

Verify your system compatibility as previously described before continuing with this procedure.

Procedure

1. Back up Sterling Integrator and your current database.

CAUTION:

If there are problems with your upgraded system, the only way to ensure that you can roll back to your previous version is to back up Sterling Integrator and your database.

2. To avoid upgrade failures in Windows, shut down all software that performs non-system processes, including processes that:
 - Scan files and directories for viruses
 - Back up file systems
 - Monitor software (for example, HP OpenView)
 - Disable pop-up windows

Results

After you successfully back up Sterling Integrator and your database, you are ready to upgrade the software. Before you begin, see *Sterling Integrator 5.0 Release Notes*.

Chapter 3. Upgrading in a Windows Cluster Environment

Preinstallation Setup Checklist for a Windows Cluster Environment

The following topics will assist you with preinstallation tasks when planning an upgrade installation of Sterling Integrator in a Windows cluster environment:

- *Checklist for Windows Preinstallation*
- *Checking System Requirements*
- *Installing the Java 2 Software Development Kit*
- *Security Certificates*
- *Downloading the JCE Distribution File*
- *Determining Port Numbers*
- *Obtaining a License File*

Checklist for Windows Preinstallation

Checklist for Windows Preinstallation

The preinstallation checklist for the Windows environment identifies the prerequisite tasks you must complete before installing Sterling Integrator.

Note: You can upgrade Sterling Integrator only by a previously created user account.

When creating a name, such as an account name, permissions name, profile name, or database name, follow these conventions:

- Use any valid alphanumeric characters and -, :, \$, &, or _.
- Do not use spaces or apostrophes.

You may want to make a copy of the following checklist and use it to record the information you collect for installing Sterling Integrator:

Step	Description	Your Notes
1	Verify that your system meets the hardware and software requirements specified for this release. See <i>Checking System Requirements</i> .	
2	Verify that your system has the patches required by Java™ for the Windows environment. See the vendor's Java Web site for more information.	

Step	Description	Your Notes
3	For systems with multiple IP addresses, verify that the IP address on which Sterling Integrator resides is accessible by any client computer that is running a browser interface. Caution: If you do not verify the IP addresses, your system may not operate properly after installing Sterling Integrator.	
4	Verify that all client computers are using Microsoft Internet Explorer 5.x or later.	
5	If you are using a non-English environment, confirm that you are using the appropriate character set.	
6	Determine and record information about the Java 2 Software Development Kit (JDK). See <i>Installing the Java 2 Software Development Kit</i> . <ul style="list-style-type: none"> • Version of the JDK. • Absolute path to the JDK files and patches. The path name cannot include spaces. 	
7	Decide which of the following security certificates you will use: <ul style="list-style-type: none"> • The default self-signed SSL (Secure Sockets Layer) certificate that is automatically installed. • A Certificate Authority-related certificate that you install before installing Sterling Integrator. For more information, refer to <i>Security Certificates</i> .	
8	Obtain the unlimited strength JCE distribution file. For more information, refer to <i>Downloading the JCE Distribution File</i> .	
9	Determine and record the initial port number to be used by Sterling Integrator. See <i>Determining Port Numbers</i> .	

Step	Description	Your Notes
10	<p>If you are using an Oracle, SQL Server 2005, or DB2 database, determine and record information about your database server. Be aware that this information is case sensitive.</p> <ul style="list-style-type: none"> • Database vendor • Database user name and associated password • Database (catalog) name • Database host name • Database host port number • (Oracle and Microsoft SQL Server 2005 only) Absolute path and file name for one JDBC driver • (DB2 only) Absolute paths and file names for two JDBC drivers <p>Note: If you are using an Oracle 10.2.x database, you must set it up for native compilation by allocating space and by setting the <code>plsql_native_library_dir</code> parameter.</p>	
11	<p>Determine and record information to set up default system alerts from Sterling Integrator:</p> <ul style="list-style-type: none"> • The Administrative e-mail address to which system alert messages are sent. <p>Note: It is recommended that you not change the Administrative e-mail address during an upgrade. If you change this address, you will have to update adapters, business processes and other items that include this information.</p> <ul style="list-style-type: none"> • The SMTP Server IP address used for sending alert messages. 	

Step	Description	Your Notes
12	<p>Determine and record the directory in which you plan to install Sterling Integrator.</p> <ul style="list-style-type: none"> • The installation directory must not exist because the installation process creates it. • The installation directory must have adequate free disk space. • The name of the directory cannot include spaces and must be less than 30 characters long. Using a directory name of more than 30 characters could create an installation that is impossible to delete. 	
13	<p>During installation, you are prompted twice to type the passphrase, which is not displayed when you type it.</p> <p>Note: The system passphrase used when upgrading to Sterling Integrator 5.0 must match the system passphrase of your existing Gentran Integration Suite 4.x installation.</p>	
14	<p>Obtain the license file and record the absolute path and file name to the license file. Be sure that the path name and the file name do not contain any spaces. See <i>Obtaining a License File</i>.</p> <p>Note: For a cluster, you need to get a valid license for the IP addresses of all the nodes of the cluster. The license file includes spaces for more than one IP address.</p>	

Step	Description	Your Notes
15	Determine whether Sterling Integrator is using an application server (JBoss™, WebLogic® or WebSphere®). Sterling Integrator does not require an application server for installation or at run-time. Sterling Integrator supports integration with JBoss and WebLogic during the installation. You can also integrate with WebSphere, JBoss, or WebLogic after installing version 5.0 by using the Sterling Integrator EJB Adapter. This does not represent a WebLogic server for deploying the Application Console.	

Checking System Requirements

Before you begin, verify that your system meets the hardware and software requirements specified for this release. The hardware requirements listed are the minimum required to run Sterling Integrator. Your system requirements will exceed these if you are running other applications on the same machine as Sterling Integrator. For current information, see the *System Requirements* posted on Sterling Integrator Documentation Library:

<http://www.sterlingcommerce.com/Documentation/SI50/homepage.htm>

The installation strictly enforces the following system requirements:

- Operating system version (must match requirement exactly)
The minimum patch level for the operating system is enforced, but you can apply higher patch levels.
- JDK version (must match requirement exactly)
- Disk space
The disk space is a minimum for the installation. The system should be separately sized to handle whatever load is going to be put on the system.
- Database
- JDBC driver version (supports exact matches and wildcard matches).

If any of the above requirements are not met, the installation will fail and print/log a report of all items that were non-compliant.

Installing the Java 2 Software Development Kit

You must install the Java 2 Software Development Kit (JDK) and the patches specific to your system. To determine which JDK version and patches you need, see the *System Requirements*. After you install the JDK, record the path to the JDK for future reference.

Security Certificates

Before installing Sterling Integrator, you must decide which of the following security certificates you will use:

- The default self-signed SSL (Secure Sockets Layer) certificate that is automatically generated by the installation.
- A Certificate Authority-related certificate that you generate before installing Sterling Integrator.

If you install with the default SSL certificate, but you later want to switch to a CA-related certificate, you can make that change using the `sslCert` property in the `noapp.properties.in` file.

Downloading the JCE Distribution File

About this task

The Java Cryptography Extension (JCE) is a set of Java packages from Sun Microsystems, Inc. that provides a framework and implementations for encryption, key generation and key agreement, and Message Authentication Code (MAC) algorithms. By default, Sterling Integrator uses the limited strength JCE file that is included in the JDK that you use during the installation. Installing unlimited strength JCE file will overwrite the limited strength JCE file.

Note: If you are installing Sterling Integrator outside of the United States, check to see if you can get the JCE unlimited strength jurisdiction policy files. The unlimited strength jurisdiction policy files can only be exported to countries to which the United States permits the export of higher-level encryption.

To obtain this file for the Sun JDK 1.5:

Procedure

1. Open your browser and navigate to http://java.sun.com/javase/downloads/index_jdk5.jsp.
2. At the bottom of the page, locate *Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files 5.0* and click the **Download** button.
3. Download the `jce_policy-1_5_0.zip` file to your system.
4. Once the file resides on your system, note the exact directory and file name for this zipped file. You will need this information during the installation process.

Determining Port Numbers

During installation, you are prompted to specify the initial port number for Sterling Integrator. For other ports, you can accept the default port number suggested by the installation program, or you can specify a different port number. To specify a port number, follow these guidelines:

- Sterling Integrator requires a range of 100 consecutive open ports between 1025 and 65535.
- The initial port number represents the beginning port number in the range.
- Make sure that port numbers in the port range are not used by any other applications on your system.

After your installation, refer to `install_dir\install\properties\sandbox.cfg` for all of the port assignments.

Obtaining a License File

After your company signed the sales contract with Sterling Commerce, Sterling Commerce creates a license file containing information about your company, your system, and the packages (components) that your company selected to use, such as services, maps, and adapters.

Your first license file is a temporary keyfile that is e-mailed to you after you purchase Sterling Integrator. It allows you to run Sterling Integrator and all of the licensed features for a limited period. Before the keyfile expires, you must replace the temporary key with a permanent key to continue running Sterling Integrator. Failure to either extend your temporary keyfile or replace it with a permanent keyfile will result in the keyfile expiry and Sterling Integrator will fail to start.

The permanent license keyfile contains your specific operating system and the IP address of your system, and is valid for 20 years from the date of issue. To extend your temporary key, obtain the permanent key, or request changes to a permanent key you already have, go to the online Gentran Integration Suite/Sterling Integrator Key Request form (https://support.sterlingcommerce.com/forms/gis_key_request.aspx) and have your PSP number (a unique number that identifies a licensed software asset in your Sterling Integrator installation) available. The PSP Number is present in the temporary or previous version of the keyfile you received from Sterling Commerce. Upon submission of this form, your new keyfile will be generated and delivered to you as an attachment to an email.

The Sterling Integrator permanent license file contains a single or multiple IP addresses in your computing environment. If you change an IP address in your computing environment that is present in your Sterling Integrator license file, Sterling Integrator will cease to operate. You should take necessary precautions to avoid this potential outage, including notifying the appropriate contacts within your organization (information technology and related departments) and include the license file updates in your computing environment change plans.

Installing the Temporary Key

About this task

To install the temporary key, do the following:

Procedure

1. Rename the temporary key. Use a name (for example, `assetTracking.key`) that clearly identifies the key as the original installation license key.
2. Copy the temporary key to the *absolutePath*\conf directory.
3. Rename the temporary license key file to `license.key`.

Installing the Permanent Key

About this task

To install the permanent key from the command line, do the following:

Procedure

1. When you receive the permanent license key file, make a copy of it, and keep the copy in a safe place.
2. Stop Sterling Integrator.
3. Copy your license file to the machine where Sterling Integrator is installed.

4. Navigate to the `install_dir\bin` directory and run the `AddLicenseSet.cmd <path>` command, where `<path>` is the path to the license keyfile, for example, `C:\SterlingCommerce\SI\bin>AddLicenseSet.cmd c:\temp\gis_license.xml`.
5. Start Sterling Integrator.

Note: You can also install or update your license file from the Licenses screen (**Operations > System > Licenses**) when Sterling Integrator is running.

Upgrading in a Windows Cluster Environment

Installing Sterling Integrator in a Windows cluster environment includes the following sections:

- *Upgrade Scenarios*
- *Upgrading in Windows*
- *Installing the JDBC Driver in SQL Server*
- *Installing in a Windows Cluster Environment*

Upgrading Sterling Integrator cluster nodes is similar to a standard Sterling Integrator upgrade, with the following restrictions on all nodes:

- All nodes must use the same database.
- All nodes must use the same passphrase.
- You must install and start the nodes sequentially, one at a time, starting with the first node.

Upgrade Scenarios

Upgrading to Sterling Integrator 5.0 can follow one of three paths. Keep these general paths in mind as you upgrade.

- A straightforward upgrade, where the operating system and the database are the same between the old Gentran Integration Suite version and Sterling Integrator 5.0.

For example, if you are upgrading from Gentran Integration Suite 4.3 (on Windows 2003 and using Microsoft SQL Server 2005) to Sterling Integrator 5.0 (on Windows 2003 and using Microsoft SQL Server 2005), the upgrade steps are as follows:

1. Export the configuration data and back up the database.
2. Upgrade to Sterling Integrator 5.0.
- A database upgrade before the upgrade to Sterling Integrator 5.0, when the old Gentran Integration Suite database is not supported by Sterling Integrator 5.0.

For example, if you are upgrading from Gentran Integration Suite 4.0 (on Windows 2003 and using DB2 8.1 Fixpack 5) to Sterling Integrator 5.0 (on Windows 2003 and using DB2 9.2), the upgrade steps are as follows:

1. Export the configuration data and back up the database.
2. With help from a database administrator (DBA), copy the database to DB2 9.2.
3. Back up the newly created database.
4. Upgrade by pointing to the newly created database. If the upgrade stops, and leaves the newly created database in an incomplete state, you can re-start the upgrade using the backup of the database.
- The old Gentran Integration Suite operating system is not supported by Sterling Integrator 5.0.

For example, if you are upgrading from Gentran Integration Suite 4.0 (on Windows 2000 and using Oracle) to Sterling Integrator 5.0 (on Windows 2003 and using Oracle), the upgrade steps are as follows:

1. Export the configuration data and back up the database.
2. Upgrade to Sterling Integrator 5.0 on the Windows 2003 machine while pointing to Oracle.

Upgrading in Windows

To upgrade to Sterling Integrator version 5.0, follow the installation instructions in this section. These steps include special instructions for upgrading. Before running the upgrade program, refer to the *Pre-Upgrade Information* section. After running the upgrade program, refer to the *Post-Upgrade Processes* section.

CAUTION:

It is important to remember that upgrading to 5.0 involves a full installation of Sterling Integrator. You need to prepare for an upgrade the same way that you would prepare for an installation.

CAUTION:

Before the upgrade, you should always make a backup of your production database. If you make a separate copy of your database in order to preserve your existing database, then perform the upgrade on the copy of the production database.

This upgrade does not overwrite your current Sterling Integrator directory structure on disk. Instead, it creates a new installation of Sterling Integrator 5.0 that will point to and upgrade the database of your current installation of Sterling Integrator. This means your original instance will no longer be operational after performing the upgrade. After the upgrade, you will be starting your Sterling Integrator instance only from the newly created directory structure.

Note: When you copy your database, if you encounter Data Overflow or Invalid Time Format errors while copying the WORKFLOW_CONTEXT table, run this query:

```
UPDATE WORKFLOW_CONTEXT SET ENTERQ = NULL, EXITQ = NULL where ENTERQ IS NOT NULL OR EXITQ IS NOT NULL
```

It is also recommended that you thoroughly test this process in a test or development environment prior to implementing in a production environment.

Note: If you need to patch your system before continuing the upgrade, it is recommended that you fully test the patch prior to performing the upgrade. If you are running a patch less than 4.0.3-5, you **MUST** patch to version 4.0.3-5 or higher before continuing the upgrade.

CAUTION:

This upgrade changes the administrative password to the default password. After the upgrade, change the password back to the administrative password to minimize security risks. This is the Admin password for logging into the UI (/dashboard or /ws).

Upgrading Microsoft SQL Server 2005

About this task

Sterling Integrator 5.0 supports Microsoft SQL Server 2005 Enterprise and Standard version 9.00.3159 or higher within 9.x.x. To upgrade to Microsoft SQL Server 2005 9.00.3159 from version 9.00.3152:

Procedure

1. Apply the GDR2 hotfix. You can download it from <http://support.microsoft.com/kb/934459/>.
2. The Microsoft SQL Server 2005 version is now 9.00.3159.

Installing the JDBC Driver in SQL Server 2005

About this task

Sterling Integrator requires the correct Microsoft SQL Server driver. See *System Requirements* for supported version information. The supported version of the JDBC driver builds the correct Sterling Integrator directory structure. Go to the Microsoft web site to download the driver and any appropriate patches.

Procedure

1. Download `sqljdbc_version_language.exe` to a temporary directory.
2. Run `sqljdbc_version_language.exe`.
3. When prompted, enter an installation directory to which you will unpack zip file that contains the driver. It is recommended that you unpack the zip file in your Program Files directory with the default directory Microsoft SQL Server 2005 JDBC Driver. You will access this directory path during the installation of Sterling Integrator.

Note: Make sure that you specify the full path to the installation directory. For example, `C:\Program Files\Microsoft SQL Server 2005 JDBC Driver`.

After the package unpacks, you can find out more information about using this driver by opening the JDBC Help System in the `absolutePath\sqljdbc_version\language\help\default.htm` file. This will display the help system in your Web browser.

4. When the Sterling Integrator installation asks for the location of the JDBC drivers, specify the extracted jar file created after unpacking the archive (usually named `sqljdbc.jar`). The JDBC driver version is the same as the version of the drivers downloaded from Microsoft.

Installing in a Windows Cluster Environment

Installing the Sterling Integrator in a Windows cluster environment includes the following sections:

- *Installing in a Windows Cluster Environment (GUI-Based)*
- *Installing in a Windows Cluster Environment (Manually Edited Silent Install File)*

If you downloaded the Sterling Integrator or a Service Pack (SP) from the Electronic Software Distribution (ESD) Portal, unzip the downloaded file to an empty directory. Do *not* change the directory structure of the newly unzipped files. The directory containing the unzipped files is an electronic image of an installation CD.

Installing in a Windows Cluster Environment (GUI-Based)

About this task

Installing Sterling Integrator cluster nodes is similar to a Sterling Integrator single node installation, with the following restrictions on all nodes:

- All nodes must use the same database.
- All nodes must use the same passphrase.
- All nodes must use the same operating system.
- When installing nodes on different machines, the initial port numbers must be the same.

Note: Installing nodes on different machines helps you take more advantage of the reliability, availability and scalability features of clustering, including failover.

- When installing nodes on the same machine, you must install nodes 2 and higher in different directories and use different initial port numbers. Each initial port number must be at least 100 higher or lower than other initial port numbers.
- You must install the nodes sequentially, one at a time, starting with the first node.
- After installing the nodes, you must start the nodes sequentially, one at a time, starting with the first node.

To run a cluster, you need to get a valid Sterling Integrator license for multiple IP addresses of all the nodes where Sterling Integrator will be installed and configured as a cluster.

Note: Clustering is not supported for Sterling Integrator systems that use the MySQL database, even though it is a prompted option.

Note: If you encounter problems or errors during installation, see *Troubleshooting: Windows Cluster Environment*.

To install Sterling Integrator in a Windows environment, refer to your preinstallation checklist and follow the steps below.

Procedure

1. Close all open Windows programs and any command prompt windows.
2. Copy the SCIIInstallWizard.jar and SI.jar files from your installation CD (or from another location) to your desktop (if you are double-clicking the file to start the installation) or to a Windows directory.
3. Start the upgrade installation using one of the following methods:
 - (From desktop) Double-click SCIIInstallWizard.jar, which is a self-extracting jar file.
 - From a command prompt, enter the following command. Do not include any spaces in the directory path to the SCIIInstallWizard.jar file.
`\absolutePath\bin\java -jar \absolutePath\SCIIInstallWizard.jar`
The installation dialog box appears.
4. Click **Next** to start the installation program.
5. Review the license agreement, and click **Accept** to accept the terms.
6. Type the full path of your JDK directory, or search for it using the **Select Folder** button. Click **Next**.

7. Type the full path to your license file, or search for it using the **Select File** button. Click **Next**. If you do not have a license file, you can minimize this window, obtain the license file, and then return to the installation process.
8. Type the full path to your JCE file or search for it using the **Select File** button. Click **Next**. For more information about JCE files, see *Downloading the JCE Distribution File*.
9. Enter the installation directory for Sterling Integrator by doing one of the following:
 - Type the directory name. Click **Yes** at the prompt The directory does not exist, create it?.
 - Click **Select Folder** and navigate to the folder you want to use as the installation directory.
You should create a new directory or the installation will fail subsequently. This directory is referred to as *install_dir* in subsequent prompts. Click **Next**.
10. At the Select Install jar prompt, type the path to the SI.jar file or use the **Select File** button to browse through directories for the file.
Note: The directory path to SI.jar cannot include any spaces.
After selecting the file, click **Next**.
11. If this is a new directory, click **Yes** at the The Directory does not exist, create it? prompt.
12. At the **Installation Port** dialog box, take the following two actions:
 - At the prompt Enter explicit IP address or Hostname to override the default, use the default value **localhost** or enter your own host IP address. If you use **localhost**, the system uses its next available port.
Note: If you are installing Sterling Integrator on VMware, you should provide the IP address of the virtual machine and not of the VMware host. For example, if 10.251.124.160 is the IP address of the VMware server and 10.251.124.156 is the IP address of the Windows 2003 server it is hosting, you should use 10.251.124.160 as the IP address to install Sterling Integrator.
Caution: Sterling Integrator 5.0 does not support IPv6 installation on Windows. Before applying an IPv6 address, see *IPv6 Capabilities* section in *Sterling Integrator 5.0 System Requirements* guide.
 - At the prompt Initial Port, type the initial port number for the installation. The initial port number must be the first number of a range of at least 100 port numbers.
The installation creates subsequent ports based on the initial port number. For all of the port assignments, see the *install_dir\install\properties\sandbox.cfg* file.
After entering this information, click **Next**.
13. Type your system passphrase. Then type the passphrase again to confirm it. Click **Next**.
14. At the E-Mail Information dialog box, take the following actions:
 - Type the administrative e-mail address to which you want system alert messages sent. Use the format *you@yourdomain*.
 - Type the SMTP mail server host name that you want to use for system alert messages and other administrative notices. Use an IP address or a host name.
Click **Next**.

15. You can enable FIPS (Federal Information Processing Standards) mode by selecting the check box at the **Enable FIPS mode** dialog box. To not use FIPS, clear the check box. Click **Next**.
16. Select the radio button for the database that you want to use (Oracle, Microsoft SQL Server 2005, or DB2), and click **Next**.

Note: Clustering is not supported for Sterling Integrator systems that use the MySQL database, even though it is a prompted option.

17. At the **Select all options that apply to this installation** dialog box, take the following actions:
 - Select the check box at the This installation is an upgrade from a prior version option.
You should not select this checkbox for cluster node 2 or higher.
 - Do not select the check box at the This installation is for a cluster node 2 or higher prompt. Select this check box for node 2 and higher of the cluster.
Do not click **Next**. You will click **Next** after the next step.
18. At the Apply database schema automatically? check box, decide whether to automatically or manually apply database definition language (DDL) statements:

Note: For more information about this option, refer to *Obtaining a License File*

- To automatically apply DDL statements, select the check box (the default value).
If you do not choose to manually apply the DDL statements, the installation applies both the DDL and the resources.

- To manually apply DDL statements, clear the check box.

If you manually create the database schema, you will have to run the installation command again after manually creating the schema. You will manually create the database schema using the sql files in the *install_dir*\install\repository\scripts directory. For more information, refer to the utilities configuration documentation.

The application of DDL statements should be done in the same order as when you select the check box at the Apply database schema automatically? prompt. You can find this order by referring to an installation log file of an installation where the check box was selected at the Apply database schema automatically? prompt.

Apply the DDL statements manually and restart the installation procedure in a new installation directory. You can delete the installation directory created earlier. Clear the check box at the Apply database schema automatically? prompt. The installation process will continue and complete without any errors. The installation process will validate the database with a Sterling Integrator tool called DBVerify and warn you if there are issues, and will exit the installation.

Do not click **Next**. You will click **Next** after the next step.

19. Select **Verbose install?** check box to generate an installation log for debugging information. The events that occur during the installation are recorded in InstallSI.log file. By default, the **Verbose install?** check box is not selected. Click **Next**.
20. Configure your database by typing the following information:
 - Database user name

- Database password (and confirmation)
- Database catalog name
- Database host name

Note: In Oracle, do not use an IP v6 address for the host name.
- Database port
- (Oracle and Microsoft SQL Server 2005 only) Absolute path and file name for one JDBC driver file
- (DB2 only) Absolute paths and file names for two JDBC driver files

Use the Type-4 JDBC driver. This type of driver converts JDBC calls into the network protocol used directly by DB2, allowing a direct call from Sterling Integrator to the DB2 server.
- (Oracle only) Select the check box to select the data type to use for caching. Select either the default BLOB (binary large object) columns data type or the Long Raw data type.

You can significantly improve performance by enabling the cache on the BLOB data object in Oracle. For more information, refer to the Sterling Integrator documentation for slow performance in Oracle.

After entering this information, click **Next**.

21. The **Confirm Database Information** screen appears. It includes all of the database details and the complete path to the installation jar file. To change information, click the **Back** button and make changes.

Click **Next** after reviewing this information.

If your JDBC driver is not correct for your database, the following message appears:

Please check your database version and JDBC driver versions

Click **OK**. Use the **Back** button to return to the **Database Connection Information** dialog box, where you can enter the correct JDBC driver.

22. The **Install Actions** screen appears, listing actions that are performed during the upgrade installation. The check boxes are automatically selected for the actions **Verify Operating System is supported**, **Verify the selected JDK is supported**, **Install Components**, **Save install files**, **Clean Up Files**, and **Install Windows Services**. You cannot clear them.

If you want to create a desktop icon for launching Sterling Integrator, select the **Create Desktop Icons (Windows & Linux)** check box on the **Install Actions** screen. By default, the check box is selected.

Click **Next**.

The **Installation Progress** screen appears. You can click the **Show Details** button to confirm your installation information before starting the installation.

23. Click **Install** to start the installation.

The **Installation Progress** screen shows the general progress of the installation through different stages (as shown earlier on the **Install Actions** screen). For more information about these stages, click the **Show Details** button.

For more detailed information about the installation, refer to the *install_dir*\PreInstallSI.log file. If the installation stops, check the PreInstallSI.log file for details. For more information, refer to *Troubleshooting: Windows Cluster Environment*.

24. The installation completes automatically. When the installation is finished, the system displays a dialog box with the message Installation Wizard completed. Please see the installation guide for next steps. Click **OK** to close this message.

Also, when you click the **Show Details** button, the message BUILD SUCCESSFUL appears in the **Output** box. Click **Exit** to close the installation dialog box.

Installation information is in the following files:

- ant.install.log (in the *install_dir* directory)
- InstallSI.log (in the *install_dir*\install directory)

25. Install each subsequent node, from node 2 onwards. The installation passphrase must be the same across all nodes.

Do not select the check box at the **This installation is an upgrade from a prior version** option.

If you are installing multiple nodes on separate machines, enter the same information that you entered for node 1, with the following exception:

- At the This installation is for a cluster node 2 or higher prompt, select the check box.

If you are installing multiple nodes on the same machine, enter the same information that you entered for node 1, with the following exceptions:

- Use a different installation directory for each node.
- Use an initial port number that is 100 port numbers higher or lower than the initial port number on other nodes. Each node will be configured on a different port range.
- Use the same drive to upgrade to Sterling Integrator 5.0 where you have installed Gentran Integration Suite 4.x. For example, if you have installed Gentran Integration Suite 4.x on C:\ drive, Sterling Integrator 5.0 upgrade should be performed on C:\ drive.
- At the This installation is for a cluster node 2 or higher prompt, select the check box.

After all the nodes are installed, proceed to the next step.

26. If you install multiple nodes on the same machine or use different base ports for node 2 onward, do the following:

- Go to the *install_dir*\install\properties directory of node 1.
- Access the values of the **multicastBasePort** property in the **noapp.properties_platform_ifcresources_ext** file and the **mcast_port** property in the **jgroups_cluster.properties** file.
- Go to the *install_dir*\install\properties directory of each node (from node 2 onward).
- Change the **multicastBasePort** property in the **noapp.properties_platform_ifcresources_ext.in** file to the value of the **multicastBasePort** property in the **noapp.properties_platform_ifcresources_ext** file in the node 1 installation.
- Change the **mcast_port** property in the **jgroups_cluster.properties.in** file to the value of the **mcast_port** property in the **jgroups_cluster.properties** file in the node 1 installation.
- (IPv6 only) For all nodes, change **mcast_port** property from 239.255.166.17 to **FFFF:239.255.166.17**.
- (IPv6 only) In the **sandbox.cfg** file, add **HOST_ADDR=<IPv6_hostname>**.
- After changing these properties, run the *install_dir*\install\bin\setupfiles.cmd command for node 2 onward.

27. On each node, starting with node 1, perform cluster configuration by running the command **startCluster.cmd nodeNumber** from the Sterling Integrator *install_dir*\install\bin directory where *nodeNumber* is the sequential number assigned to each node starting with 1.

For example, use the following commands on the first two nodes:

- a. `startCluster.cmd 1`
- b. `startCluster.cmd 2`

Note: You should run `startCluster.cmd` command only after you install Sterling Integrator. You should not run `startCluster.cmd` command when you restart a Sterling Integrator instance. However, if you have installed a patch or a hot-fix, refer *Custom Configurations* to start the cluster without updating the database settings.

28. Bring up all instances of Sterling Integrator by running `startWindowsService.cmd` from the `install_dir\install\bin` directory for each instance, starting with the first node.

Note: It may take several minutes for Sterling Integrator components to initialize and start up.

If Sterling Integrator does not start or if you receive a message about an invalid or corrupt license file, go to the *Troubleshooting: Windows Environment* section.

When startup is finished, a message like the following is displayed:

Open your Web browser to `http://host:port/(interface)`, where `host:port` is the IP address, `port number` is where Sterling Integrator resides on your system, and `(interface)` is the interface used by Sterling Integrator (for example, `admin` or `dashboard`).

Make a note of the URL address so you can access Sterling Integrator later.

What to do next

To dynamically add new nodes to the cluster, install the new node in the same way that you installed node 2 in a new cluster installation. Run the `startCluster.cmd` command with the new node number.

Note: After performing the upgrade, refer to *Installing the Current Maintenance Patch (Cluster)* to install the latest patch.

Installing in a Windows Cluster Environment (Manually Edited Silent Install File)

About this task

Use the following instructions to install in a Windows cluster environment from a command line, using a manually edited silent installation file. To use a manually edited silent installation file, you must first create a silent installation file using a text editor. The file must contain the entries marked as required in the following table. When you are finished editing the file, record its name and location. You will use this information during the installation.

If possible, use a silent installation file from an interactive installation as an example for your silent installation file. Also, use the `antinstall-config.xml` file in `SCIIInstallWizard.jar` to check the names and default values for the entries.

Note: File paths require UNIX slashes (/), because the installation interacts with a Java program.

Entry	Description
	The following entries correlate to prompts in the installation procedure described in <i>Installing in a Windows Cluster Environment (GUI-Based)</i> . Read through that procedure when creating your silent installation text file.
ACCEPT_LICENSE	(Required) Indicates if the user accepts the license agreement.Default: YES
JVM_LOC	(Required) Full path to JDK directory.
JCE_DIST_FILE	(Required) Full path to unlimited strength JCE policy file. If present, this file will overwrite the JCE file in the JDK.Example: <i>absolutePath/unrestrict123.zip</i>
LICENSE_FILE_PATH	(Required) Full path to a valid license file.Example: <i>absolutePath/Full_License.xml</i>
SI_LICENSE_AVAILABLE	Indicates if a license is being passed in and is required for installation.Default: YES
INSTALL_DIR Note: The INSTALL_DIR property cannot point to a pre-existing directory, or the installation will fail.	(Required) Directory that includes subdirectories like “bin” (where many commands are stored) and “properties” (where many property files are stored). It can include the following: <ul style="list-style-type: none"> • The installation directory that you specify during an interactive installation. • The subdirectory “install”. Although you can enter your own path, the <i>install_dir\install</i> path matches the path that is created during an interactive installation. It also matches the path that is used in documentation. For example, an instruction to stop Sterling Integrator reads: Navigate to the <i>install_dir\install\bin</i> directory. Run the <i>hardstop.cmd</i> command. Use the same drive to upgrade to Sterling Integrator 5.0 where you have installed Gentrans Integration Suite 4.x. For example, if you have installed Gentrans Integration Suite 4.x on C:\ drive, Sterling Integrator 5.0 upgrade should be performed on C:\ drive.
DB_VENDOR	(Required) Database vendor.Valid values: <ul style="list-style-type: none"> • Oracle • MSSQL2005 • DB2 Note: Clustering is not supported for Sterling Integrator systems that use the MySQL database, even though it is a prompted option. Do not use the MySQL option.
MSSQL2005	<ul style="list-style-type: none"> • (Microsoft SQL Server 2005) Set this attribute to the default value of true. • (All other servers) Do not include this attribute. Note: This attribute is case-sensitive.Default: true

Entry	Description
INSTALL_IP	(Required) Host name.Valid values: <ul style="list-style-type: none"> • localhost (default) • (your IP address or host name) <p>Note: If you are installing Sterling Integrator on VMware, you should provide the IP address of the virtual machine and not of the VMware host. For example, if 10.251.124.160 is the IP address of the VMware server and 10.251.124.156 is the IP address of the Windows 2003 server it is hosting, you should use 10.251.124.160 as the IP address to install Sterling Integrator.</p> <p>Caution: Sterling Integrator 5.0 does not support IPv6 installation on Windows. Before applying an IPv6 address, see <i>IPv6 Capabilities</i> section in <i>Sterling Integrator 5.0 System Requirements</i> guide.</p>
PORT1	(Required) Base port for ASI server. Ports are assigned consecutively from this port (for example, JNDI_PORT = base port + 1).Example: 12345Default: 8080
APSERVER_PASS	(Required) Passphrase used to secure all encrypted data in database.
SI_ADMIN_MAIL_ADDR	(Required) E-mail address for the administrative user.Example: abc@xyz.com
SI_ADMIN_SMTP_HOST	(Required) Valid SMTP host through which the system can e-mail the administrative user.Example: mail.xyz.com
REINIT_DB	(Required) Indicates if database should be initialized. <ul style="list-style-type: none"> • For node 1 of a cluster, this property is true. • For node 2 and higher of a cluster, this property is false. Default: true
CLUSTER	(Required) Indicates if this is the second or higher node of a cluster installation.Valid values: <ul style="list-style-type: none"> • true - This is the second or higher node of a cluster installation. • false (default) - This is the first node of a cluster or a single node (non-cluster) installation.
FIPS_MODE	(Optional) Indicates if you are using FIPS (Federal Information Processing Standards) mode.Valid values: <ul style="list-style-type: none"> • true - Enable FIPS mode. • false (default) - Disable FIPS mode.

Entry	Description
ORACLE_USE_BLOB	(Required if DB_VENDOR=Oracle) Indicates the data type to use for caching. <ul style="list-style-type: none"> • true (default) - BLOB (binary large object) • false - Long Raw
DB_USER	(Required) Database user name.Example: abcd_123_1
DB_PASS	(Required) Database password.Example: xyz
DB_DATA	(Required) Database catalog name.Example: abcd
DB_HOST	(Required) Database host name.Example: abcdDefault: localhost
DB_PORT	(Required) Database port.Example: 1234
DB_DRIVERS	(Required) Full path to JDBC driver file(s). If DB_VENDOR is: <ul style="list-style-type: none"> • Oracle or MSSQL2005, specify one driver. • DB2, specify two drivers. If you specify more than one driver, use colons (:) to separate the file names.Examples: <ul style="list-style-type: none"> • <i>JDBC_driver_dir/jdbc.jar</i> • <i>JDBC_driver_dir/db2_1_jdbc.jar;JDBC_driver_dir/db2_2_jdbc.jar</i>
UPGRADE	(Required) Indicates if you are upgrading. Set this value to true .Default: false Note: Set the value as False from node 2 onwards.
DB_CREATE_SCHEMA	(Required if DB_VENDOR=Oracle, MSSQL2005, or DB2) Indicates if you want the database schema automatically created.Valid values: <ul style="list-style-type: none"> • true (default) - Automatically create the schema. • false - Manually create the schema. Note: If you create the database schema manually, restart the installation procedure in a new installation directory. You can delete the installation directory created earlier.
DEBUG	(Optional) Records events that occur during the installation in InstallSI.log file.Valid values: <ul style="list-style-type: none"> • true - records events that occur during the installation. • false (default) - does not record the events that occur during installation.

Entry	Description
JDK64BIT	Indicates if a 32-bit or 64-bit JDK is being used. Refer to the <i>System Requirements</i> to determine the type of JDK for your operating system. Valid values: <ul style="list-style-type: none"> • true (default) - 64-bit • false - 32-bit
Icons	Indicates whether to create a desktop icon for accessing Sterling Integrator. Valid values: <ul style="list-style-type: none"> • true - Create a desktop icon. • false (default) - Do not create a desktop icon.
The following entries do not directly correlate to prompts in the installation procedure described in <i>Installing in a Windows Cluster Environment (GUI-Based)</i> . Use these entries to customize or document your installation.	
DB_DRIVERS_VERSION	Free form version string for JDBC driver. This is informational only. Example: 8_1_5
JDBC_VENDOR	JDBC driver vendor. Used when multiple vendors are available (DB2 iSeries: DB2APP, DB2TOOLBOX, DB2). Default: Microsoft
LOAD_FACTORY_SETUP	Indicates whether factory setup should be loaded during installation. Valid values: <ul style="list-style-type: none"> • true (default) - loads factory setup during installation. • false - does not load factory setup during installation. Run loadDefaults command after installation. <p>Note: To manually set LOAD_FACTORY_SETUP to false after an installation where LOAD_FACTORY_SETUP=true (the default value), change LOAD_FACTORY_SETUP to false in sandbox.cfg file.</p>
CONFIG_GS	Indicates whether integration with Gentran Server should be configured. Default: No
NO_DBVERIFY	Valid values are true/false. When set to true during installation and installservice, dbverify will not be run. This means that the Sterling Integrator will not generate DDL to make the database like the XML entity repository.
DB_CLEAN	Indicates if database should be wiped at the beginning of the installation. Default: no

Upgrading Sterling Integrator nodes is similar to a standard Sterling Integrator cluster upgrade installation, with the following restrictions on all nodes:

- All nodes must use the same database.
- All nodes must use the same passphrase.
- All nodes must use the same operating system.
- When installing nodes on different machines, the port numbers must be the same.

Note: Installing nodes on different machines helps you take more advantage of the reliability, availability and scalability features of clustering, including failover.

- When installing nodes on the same machine, you must install nodes 2 and higher in different directories and use different initial port numbers. Each initial port number must be at least 100 higher or lower than other initial port numbers.
- You must install and start the nodes sequentially, one at a time, starting with the first node.

To run a cluster, you need to get a valid Sterling Integrator license for multiple IP addresses of all the nodes where Sterling Integrator will be installed and configured as a cluster.

Note: Clustering is not supported for Sterling Integrator systems that use the MySQL database, even though it is a prompted option.

Note: If you encounter problems or errors during installation, see *Troubleshooting: Windows Cluster Environment*.

To install Sterling Integrator, refer to your preinstallation checklist and follow the steps below:

Procedure

1. From the Sterling Integrator installation CD (or from another location), copy SI.jar to a Windows directory.
If you are using FTP to copy the files, verify that your session is set to binary mode.
2. Set up your silent installation file. Record the path to your silent installation file. Use an installation directory that does not yet exist.
3. In a command window, type the following command, which includes paths to the JDK, the Sterling Integrator jar file, and the silent installation file (note the -f parameter):

Note: The directory path to SI.jar cannot include any spaces.

```
absolutePath\bin\java -Xmx512m -jar \absolutePath\SI.jar -f  
\absolutePath\SilentInstallFile
```

The program verifies support for your operating system and JDK. It also verifies that your operating system is patched to the required level.

The installation begins. You can follow the progress of your installation through the PreInstallSI.log in your installation directory. If the installation stops, check the PreInstallSI.log file for details. For more information, refer to *Troubleshooting: Windows Cluster Environment*.

The following components are installed:

- Core files (services, adapters, and predefined business processes)
 - Package files
 - License file
4. When the installation is finished, the system displays the following message:
Installation has completed successfully.
 5. Install each subsequent node, from node 2 onwards.

If you are installing nodes on separate machines, enter the same information in the silent installation file that you entered for node 1, with the following exceptions:

- Set **REINIT_DB=false**. This prevents the database from being re-initialized.
- Set **CLUSTER=true**.

If you are installing multiple nodes on the same machine, enter the same information in the silent installation file that you entered for node 1, with the following exceptions:

- Set **REINIT_DB=false**. This prevents the database from being re-initialized.
- Set **CLUSTER=true**.
- Use a different installation directory for each node (the **INSTALL_DIR** property).
- Use an initial port number that is 100 port numbers higher or lower than the initial port number on other nodes (the **PORT1** property). Each node will be configured on a different port range.

After all the nodes are installed, proceed to the next step.

6. To start the installation of nodes 2 and higher of the cluster, type the following command, which include paths to the JDK directory, the application jar file, and the silent installation file (note the **-f** parameter).

Note: The directory path to **SI.jar** does not include any spaces. Make sure that you specify the full path to the jar file.

```
absolutePath\bin\java -Xmx512m -jar absolutePath\SI.jar -f
absolutePath\SilentInstallFile -cluster
```

The installation starts. You can follow the progress of your installation on screen.

7. If you install multiple nodes on the same machine or use different base ports for node 2 onward, do the following:
 - a. Go to the *install_dir*\install\properties directory of node 1.
 - b. Access the values of the **multicastBasePort** property in the **noapp.properties_platform_ifcresources_ext** file and the **mcast_port** property in the **jgroups_cluster.properties** file.
 - c. Go to the *install_dir*\install\properties directory of each node (from node 2 onward).
 - d. Change the **multicastBasePort** property in the **noapp.properties_platform_ifcresources_ext.in** file to the value of the **multicastBasePort** property in the **noapp.properties_platform_ifcresources_ext** file in the node 1 installation.
 - e. Change the **mcast_port** property in the **jgroups_cluster.properties.in** file to the value of the **mcast_port** property in the **jgroups_cluster.properties** file in the node 1 installation.
 - f. (IPv6 only) For all nodes, change **mcast_property** from 239.255.166.17 to **FFFF:239.255.166.17**.
 - g. (IPv6 only) In the **sandbox.cfg** file, add **HOST_ADDR=<IPv6_hostname>**.
 - h. After changing these properties, run the *install_dir*\install\bin\setupfiles.cmd command for node 2 onward.
8. On each node, starting with node 1, run the command **startCluster.cmd** *nodeNumber* from the *install_dir*\install\bin directory where *nodeNumber* is the sequential number assigned to each node starting with 1. For example, on the first two nodes, you would run the following commands:

Node 1

```
startCluster.cmd 1
```

When the cluster environment is configured, you will get the message **BUILD SUCCESSFUL**.

Node 2

- a. startCluster.cmd 2
- b. Enter the passphrase.

When the cluster environment is configured, you will get the message Deployment to application server successful.

Note: You should run startCluster.cmd command only after you install Sterling Integrator. You should not run startCluster.cmd command when you restart a Sterling Integrator instance. However, if you have installed a patch or a hot-fix, refer *Custom Configurations* to start the cluster without updating the database settings.

9. Once the cluster configuration is complete, go to the *install_dir\install\bin* directory for each node and issue the following commands to install and start Windows services:

- a. InstallWindowsService.cmd
- b. startWindowsService.cmd

When prompted, enter the passphrase that you entered earlier.

Note: If you enter the wrong passphrase, Sterling Integrator exits with the error Error '1' starting SI. To stop all running processes, you must run the hardstop.cmd command before running the startWindowsService.cmd command again.

The final startup processes run, concluding with the following messages:

Open your Web browser to [URL]

Depending on system load, it may take several minutes for the UI to be ready.

Make a note of the URL address so that you can access Sterling Integrator later.

The system returns you to a Windows prompt.

To make a dynamic addition of new nodes to the cluster, install new nodes to the cluster as described above and configure the servers for the cluster.

Note: After performing the upgrade, refer to *Installing the Current Maintenance Patch (Cluster)* to install the latest patch.

Cluster Setup (Windows)

The following sections explain how to set up a cluster installation after upgrading all nodes of the cluster.

Custom Configurations

As part of a default cluster configuration, certain values in the database for service or adapter configurations, default document storage type, etc., are updated to get the cluster working. The default settings include no shared or mounted file system available with “line of sight” from all cluster nodes, etc. Certain service or adapter configurations are forcibly deployed on node1 and default document storage type is set up to “Database” for all business processes.

After you install the cluster and evaluate the customer configurations and requirements, the above conditions might change and custom configurations will

be incorporated. To keep these custom configuration changes from being overwritten, the following cluster configuration script has an option to update the database:

```
startCluster.cmd nodeNumber true/false
```

- *nodeNumber* is the cluster node number
- Type `true` to perform database update and `false` to prevent any database updates.

The first time you configure a cluster, run `startCluster.cmd` with the database update option set to `true` to have all cluster-related configurations take effect.

```
startCluster.cmd nodeNumber true
```

For cluster configurations after the first configuration, you can execute the `startCluster.cmd` command with the database update option turned off. This prevents any configuration changes from affecting the system, especially after installing patches/hot-fixes.

```
startCluster.cmd nodeNumber false
```

Node to Node Communications

Cluster nodes are configured to communicate with each other using JGroups, an open source toolkit that provides flexibility for protocol configuration. JGroups provides rich open management features, along with multiple protocol support. JGroups supports multicast (UDP) and TCP-based communication protocols.

When JGroups is configured to use multicast (UDP), all cluster nodes communicate with each other on a specific IP address and port. The multicast ports are configured based on the installation base port. All clusters that are on the same subnet configured on the same base port will end multicasting messages on the same multicast IP address and port.

To avoid this, each Sterling Integrator cluster on the same subnet needs to be configured on different base ports. Install your clusters on different port ranges or on different network segments with multicast forwarding restricted, so that they will not interfere with each other. The default multicast address used in Sterling Integrator release 5.0 is "239.255.166.17". This address is configurable, with a port range of 10 ports, starting with the multicast base port for the instance.

All nodes participating in the same cluster must be installed on the same multicast base port (the `multicastBasePort` property in the `noapp.properties` file). This is usually computed from the system base (non-multicast) port, but can be configured separately in the `noapp.properties` file, to allow different nodes in a cluster to be installed at different (non-multicast) port ranges. Also, all the nodes in the cluster should be installed in the same subnet.

For node to node communications, the properties are defined in `jgroups_cluster.properties`. The attributes used to define communications are:

- `property_string` - default value is UDP.
- `distribution_property_string` - default value is TCP. This attribute should never be set to UDP.

If you want to change the communication for cluster multicast from TCP to UDP, contact GIS Support.

In addition, if you are using TCP for both `property_string` and `distribution_property_string`, the `initial_hosts` list for `TCPPING` should contain all hosts in the cluster.

For more information about UDP, TCP and JGroups communications, refer to the *Sterling Integrator 5.0 Clustering* documentation.

Configuring Shared File System as Document Storage

In a cluster, the default document storage is database, so that all of the nodes in the cluster have line of sight to the documents to access and process the documents. However, using the database for document storage has performance implications over using the file system for document storage.

To use the file system as document storage in a cluster, the file system needs to be a shared/mounted/clustered file system with all nodes having line of sight to the file system. Have your system administrator set up the shared/mounted/clustered file system.

For each node, follow this procedure to configure a shared file system in a cluster:

1. Go to the `install_dir\install\properties` directory.
2. Change the `document_dir` property in `jdbc.properties.in` to point to the shared file system directory configured to store the documents.
3. Run the `setupfiles.cmd` command in the `install_dir\install\bin` directory.
4. Restart Sterling Integrator (all nodes).

This configures a shared file system directory as document storage.

Cluster Environment Verification

This section explains the verification process for the cluster environment.

- Verify the following properties:
 - The property **CLUSTER=true** is included in `install_dir\install\properties\sandbox.cfg`.
 - The cluster property in `centralops.properties` and `noapp.properties` is true and the `clustered_env` property in `ui.properties` is set to true
- Using the System Troubleshooter, you can verify the cluster environment by viewing the following information for each node:
 1. Queue information
 2. JNDI Tree for each node
 3. Host, state, status, adapters, and memory usage information
 4. Perimeter Server
 5. Shows adapter status for each node with a drop-down box listing all nodes in cluster
- Select **Operations > System > Troubleshooter** to display all the cluster nodes, ops URL, node URL, the status of the node and which node holds the token.
- You can track errors and exceptions in the system by selecting **Operations > System > Logs**. In a cluster environment, the logs are provided for each node. A

dropdown list shows all the nodes. By selecting the node, the logs corresponding to the nodes are displayed. You can see each log item in this page for each node after all nodes start.

- The Activity Monitor UI provides the status of running business process and scheduled services. Using this feature, you can monitor all service activities including the node on which each activity is executing.
- To display the current threads that are running on specific node, select **Operations > System > Troubleshooter**, and then select the Threads for a node.

Starting or Stopping the Cluster Environment

Note: To run a cluster, you need to get a valid Sterling Integrator license for multiple IP address of all the nodes where Sterling Integrator will be installed and configured as a cluster.

You can start the cluster environment by running the following command on each node, starting with node1 (it is recommended to start node 1 first.):

```
startWindowsService.cmd
```

If you are restarting the entire cluster, please run the following commands:

- Node 1:

```
startWindowsService.cmd restart
```

This option is used for cleaning the cluster data, settings, and so on to do a clear start.

- Nodes 2 and higher:

```
startWindowsService.cmd
```

You can stop a cluster by using one of the following options:

- `hardstop.cmd` from each node. This stops all Windows Services for each node.
- `softstop.cmd` from each node. This does a regular cleanup and shutdown of all components.

CAUTION:

Running `softstop.cmd` command in a multiple node (clustered) environment will suspend all scheduled business processes. It is recommended to run the `hardstop.cmd` command when stopping individual nodes of a cluster.

- Shut down the whole cluster by selecting **Operations > System > Troubleshooter**, and then clicking the **Stop the System** link.
- Shut down specific nodes by selecting **Operations > System > Troubleshooter**, and then clicking the **shutdown** link.

Patches and Hot-Fixes (Cluster)

The following sections explain how to update Sterling Integrator, using the following methods:

- *Installing the Current Maintenance Patch (Cluster)*

Patches contain cumulative fixes for a specific version of Sterling Integrator. Because each patch contains the fixes from previous patches, you only need to install the most recent patch.

- *Installing a Hot-Fix (Cluster)*

A hot-fix is one or more fixes applied to a specific existing patch.

Installing the Current Maintenance Patch (Cluster)

Patches contain cumulative fixes for a specific version of Sterling Integrator. Because each patch contains the fixes from previous patches, you only need to install the most recent patch.

Note: During patch installation, the dbVerify utility compares the list of standard indexes with those present in the database and drops the custom indexes. You should recreate the custom indexes after the patch installation is complete.

All nodes in a cluster must be patched to the same level. You should stop all nodes in the cluster before installing a patch and then install the patch on each node but in some cases, you can apply patches to nodes while others are still processing. A patch containing any of the following requires the entire cluster to be down:

- Critical cluster functionality
- Engine-related changes
- Changes to the database

Attempting to apply patches while part of the cluster is running should only be done with the advice of Sterling Commerce Customer Support.

Before installing the patch, refer to the following sections for more information about working with the different nodes of a cluster during a maintenance patch installation:

- *Applying a Patch in a Cluster Environment Stopping the Whole Cluster*
- *Applying a Patch in a Cluster Environment Stopping One Node at a Time*

To help you determine which patch to use, the files are named using the following naming convention:

`si_<release number>_build_<build number>.jar`

Information about a patch is located in a PDF file with a similar name. The naming convention for PDF files containing information about a particular patch is:

`si_<release number>_build_info.pdf`

Both the .jar and the .pdf files are available on the Sterling Commerce Support on Demand Web site, at <https://support.sterlingcommerce.com>. You should periodically check the web site to verify that you have the most recent patch.

Note: The patch installation may use one or more patch property override files. These files will be named *propertyFile_patch.properties*. Do not alter these files. Additionally, property changes made directly in .properties or .properties.in files may be overridden during the patch installation. Properties overridden using the customer_overrides.properties file are not affected.

Applying a Patch in a Cluster Environment Stopping the Whole Cluster

For a critical patch where the whole cluster needs to be down, use the following process:

1. Go to the Sterling Commerce Support on Demand Web site, at <https://support.sterlingcommerce.com>.
2. Download the most recent patch file for your version of Sterling Integrator and record the absolute path to the downloaded file. If you use FTP, use Binary mode. Do not rename the file. Make sure that you download the file to your local machine (for example, to your installation bin directory), and not to a network drive. Use the full path to your local machine when you install the patch.
3. Verify that the database server is up and ready to accept connections.
4. Stop all nodes of the cluster.
5. Perform a full backup of Sterling Integrator installation directory, including all subdirectories. Also back up your database.
6. If your database password is encrypted, decrypt the password. For more information about decrypting database password, refer *Decrypting Database Passwords (Windows)*.
7. If you edited any property files, update the `customer_overrides.properties` file with these changes. This will keep the edited property files from being overwritten with the contents of the associated initialization (`*.properties.in`) files during the patch installation. Please refer to the documentation on configuring overrides to properties files.
8. Close all command prompt windows.
9. Install the patch using the following commands:

- a. Open a command prompt window.
- b. Change to the directory where Sterling Integrator is installed and run the following command:
`installDir\bin`
- c. Run the following command to install the patch:

```
InstallService.cmd <path>\
si_<version>_sp_0_patch_<number>_<app_server>.jar
```

where: `<path>` is fully qualified path to maintenance patch file `<version>` is Sterling Integrator version `<number>` is patch number `<app_server>` is Application server

Example: `InstallService.cmd c:\patch\si_22_sp_0_patch_1_jboss.jar`

Apply the patch to node 1 first, and then to the subsequent nodes: node 2, node 3, etc. For node 1, `REINIT_DB` is true in `sandbox.cfg`. For subsequent nodes, `REINIT_DB` is false, which prevents database updates from repeating on each node's patch installation. This is automatically set during the patch installation for all nodes except node 1 if the installation is done using the `nodbinit` option.

Information about the patch installation is automatically logged to `install_dir\install\logs\InstallService.log`.

If the patch attempts to modify the database schema and the modification fails, you will receive an error message about the failure. The message provides the error message code from the database and the SQL command that failed. The failure information is also logged to the `system.log` file and to the `patch.log` file.

- d. Enter the passphrase when prompted.
10. If you decrypted the database password, re-encrypt the password. For more information about encrypting database password, refer *Encrypting Database Passwords (Windows)*.
11. For each node, run the `startCluster.cmd nodeNumber` command to reconfigure the cluster environment after installing the patch.
For more information about using the `startCluster.cmd` command, refer to *Updating the Database (dbupdate) with the startCluster Command*.
Note: Ensure that you run `startCluster.cmd nodenumber false` command to prevent configuration changes that may affect the system. Refer to *Custom Configurations* before configuring the cluster environment.
12. Restart Sterling Integrator starting with the first node.

If you are using a perimeter server in a DMZ, see the perimeter server documentation.

Applying a Patch in a Cluster Environment Stopping One Node at a Time

For a patch where you can stop the cluster one node at a time, use the following procedure:

Note: Apply the patch to node 1 first, and then to the subsequent nodes: node 2, node 3, etc.

1. Go to the Sterling Commerce Support on Demand Web site, at <https://support.sterlingcommerce.com>.
2. Download the most recent patch file for your version of Sterling Integrator and record the absolute path to the downloaded file. If you use FTP, use Binary mode. Do not rename the file. Make sure that you download the file to your local machine (for example, to your installation bin directory), and not to a network drive. Use the full path to your local machine when you install the patch.
3. Verify that the database server is up and ready to accept connections.
4. Shut down node 1 using the `hardstop.cmd` command.
Wait until the perimeter server of the node is completely down before installing the patch.
5. Perform a full backup of Sterling Integrator installation directory, including all subdirectories. Also back up your database.
6. If your database password is encrypted, decrypt the password. For more information about decrypting database password, refer *Decrypting Database Passwords (Windows)*.
7. If you edited any property files, update the `customer_overrides.properties` file with these changes. This will keep the edited property files from being overwritten with the contents of the associated initialization (*.properties.in) files during the patch installation. Please refer to the documentation on configuring overrides to properties files.
8. Close all command prompt windows.
9. Install the patch using the following commands:
 - a. Open a command prompt window.
 - b. Change to the directory where Sterling Integrator is installed and run the following command:

installDir\bin

- c. Run the following command to install the patch:

```
InstallService.cmd <path>\
```

```
si_<version>_sp_0_patch_<number>_<app_server>.jar
```

where: <path> = Fully qualified path to maintenance patch file <version> = Sterling Integrator Version <number> = Patch number <app_server> = Application Server

Example: InstallService.cmd c:\patch\si_22_sp_0_patch_1_jboss.jar

For node 1, REINIT_DB=true in sandbox.cfg. For subsequent nodes, REINIT_DB=false, which prevents database updates from repeating on each node's patch installation. This is automatically set during the patch installation for all nodes except node 1 if the installation is done using the nodbinit option.

Information about the patch installation is automatically logged to *install_dir*\install\logs\InstallService.log.

If the patch attempts to modify the database schema and the modification fails, you will receive an error message about the failure. The message provides the error message code from the database and the SQL command that failed. The failure information is also logged to the system.log file and to the patch.log file.

- d. Enter the passphrase when prompted.
10. If you decrypted the database password, re-encrypt the password. For more information about encrypting database password, refer *Encrypting Database Passwords (Windows)*.
11. Run the startCluster.cmd 1 command to reconfigure the cluster environment after installing the patch.
For more information about using the startCluster.cmd command, refer to *Updating the Database (dbupdate) with the startCluster Command*.
Note: Ensure that you run startCluster.cmd *nodenumber* false command to prevent configuration changes that may affect the system. Refer to *Custom Configurations* before configuring the cluster environment.
12. Open *install_dir*\install\properties\sandbox.cfg in a text editor. Perform the following steps:
 - a. If REINIT_DB is true, back up the sandbox.cfg file and change REINIT_DB to false.
 - b. Save and close the sandbox.cfg file.

This prevents database updates from being repeated for each node.

13. Repeat this procedure for each subsequent node.
14. Restart Sterling Integrator starting with the first node.

If you are using a perimeter server in a DMZ, see the perimeter server documentation.

Updating the Database (dbupdate) with the startCluster Command

The startCluster.cmd *nodeNumber* command on node 1 will automatically update the database, unless you use the command startCluster.cmd 1 false. The startCluster.cmd *nodeNumber* command on all other nodes will not update the database.

When you configure the Sterling Integrator cluster for the first time, you should run the `startCluster.cmd` command with the database update value set to true (`startCluster.cmd 1 true`), or just `startCluster.cmd 1`, since on node 1, `dbupdate` defaults to true. This makes all cluster-related configurations take effect. The database update will synchronize the scheduled jobs between the nodes by assigning them all to node 1.

The `startCluster.cmd` command with the database update value turned off (`startCluster.cmd 1 false`) prevents any configuration changes from affecting the system, especially after you install patches or hot-fixes.

For current database updates, the following services are tied to node 1:

- Schedule
- FileSystem
- CmdLine
- CDServerAdapter
- CDAdapter
- CDRequesterAdapter
- CEUAdapter
- CEUAdapter
- HttpServerAdapter
- B2B_HTTP_COMMUNICATIONS_ADAPTER
- HTTP_COMMUNICATIONS_ADAPTER
- HTTPClientAdapter
- FTPClientAdapter
- FtpServerAdapter
- SFTPClientAdapter

The default storage of the following services is set to the database:

- HttpServerAdapter
- CEUAdapterExtractServiceType
- CDSERVER_ADAPTER

The default storage of all business processes is set to the database.

Installing a Hot-Fix (Cluster)

After you install Sterling Integrator, you may need to install a hot-fix. A *hot-fix* is one or more fixes applied to a specific existing patch.

Before Installing a Hot-Fix

Before you can install a hot-fix developed for your company, you must have completed the following:

- Received the case ID number from Sterling Commerce Customer Support
- Created a full backup of Sterling Integrator
- Created a full backup of your database

Hot-Fix Installation

To install a hot-fix on the Windows host system:

1. Is the password encrypted? If **Yes**, decrypt the password. For more information about decrypting database password, refer *Decrypting Database Passwords (Windows)*.
Apply the hot-fix to node 1 first, and then to the subsequent nodes: node 2, node 3, etc. For node 1, REINIT_DB is true in *install_dir\install\properties\sandbox.cfg*. For subsequent nodes, REINIT_DB is false, which prevents database updates from repeating on each node's hot-fix installation.
2. Open a command line session. Click the Windows **Start** menu and select **Programs > Accessories > Command Prompt**.
3. At the command line, type `ftp theworld.csg.stercomm.com`.
4. Type your user name and password. If you do not know your user name and password, contact Sterling Commerce Customer Support.
5. Type `bin` and press **Enter** to select Binary as your transfer mode.
6. At the FTP prompt, type `get ccaseid.jar`, where *caseid* is the ID you received from Customer Support.
7. Shut down Sterling Integrator.
8. Open a command prompt and change the directory to *install_dir\install\bin*.
9. Type `InstallService path to ccaseid.jar\ccaseid.jar` to install the hot-fix.
10. If you decrypted the password in step 1, re-encrypt the password. For more information about encrypting database password, refer *Decrypting Database Passwords (Windows)*.
11. In the command prompt, change the directory to *install_dir\install\bin*.
12. Type `uninstallWindowsService.cmd` and log off. This removes previous Sterling Integrator Windows services from the Windows cache.
13. At the command prompt, type your user name and password.
14. Change the directory to *install_dir\install\bin*.
15. Type `installWindowsService.cmd` to install Sterling Integrator Windows services.
16. Restart Sterling Integrator.
17. In the *install_dir\install\bin* directory, run `dump_info.cmd` to verify that the hot-fix was successfully installed. The successful running of `dump_info.cmd` will display Sterling Integrator version number.
18. After installing the hot-fix, run the `startCluster.cmd nodeNumber` command to configure the node to a cluster node. For example, if a node was node 2 before the hot-fix, run the `startCluster.cmd 2` command.
Note: Ensure that you run `startCluster.cmd nodenumber false` command to prevent configuration changes that may affect the system. Refer to *Custom Configurations* before configuring the cluster environment.

Hot-Fix Package Delivery Method

The hot-fix package delivery method has changed effective Sterling Integrator, Release 5.0 Build 5006 onwards. The hot-fix package will be delivered as a jar file that contains only the files that were modified. However, the installation procedure for a hot-fix remains the same. Refer to *Hot-Fix Installation* for hot-fix installation procedure.

The following list describes the features of the new hot-fix package model:

- Modified components are packaged as an installable file (jar).
- Hot-fix version is maintained in the hotfix.properties file. It does not update the SI_VERSION table.

Run `dumpinfo.cmd` command to display the hot-fix version. You can also verify the hot-fix version in Sterling Integrator Support user interface page.

- Size of the hot-fix package is small.
- Hot-fix must be installed on the same build version that was used to build it. For example, if a test system is on Sterling Integrator, Release 5.0 Build 5006 and the hot-fix is built for 5006, it can be installed on that test system. However, if the production system is on Sterling Integrator, Release 5.0 Build 5005, you must apply Sterling Integrator, Release 5.0 Build 5006 prior to applying the hot-fix.
- You can locate the hot-fix read me file in the Sterling Integrator root (*install_dir*) directory. For example, *install_dir*\hotfix_readme.txt.
- If you have Sterling File Gateway installed in your environment, the hot-fix for Sterling File Gateway is installed automatically.

Performing Checksum using DB Checksum Tool

A checksum is a simple redundancy check used to detect errors in data. In Sterling Integrator 4.3, a verification process is used to compare the checksum between the existing default resource and the resource added after applying a patch or upgrading. The DB Checksum tool, a resource difference tool generates a granular report of the changes in the system that was not permitted to be set as defaults.

The DB Checksum tool generates the difference in resource checksum between the default resource and the latest system resource from the database.

To run DB Checksum tool, do the following:

1. Navigate to the *<install_dir>*\bin directory.
2. Run the following command from the *<install_dir>*\bin directory:

```
db_checksum_tool.cmd [-d] [-i [1 | 2 | 3 | 4 | 5]] [-r [wfd | map | schema | sii | template]] [-o <output file>] [-g] [-h]
```

where:
 - d is the mode to dump the difference of resource checksum between the default resource and latest system resource.
 - i is the resource type integer (optional).
 - 1 is WFD
 - 2 is MAP
 - 3 is SCHEMA
 - 4 is SII
 - 5 is TEMPLATE
 - r is the resource name (optional). For example, wfd, map, schema, sii, or template.
 - o is the file name to output all the messages (optional).
 - g is the file name that lists all the ignored resources (optional).
 - h is the help screen.
3. The DB Checksum tool performs the relevant checksum operation based on the command options and generates the output message.

Postinstallation in a Cluster Windows Environment

After installing Sterling Integrator, you should complete the following tasks:

Note: The following tasks assume that Sterling Integrator is installed and running.

- Accessing Sterling Integrator
- Validating the Installation
- Downloading Sterling Integrator Tools
- Configuring Property Files
- Performing Initial Administrative Setups in Sterling Integrator
- Configuring Customer Overrides File when you have a Firewall between Nodes
- *Starting Sterling Integrator in Windows*
- *Stopping Sterling Integrator*

Accessing Sterling Integrator

To log in to Sterling Integrator the first time, follow these steps:

1. Be sure that Sterling Integrator is started and running.
2. Open a browser window and enter the address displayed at the end of startup.
3. The login page for Sterling Integrator displays.
4. Type the default user ID (**admin**) and password (**password**). The default login is at an administrative level. One of your first tasks as an administrator is to change the administrative password and to register other users with other levels of permission.

Technical Note: Changes to Network Interface Bindings

To increase the security of the Administrator Console user interface, Sterling Integrator version 5.0 binds only to specific network interfaces. By default, previous versions had been bound to all network interfaces. After installing, if the URL for Sterling Integrator returns Page cannot be displayed, you can adjust property settings to correct the problem.

1. On the server where Sterling Integrator resides, edit the `noapp.properties.in` file.
 - a. Locate the **admin_host** parameter. The default settings are as follows:
hostname1 is the name of primary network interface, the one given highest priority by Sterling Integrator.
localhost is the name of the network interface on the server where Sterling Integrator resides.

Default entries

```
admin_host.1 = hostname1
admin_host.2 = localhost
```

- b. Correct the parameters.

If no interface is being displayed, edit *hostname1* so that it correctly identifies the primary network interface that accesses Sterling Integrator.

If an additional network interface needs to access Sterling Integrator, add an additional *admin_host* entry, as shown below.

Edited entries

```
admin_host.1 = hostname1
```

```
admin_host.2 = localhost
```

```
admin_host.3 = hostname2
```

2. Stop Sterling Integrator.
3. Run the setupfiles.cmd utility located in the *install_dir*\install\bin directory.
4. Restart Sterling Integrator.

For the Dashboard user interface, Sterling Integrator version 5.0 provides unrestricted binding to network interfaces through the perimeter server. To restrict access to the Dashboard user interface, you can adjust property settings so that only one network interface accesses Sterling Integrator.

1. On the server where Sterling Integrator resides, edit the *perimeter.properties.in* file.

- a. Locate the **localmode.interface** parameter. The default setting is unrestricted, as shown below.

Unrestricted Setting (Default)

```
localmode.interface=*
```

- b. To restrict access to the Dashboard, enter the network interface that you want Sterling Integrator to support.

Restricted Setting

```
localmode.interface=hostname1
```

2. Stop Sterling Integrator.
3. Run the setupfiles.cmd utility located in the *install_dir*\install\bin directory.
4. Restart Sterling Integrator.

Validating the Installation

After you install, start, and log in to Sterling Integrator the first time, you can validate the installation by testing a sample business process. Follow these steps:

1. Open a browser window and enter the address for Sterling Integrator. This address was displayed at the end of startup.
2. Enter your user login and password.
3. From the **Administration Menu**, select **Business Process > Manager**.
4. In the Process Name field, type *Validation_Sample_BPML* and click **Go!**
5. Click **execution manager**.
6. Click **execute**.
7. Click **Go!** You see the Status: Success message in the upper left side of the page.

Downloading Sterling Integrator Tools

Sterling Integrator includes tools that run on a desktop or personal computer. After you install, start, and access Sterling Integrator, you can install the following tools by downloading them from within Sterling Integrator. For more information about a tool, refer to the documentation for that tool.

Note: MESA Developer Studio and Reporting Services are optional features that are purchased separately from Sterling Integrator. These features each require a separate license in addition to your license for Sterling Integrator.

- Map Editor and associated standards
- Graphical Process Modeler

- Web Template Designer
- (If licensed) MESA Developer Studio plug-ins, including:
 - MESA Developer Studio Software Development Kit (SDK)
 - MESA Developer Studio Skin Editor
- (If licensed) Reporting Services, which requires MESA Developer Studio if you want to use the plug-ins to create fact models and custom reports.

Conflicting IP addresses can cause problems when you download a desktop tool. See the *Troubleshooting: Windows Environment* section.

Configuring Property Files

Property files contain properties that control the operation of the Sterling Integrator. For example, the REINIT_DB property in the sandbox.cfg property file controls whether or not a database is initialized when you install Sterling Integrator.

By modifying the values of these properties, you can customize the Sterling Integrator to suit your business and technical needs. Most property files are in the *install_dir\install\properties* directory.

After installing the Sterling Integrator, most property and script files do not need any further configuration for basic operation of the system. However, if you want to customize any specific operations—for example, setting a different logging level—you will need to edit (and in some cases, create) certain property or .xml files.

Before changing any property files, refer to the *Working with Property Files* documentation for general information about how to work with property files. Also, the property files reference documentation has information about specific properties.

Areas where you might need to make specific property file changes after an installation include (but are not limited to) the following areas:

- LDAP user authentication
- Prevention of cross-site script vulnerabilities
- Logging configuration
- Process-specific property file settings
- Securing the Interop Servlet

Performing Initial Administrative Setups in Sterling Integrator

At this point, your installation is complete, and you can run Sterling Integrator. If you are installing Sterling Integrator for the first time, you need to perform some initial administrative setups before users can use Sterling Integrator. For example, the system administrator for Sterling Integrator must register users and grant permissions.

For security purposes, change default user ID passwords immediately after installation is completed. See the *Update My Account Information* task in the documentation library.

Also, it is recommended that you run several performance reports so that benchmarks are established for tuning the system in the future. For more

information about preparing your Sterling Integrator system for effective performance tuning, refer to the performance tuning methodology information in the *Performance and Tuning Guide*.

Configuring Customer Overrides File when you have a Firewall between Nodes

If you have configured a firewall between nodes that blocks ports outside of the port range assigned to Sterling Integrator, perform the following task on all nodes:

1. Navigate to the *install_dir*\install\properties directory and locate (or create, if necessary) the *customer_overrides.properties* file.
2. Open the *customer_overrides.properties* file using a text editor.
3. Add the following properties:

```
noapp.jnp_host= <host_name>
noapp.jnprmiport=<port_number_1>
noapp.jnprmiport2=<port_number_2>
noapp.useSocketFactories=true
noapp.jndirmiport=<port_number_3>
ops.jnp_host= <host_name>
ops.jnprmiport=<port_number_1>
ops.useSocketFactories=true
ops.jndirmiport=<port_number_2>
ops.jnprmiport2=<port_number_3>
```

This increases the number of threads used by the system.

4. Save and close the *customer_overrides.properties* file.
5. Stop Sterling Integrator and restart it to apply the changes.

Starting Sterling Integrator in Windows

To start Sterling Integrator:

1. Navigate to the *install_dir*\install\bin directory and run the following command:

```
StartWindowsService.cmd
```

Note: It may take several minutes for the Sterling Integrator components to initialize and start up.

If the Sterling Integrator does not start or if you receive a message about an invalid or corrupt license file, go to the *Troubleshooting: Windows Cluster Environment*.

When startup is finished, a message like the following is displayed:

```
Open your Web browser to http://host:port/(interface)
```

host is the IP address, *port* is where the Sterling Integrator resides on your system, and (*interface*) is the interface used by Sterling Integrator.

1. Record the URL address so that you can access Sterling Integrator again later.

2. Enter the default user ID (admin) and password (password). The default login is at an administrative level. One of your first tasks as an administrator is to change the administrative password and to register other users with other levels of permission.

Stopping Sterling Integrator

To stop Sterling Integrator in a Windows environment, follow these steps:

1. Open Sterling Integrator.
2. From the **Administration Menu**, select **Operations > System > Troubleshooter**.
3. Click **Stop the System** and wait for shutdown to complete.

Managing Nodes in a Cluster

You can add or remove nodes in a cluster environment. The following prerequisites should be considered before performing any modification in the cluster environment:

- New nodes should have the same range of ports available as the current nodes.
- Sterling Integrator license file should be updated to include the IP address of the new nodes.
- Directory structure on the new nodes should match with the directory structure of the existing nodes.
- Perimeter servers should be updated with the new IP addresses to ensure proper configuration.
- Any adapters, services, or business processes assigned to or scheduled to run on the node being removed should be assigned to run on other nodes.

The following sections provide the necessary steps to add a node and remove a node from the cluster:

- *Adding a Node*
- *Removing a Node*

Adding a Node

To add a node into the cluster:

Note: You do not need to stop the cluster environment while adding a new node.

1. Install a new Sterling Integrator node to be added into the cluster with the `-cluster` option during installation. To install a new node, refer *Installing in a Windows Cluster Environment*. Ensure that the new node being added is not a primary node.
2. Update `jgroups_cluster.properties` file and `jgroups_cluster.properties.in` file with the new node details.
3. Configure the new node by running the command `startcluster.cmd nodeNumber` from the `install_dir\bin` directory. The node number should be greater than 1.

Note: You should run `startcluster.cmd` command only after you install Sterling Integrator. You should not run `startcluster.cmd` command when you restart a Sterling Integrator instance. However, if you have installed a patch or a hot-fix, refer *Custom Configurations* to start the cluster without updating the database settings.

4. Start the new Gentran Integration Suite node. To start a node, refer *Starting Sterling Integrator in Windows*.

Removing a Node

To remove a node from the cluster:

1. Reassign or stop any adapters, services, or business processes assigned to or scheduled to run on the node being removed.

Note: It is recommended that you restart the Sterling Integrator cluster environment after removing the node from the cluster. To restart Sterling Integrator cluster environment, refer *Starting or Stopping the Cluster Environment*.

2. Perform backup of the node being removed.
3. Edit `jgroups_cluster.properties` file and `jgroups_cluster.properties.in` file in all nodes to remove the IP address of the node being removed.
4. Uninstall Gentran Integration Suite in the node being removed. To stop a node and uninstall Gentran Integration Suite from a node, refer *Uninstalling Sterling Integrator from a Cluster Windows Environment*.

Uninstalling Sterling Integrator from a Cluster Windows Environment

When you uninstall the Sterling Integrator, it is automatically removed from the server.

Additionally, you may perform the following tasks:

- Manually remove the JDK that was installed
- Manually remove any desktop tools that were downloaded
- Free any database space in Oracle or SQL Server databases

Note: This uninstallation procedure applies to Sterling Integrator 5.0, and not the version of Sterling Integrator from which you are upgrading.

To uninstall Sterling Integrator from a Windows environment, follow these steps:

1. Stop Sterling Integrator and wait for shutdown to complete.
2. Run `install_dir\install\bin\uninstallWindowsService.cmd` to remove the following Windows services:
 - Sterling Integrator
 - Opsserver
 - Noapp server
 - WebDav server

You should receive a message stating that the services were successfully removed. To verify their removal, open the Services window:

- a. Select **Start > Settings > Control Panel**.
- b. Click **Administrative Tools > Services**.

If the services were not removed, you must delete them from the Windows registry:

- a. Go to the Windows registry.
- b. Locate `HK_LOCAL_MACHINE\System\Current Control Set\Services`.

- c. Delete the keys for Sterling Integrator and Opsserver. These registry keys start with Sterling Integrator
 - d. Reboot to apply the registry changes.
3. If the JDK is not being used by another application, remove it.
 - a. From the Windows **Start** menu, select **Settings > Control Panel**.
 - b. From the Control Panel, select **Add/Remove Programs**.
 - c. In the Add/Remove Programs window, select **Java 2 SDK Runtime Environment Standard Edition v<version number>** and click **Remove**.
 - d. In the Add/Remove Programs window, select **Java 2 SDK Standard Edition v<version number>** and click **Remove**.
 - e. Close all windows and return to your desktop.
 4. Delete the folder where Sterling Integrator was installed, including all subfolders. For example, delete C:\SterlingCommerce and its subfolders.
 5. If you use an Oracle or SQL Server database, these remain intact even after you remove Sterling Integrator from the server. If you no longer want to reference the data, contact your database administrator about removing the unwanted tables and recovering the database space where Sterling Integrator resided.
 6. After you remove Sterling Integrator from the server, you can remove Eclipse, and any tools that were downloaded to the desktop:

Note: You can remove Eclipse plug-ins without removing Eclipse. Refer to the Eclipse on-line help for information about removing the plug-ins.

Note: MESA Developer Studio and Reporting Services are optional features that are purchased separately from Sterling Integrator. These features each require a separate license in addition to your license for Sterling Integrator.

 - Map Editor and associated standards
Refer to the *Map Editor Guide* for information about removing the Map Editor.
 - Graphical Process Modeler
Refer to the *Graphical Process Modeler Guide* for information about removing the Graphical Process Modeler.
 - Web Template Designer
Refer to the *Web Extensions Guide* for information about removing the Web Template Designer.
 - (If licensed) MESA Developer Studio plug-ins, including the Software Development Kit (SDK) and Skin Editor.
Refer to the *MESA Developer Studio* guide for information about removing MESA Developer Studio.
 - (If licensed) Reporting Services, which requires MESA Developer Studio if you want to use the plug-ins to create fact models and custom reports.
Refer to the *MESA Developer Studio* guide for information about removing Reporting Services.

Troubleshooting: Windows Cluster Environment

Situation	Message or Symptom	Explanation/Resolution
Installing	You encounter errors or problems during installation.	<p>Explanation</p> <p>Installation creates two log files, one for the first (bootstrap) phase and a second for the actual installation phase.</p> <p>Resolution</p> <p>Examine the log files generated during installation:</p> <ul style="list-style-type: none"> • <i>install_dir</i>\install\bootstrap.log • <i>install_dir</i>\install\installSI.log
Installing	During installation, you select the destination directory and the installation program stops running.	<p>Explanation</p> <p>The command window was closed after you selected the destination directory.</p> <p>Resolution</p> <p>Delete the destination directory and re-start the installation process. Do not close the command window.</p>
Installing	You started the installation program but realize that the license file has not been downloaded.	<p>Resolution</p> <p>Minimize the installation window, obtain the license file, and then continue with the installation procedure.</p>
Installing	During installation, you identify the initial port number and then see the message: Port number is already in use.	<p>Resolution</p> <p>Choose one:</p> <ul style="list-style-type: none"> • Use a different port number. • Stop the service that is using the port number that you want to use.
Installing	During installation, you enter database information and see the message: Information is incorrect.	<p>Explanation</p> <p>One or more of the criteria for the database is incorrect.</p> <p>Resolution</p> <p>Click Back to redisplay the dialog box that asks for the database information. Correct the error and click Next.</p>

Situation	Message or Symptom	Explanation/Resolution
Installing	Installation appears to complete successfully, but Sterling Integrator services are not installed.	<p>Explanation</p> <p>You may have reinstalled Sterling Integrator on a Windows server and chosen the same initial port.</p> <p>Resolution</p> <p>If this is the case, either reinstall Sterling Integrator in a different directory using a different port, or follow the steps below to uninstall the existing Sterling Integrator services prior to reinstalling Sterling Integrator.</p> <ol style="list-style-type: none"> 1. Run <code>install_dir\install\bin\stopWindowsService.cmd</code> and wait for all Sterling Integrator Windows services to stop. 2. Run <code>install_dir\install\bin\uninstallWindowsService.cmd</code> and log off. This cleanly removes the old Windows services from Windows cache and verifies that there are no scheduled jobs running in the background. 3. Delete the <code>install_dir</code> directory. 4. You can now install the new version of Sterling Integrator at the same port.
Installing	After installing Sterling Integrator, a <code>siInstall.*</code> subdirectory is left in the current working directory. This can cause the file system to become full.	<p>Explanation</p> <p>The Java installer is not allowed to delete the <code>siInstall.*\platform_core_2000.jar</code> because it is "in use" by the JVM.</p> <p>Resolution</p> <p>Manually delete the leftover <code>siInstall.*</code> subdirectory on Windows after each installation attempt.</p>
Starting	If Sterling Integrator does not start, examine the log file in <code>install_dir\install\logs</code> for an invalid or corrupt license file.	<p>Resolution</p> <p>Obtain the license file. Then restart Sterling Integrator.</p>

Situation	Message or Symptom	Explanation/Resolution
Installing a desktop tool or resource	<p>Cannot download any of the following: Note: MESA Developer Studio and Reporting Services are optional features that are purchased separately from Sterling Integrator. These features each require a separate license in addition to your license for Sterling Integrator.</p> <ul style="list-style-type: none"> • Map Editor and associated standards • Graphical Process Modeler • Web Template Designer • (If licensed) MESA Developer Studio plug-ins (Software Development Kit (SDK), Skin Editor) • (If licensed) Reporting Services, which requires MESA Developer Studio if you want to use the plug-ins to create fact models and custom reports. 	<p>ExplanationWhen you install Sterling Integrator, system files are created that contain an internal IP address. If you install Sterling Integrator behind a firewall, and your firewall is configured to accept an external IP address from a client computer, you may not be able to download the desktop tools and resources. The firewall will reject the IP address from a client residing outside of the firewall. Resolution</p> <p>Modify the system files that contain the invalid IP address. Follow these steps:</p> <ol style="list-style-type: none"> 1. Navigate to the <i>install_dir\install\bin</i> directory. 2. Stop Sterling Integrator. 3. Enter the following command followed by the external IP address: patchJNLP.cmd external_IP address 4. Restart Sterling Integrator.
Accessing	Attempts to access the URL for Sterling Integrator display the message: Page cannot be displayed.	See <i>Technical Note: Changes to Network Interface Bindings</i> .

Chapter 4. Installing a Perimeter Server in Windows (Cluster)

Installing a Perimeter Server in Windows (Cluster)

A perimeter server is an optional software tool for communications management that can be installed in a demilitarized zone (DMZ), which is a computer host or small network inserted as a neutral zone between a company's private network and the outside public network.

The perimeter server manages the communications flow between outer layers of your network and the TCP-based transport adapters. A perimeter server can solve problems with network congestion, security, and scalability, especially in high-volume, Internet-gateway environments. A perimeter server requires a corresponding perimeter client.

Installing a Sterling Integrator perimeter server in a Windows environment includes the following sections:

- *Setting Up Perimeter Servers with Sterling Integrator*
- *Installing a Perimeter Server in a More Secure Network in a Windows Environment*
- *Installing a Perimeter Server in a Less Secure Network in a Windows Environment*
- *Installing an External Perimeter Server in Silent Mode*
- *Installing Patches in a Perimeter Server Windows Environment*
- *Starting and Stopping Perimeter Servers in Windows*
- *Reducing Perimeter Server Security Vulnerabilities*

Setting Up Perimeter Servers with Sterling Integrator

The Sterling Integrator installation program installs a perimeter client and a local mode server. The local mode server is useful for testing purposes or in environments that do not require a secure solution. However, if you require high-volume, secure connections, you must install a perimeter server in a remote zone, either a more secure or less secure network than your integration server.

When you install a perimeter server, use these guidelines:

- Licensing for a perimeter server is determined by the licensing restrictions on the corresponding B2B adapters in Sterling Integrator.
- Each perimeter server is limited to two TCP/IP addresses: internal interface and external interface. *Internal interface* is the TCP/IP address that the perimeter server uses to communicate with Sterling Integrator. *External interface* is the TCP/IP address that the perimeter server uses to communicate with trading partners.
To use additional TCP/IP addresses, install additional perimeter servers.
- You may have multiple perimeter servers installed on the same computer interacting with one instance of Sterling Integrator. To install a perimeter server on a computer with an existing instance, install the new perimeter server in a different installation directory.
- The combination of internal TCP/IP address and port must be unique for all perimeter servers installed on one computer.

- If a perimeter server is installed using the wildcard address, then all ports must be unique.
- If a perimeter server is installed using the wildcard address, then its port is not available for use by adapters that use the server or any other perimeter server on that computer.
- The internal and external interface may use the same TCP/IP address. However, the port used by the perimeter server is not available to the adapters that use the server.

Installing a Perimeter Server in a More Secure Network in a Windows Environment

To install a perimeter server in a Windows environment:

1. Close all open Windows programs.
2. Insert Sterling Integrator installation CD into the appropriate drive.
3. Open a DOS command window.
4. Copy the ps_4400.jar installation files from the installation CD (or from another location) to a Windows directory. If you are using FTP to copy the file, be sure your session is set to binary mode.

5. To begin the installation, enter the absolute path to the following jar file:
`\absolutePath\bin\java -jar \install_dir\install\packages\ps_4400.jar -interactive`

Note: You can install perimeter server either in silent mode or in interactive mode. The default installation mode is silent. In the silent mode, you should specify the details in a silent file, whereas in the interactive mode, you should enter the value each time a prompt appears. Append the install command with the `-interactive` flag to install through the interactive mode.

The program verifies the operating system, required patch level, and the location and version of the JDK.

6. Enter the name for the installation directory.
7. If there is an existing installation in the directory you specify, you can update it using the same settings. Answer the question:

There is an existing install at that location, update it while keeping existing settings?

If **yes**, the installation will proceed without additional entries.

Note: If you want to change any of the settings, you must use a new directory, or delete the old installation before performing the new installation. You cannot overwrite an existing installation, and you cannot use an existing directory that does not contain a valid installation. The existing installation must be Sterling Integrator 5.0 or later.

The program verifies the amount of available disk space.

8. Answer the question:
Is this server in a less secure network than the integration server?

No

For more information about making the perimeter more secure, refer to *Reducing Perimeter Server Security Vulnerabilities*.

9. Answer the question:
Will this server need to operate on specific network interfaces?

- If **yes**, the program returns a list of the available network interfaces available on your host. Select the interfaces for the server to use.
10. Enter the TCP/IP address or DNS name that the integration server (Sterling Integrator) will listen on for the connection from this server.
 11. Verify the TCP/IP address or DNS name.
 12. Enter the port that the integration server (Sterling Integrator) will listen on for the connection from this server. The port number must be higher than 1024.
 13. Enter the local port that the perimeter server will use for the connection to the integration server (Sterling Integrator). The port number must be higher than 1024, except specify a port of zero if you want the operating system to select any unused port.
 14. Verify the port.
When the perimeter server is installed, the following message is displayed:
Installation of Perimeter Service is finished
 15. Change to the installation directory.
 16. Enter `installPS.cmd` to install this perimeter server as a Windows Service.
 17. Enter `startPSService.cmd` to start the perimeter server.

Installing a Perimeter Server in a Less Secure Network in a Windows Environment

To install a perimeter server in a Windows environment:

1. Close all open Windows programs.
2. Insert Sterling Integrator installation CD into the appropriate drive.
3. Open a DOS command window.
4. Copy the `ps_4400.jar` installation files from the installation CD (or from another location) to a Windows directory. If you are using FTP to copy the file, be sure your session is set to binary mode.
5. To begin the installation, enter the absolute path to the following jar file:
`\absolutePath\bin\java -jar \install_dir\install\packages\ps_4400.jar -interactive`

Note: You can install perimeter server either in silent mode or in interactive mode. The default installation mode is silent. In the silent mode, you should specify the details in a silent file, whereas in the interactive mode, you should enter the value each time a prompt appears. Append the install command with the `-interactive` flag to install through the interactive mode.

The program verifies the operating system, required patch level, and the location and version of the JDK.

6. Enter the name for the installation directory.
7. If there is an existing installation in the directory you specify, you can update it using the same settings. Answer the question:

There is an existing install at that location, update it while keeping existing settings?

If **yes**, the installation will proceed without additional entries.

Note: If you want to change any of the settings, you must use a new directory, or delete the old installation before performing the new installation. You cannot overwrite an existing installation, and you cannot use an existing directory that does not contain a valid installation. The existing installation must be Sterling Integrator 5.0 or later.

The program verifies the amount of available disk space.

8. Answer the question:

Is this server in a less secure network than the integration server?

Yes

9. Answer the question:

Will this server need to operate on specific network interfaces?

If **yes**, the program returns a list of the available network interfaces available on your host. Select the interfaces for the server to use.

10. Enter the TCP/IP address or DNS name for the internal interface to use to communicate with the integration server (Sterling Integrator). Press Enter to use a wildcard for this address.

11. Verify the TCP/IP address or DNS name for the internal interface.

12. Enter the TCP/IP address or DNS name for the external interface to use to communicate with trading partners. Press Enter to use a wildcard for this address.

13. Verify the TCP/IP address or DNS name for the external interface.

14. Enter the port that the perimeter server will listen on for the connection from integration server (Sterling Integrator). The port number must be higher than 1024.

15. Verify the port.

When the perimeter server is installed, the following message is displayed:

Installation of Perimeter Service is finished

16. Change to the installation directory.

17. Enter `installPS.cmd` to install this perimeter server as a Windows Service.

18. Enter `startPSService.cmd` to start the perimeter server.

Installing an External Perimeter Server in Silent Mode

Use the following instructions to install an external perimeter server in silent mode from a command line, using a manually edited silent installation file. Make sure you have set up your silent installation file, as described in *Creating the Silent Installation File*.

The perimeter server can be installed on the same machine where you have installed Sterling Integrator or on a separate machine. It is recommended to install a perimeter server on a separate machine.

To install an external perimeter server using your manually edited silent installation file, refer to *Installing a Perimeter Server with a Silent Installation File*.

Creating the Silent Installation File

A manually edited silent installation file must contain the entries marked as required in the following table. When you are finished editing the file, record its name and location. You will use this information during the installation.

Entry	Description
INSTALL_DIR	(Required) The installation directory that stores perimeter server files and related directories. This directory must exist prior to running silent installation. For example, <code>\install_dir\perimeterserver</code> .
REVERSE_CONNECT	(Optional) Determines if the perimeter server is to be installed in a more secure network zone. Valid values: <ul style="list-style-type: none"> • Y - Install in a more secure network zone. • N - Install in a less secure network zone.
PS_PORT	(Required) Determines the perimeter server port to interact with Sterling Integrator.
PS_SECURE_IF	(Required) Determines the TCP/IP address or DNS name for the internal interface to communicate with the integration server (Sterling Integrator). You can use a wildcard (*) for this address.
PS_EXTERNAL_IF	(Required) Determines the TCP/IP address or DNS name for the external interface to communicate with the trading partners. You can use a wildcard (*) for this address.
REMOTE_ADDR	(Optional) Determines the remote perimeter server address. (Not required if REVERSE_CONNECT=N)
REMOTE_PORT	(Optional) Determines the remote perimeter server port. (Not required if REVERSE_CONNECT=N)
MAX_JVM_HEAP	(Required) Determines the maximum Java heap size allocated to the JVM.

Following is an example of the perimeter server silent installation file contents:

```
INSTALL_DIR=\install_dir\perimeterserver
REVERSE_CONNECT=N
PS_PORT=48000
PS_SECURE_IF=*
PS_EXTERNAL_IF=*
MAX_JVM_HEAP=512
```

Installing a Perimeter Server with a Silent Installation File

To install an external perimeter server in silent mode:

1. Copy the `ps_4400.jar` installation files from the installation CD (or from another location) to a Windows directory. If you are using FTP to copy the file, make sure your session is set to binary mode.
2. Setup your silent installation file, using the guidelines in *Creating the Silent Installation File*. Record the location of the silent installation file.
3. To begin the installation, type the following command, which includes path to the JDK, the perimeter server .jar file, and the silent installation file (note the `-f` parameter):

```
\absolutePath\bin\java -jar \install_dir\install\packages\ps_4400.jar -f
silent.txt
```

The program verifies the operating system, required patch level, and the location and version of the JDK.

If you want to change any of the settings, you must use a new directory, or delete the old installation before performing the new installation. You cannot overwrite an existing installation, and you cannot use an existing directory that does not contain a valid installation. The existing installation must be Sterling Integrator 5.0 or later.

When the perimeter server is installed, the following message is displayed:

```
Installation of Perimeter Service is finished
```

4. Change to the installation directory.
5. Enter startupPs.cmd to start the perimeter server.

Installing Patches in a Perimeter Server Windows Environment

Remote perimeter servers are not automatically updated by a service pack or patch. You must reinstall the perimeter server using the new perimeter server installation file supplied with the service pack or patch.

Updating a Remote Perimeter Server in Windows

To update a remote perimeter server in Windows, do the following:

1. Update your installation of Sterling Integrator with the latest maintenance patch. Obtain the maintenance patch file from the Sterling Commerce Support on Demand web site, at <https://support.sterlingcommerce.com>. These patches have a name that identifies a build number. For example, `si_50_build_5002.jar`. For more information, refer to the maintenance patch documentation.
2. Locate your perimeter server patch file in the `install_dir/install/packages` directory of your installation of Sterling Integrator. For maintenance patches, obtain the file from the Sterling Commerce Support on Demand Web site, at <https://support.sterlingcommerce.com>. These patch files have a name that identifies a version number. For example, `ps_2006.jar`.
3. Copy the file to the home directory or base directory on the remote server.
4. Stop the perimeter server using the `stopPs.cmd` command.
5. To begin the installation, type the following command:

```
\absolutePath\bin\java -jar filename.jar -interactive
```

Note: You can install perimeter server either in silent mode or in interactive mode. The default installation mode is silent. In the silent mode, you should specify the details in a silent file, whereas in the interactive mode, you should enter the value each time a prompt appears. Append the install command with the `-interactive` flag to install through the interactive mode.

absolutePath is the directory name where the Java version is installed.

The program verifies the operating system, required patch level, and the location and version of the JDK.

6. Type the full path to the installation directory. If you do not want to change any settings for your perimeter server, specify the same directory where the remote perimeter server was originally installed.
7. Answer the question:
There is an existing install at that location, update it while keeping existing settings?

If **yes**, the installation will proceed without additional entries.

Note: If you want to change any of the settings, you must use a new directory, or delete the old installation before performing the new installation. You cannot overwrite an existing installation, and you cannot use an existing directory that does not contain a valid installation. The existing installation must be Sterling Integrator 5.0 or later.

When the perimeter server is installed, the following message is displayed:

```
Installation of Perimeter Service is finished
```

8. Change to the installation directory.
9. Type `startupPs.cmd` to start the perimeter server.

Starting and Stopping Perimeter Servers in Windows

To start a perimeter server in Windows, use the `startPSService.cmd` command, or use the Services Control Panel.

To stop a perimeter server in Windows, use the `stopPSService.cmd` command, or use the Services Control Panel. To remove this perimeter server's definition as a Windows Service, use the `uninstallPSService.cmd` command.

Reducing Perimeter Server Security Vulnerabilities

When Sterling Integrator is deployed with a remote perimeter server in a more secure network zone, there is a security vulnerability. An intruder may compromise the host where the proxy resides, and take over the persistent connection to the perimeter server residing in the more secure zone. If this happens, the perimeter server will relay all the intruder's network requests past the firewall into this internal zone.

To prevent an intrusion, limit the activities the remote perimeter server can perform on behalf of the proxy to specifically those activities that the proxy needs to do for its operation.

Control these limitations by a configuration residing in the secure network zone with the remote perimeter server, inaccessible by the proxy that could become compromised.

Granting Permissions for Specific Activities By a Perimeter Server

1. Install a remote perimeter server, choosing the option for a more secure network zone. Refer to the full perimeter server installation instructions, as described in *Installing a Perimeter Server in a More Secure Network in a Windows Environment*.
2. At the installation prompt *Is this server in a less secure network than the integration server?*, select **No**, which is the option for a more secure network zone.
3. In the perimeter server installation directory there will be a text file named `restricted.policy` that must be customized. Its initial contents are:

```
// Standard extensions
get all permissions by default grant codeBase "file:${java.ext.dirs}/*" {permission
java.security.AllPermission;};
grant
{
```

```

    // Grant all permissions needed for
    basic operation.

    permission java.util.PropertyPermission "*", "read";

    permission java.security.SecurityPermission "putProviderProperty.*";

    permission java.io.FilePermission "-", "read,write";

    permission java.io.FilePermission ".", "read";

    // Needed to allow lookup of network interfaces.

    permission java.net.SocketPermission "*", "resolve";
};
grant
{
    // Adjust for your local network requirements.

    // Needed to connect out for the persistent connection. Do not
    remove this.
    permission java.net.SocketPermission
    "localhost:12002", "connect";

    // For each target FTP Server that a FTP Client Adapter will connect
    to in passive mode.
    //
    // permission java.net.SocketPermission "ftphost:21", "connect";
    // Control connection.
    // permission java.net.SocketPermission
    "ftphost:lowPort-highPort", "connect"; // Passive data connections.

    // For each target FTP Server that a FTP Client Adapter will connect
    to in active mode.
    //
    // permission java.net.SocketPermission "ftphost:21", "connect";
    // Control connection.
    // permission java.net.SocketPermission
    "localhost:lowPort-highPort", "listen"; // Active data port range.

    // permission java.net.SocketPermission "ftphost", "accept"; //
    Active data connections.

    // For each target HTTP Server that an HTTP Client Adapter will
    connect to.
    //
    // permission java.net.SocketPermission "httphost:443", "connect";

    // For each target C:D snode that the C:D Server Adapter will
    connect to.
    //
    // permission java.net.SocketPermission "snode:1364", "connect"

```

```
};
```

1. Edit this file to add permission lines for each back-end server that you intend to allow the proxy to access. There are commented out examples for each type of server.

The first two grant sections are required for correct perimeter server operation. Do not modify these sections.

Example

The following example grants permission to a target FTP Server:

Note: In the example, servers are configured to listen on the following ports: 33001 (for FTP), 33002 (for HTTP), and 1364 (for C:D). These port numbers can be edited.

```
// To restrict or permit
the required Host/Server to communicate with the PS, update the
"ftphost/ httphost/snode" with
    that
of the Server IP and provide the appropriate PORT number where the
Server will listen. //

// For each target FTP Server
// permission
java.net.SocketPermission "10.117.15.87:33001", "connect"; // Control
connection.
// permission java.net.SocketPermission
"10.117.15.87:lowPort-highPort", "connect"; // Passive data connections.

// 10.117.15.87 indicates IP of the FTP Server for which the permission
is granted by PS for communicating with client //

// For each target HTTP Server
//

// permission java.net.SocketPermission "10.117.15.87:33002", "connect";

// 10.117.15.87 indicates IP of the HTTP Server for which the permission
is granted by PS for communicating with client //

// For each target C:D snode
//

// permission java.net.SocketPermission "snode:1364", "connect";

// 10.117.15.87 indicates IP of the Connect Direct Node for which
the permission is granted by PS for communication //
```

1. Turn on restrictions. In the install directory is the perimeter server settings file: `remote_perimeter.properties`. Edit it to change the "restricted" setting to a value of true.
2. In the future, any attempt by the perimeter server to access disallowed network resources will be rejected and logged in the perimeter server log written to the perimeter server installation directory.

Performing DNS Lookup on Remote Perimeter Server

By default, a perimeter server performs DNS lookup in the main server JVM. If you have limited DNS in your secure area, you can configure the remote perimeter server to look up trading partner addresses in the DMZ.

To enable DNS lookup to occur at the remote perimeter server:

1. Edit the `remote_perimeter.properties` file to change the following parameter:

Property Name	Description
<code><psname>.forceRemoteDNS</code>	Forces resolution of DNS names at remote PS true or false

Chapter 5. Post-Upgrade Processes

Adding Third-Party Libraries

If you added third-party libraries to configure adapters for the previous release, you need to add each of the libraries again after you complete the upgrade process for release 5.0. See the documentation for each third party adapter you use.

Configuring Services and Adapters

You may need to reconfigure services and adapters after an upgrade. During an upgrade, packages for services and adapters are reprocessed to update the service configurations.

After an upgrade, the configurations of default adapters and services are re-set to their default configurations. This includes directory paths, which are restored to their default paths. You need to reconfigure those adapters and services, which include, but are not limited to:

- All default FTP adapters
- All default SFTP adapters
- OdetteFTP Adapter
- SAP Suite Adapter
- SWIFTNet Client Service
- SWIFTNet Server Adapter

If you modified the standard configuration for a service or adapter, you may need to reconfigure or reactivate the service or adapter following an upgrade. You may also need to reconfigure adapters that used directories or scripts in the installation directory of your previous release.

Examples of services and adapters that commonly need to be reconfigured following an upgrade include:

- Federation adapter
- FTP adapter
- System services such as the Alert service and the BP Fault Log adapter

These are just examples. Always check the configuration of your adapters following an upgrade.

The following adapters need special consideration following an upgrade:

- *JDBC Adapter and Lightweight JDBC Adapter*
- *File System Adapter and Command Line2 Adapters*
- *Odette FTP Adapter*

JDBC Adapter and Lightweight JDBC Adapter

Storage locations of the database pool properties that allow the JDBC adapter and the Lightweight JDBC adapter to communicate with your external database have been streamlined. The `poolManager.properties` file has been eliminated and some

of its pool properties are now included in the `jdbc.properties` file, along with some new properties. You will need to manually update your existing `jdbc_customer.properties.in` file to add some new database pool properties. If you do not have a `jdbc_customer.properties.in` file, create one since `customer.properties` are not affected by product updates. The specific actions necessary depend on your current installation.

Upgrading from Sterling Integrator 3.0

If you are upgrading from version 3.0 and you used the JDBC adapter or the Lightweight JDBC adapter in that version, perform the following steps:

1. Save a copy of the `jdbc.properties` file and the `poolManager.properties` file from the earlier system. You will need any properties settings you customized for your external database.
2. Set up your Lightweight JDBC adapter or JDBC adapter according to the instructions in the *Lightweight JDBC Adapter* topic or the *JDBC Adapter* topic in Sterling Integrator Documentation site.

Upgrading from Sterling Integrator 3.1

If you are upgrading from version 3.1 and you used a `jdbc_customer.properties.in` file in that version, perform the following steps:

1. Copy the `jdbc_customer.properties.in` file from Sterling Integrator 3.1 installation to the `install_dir\install\properties` directory in Sterling Integrator 5.0 installation. You will edit this copied file in the following steps.
2. Open the `install_dir\install\properties\jdbc_customer.properties.in` file in a text editor.
3. Add the following properties: **Note:** In the following property names, replace `databasePool` with the name of the pool.

Property	Description
<code>databasePool.factory</code>	Always enter: <code>com.sterlingcommerce.woodstock.util.frame.jdbc.ConnectionFactory.</code>
<code>databasePool.behaviour</code>	Sets the behavior that a connection pool exhibits when it runs out of connections. This property replaces the <code>databasePool.onEmpty</code> property in the former <code>poolManager.properties</code> file. Valid values: <ul style="list-style-type: none"> • 0—The pool returns, indicating to the software to abort its current action and try again later. This value corresponds to the value return in the <code>databasePool.onEmpty</code> property. • 1—The pool waits the number of milliseconds specified in <code>databasePool.waittime</code> for a connection to be returned before indicating to the software to abort and try again. This value corresponds to the value wait in the <code>databasePool.onEmpty</code> property. • 2—The pool creates a buffered connection (a connection above the size specified in <code>databasePool.maxsize</code>). When using a setting of 2, the maximum number of connections for the pool is the value specified for <code>databasePool.maxsize</code> plus the value specified for <code>databasePool.buffersize</code> connections. This allows connections to be created under heavy demand. This value corresponds to the value new in the <code>databasePool.onEmpty</code> property.
<code>databasePool.buffersize</code>	Number of extra connections that the connection pool can create above the value specified for <code>databasePool.maxsize</code> to improve handling of unanticipated loads on the system. This property is only used if <code>databasePool.behaviour</code> is set to 2.

Property	Description
<i>databasePool.maxsize</i>	Maximum size of the database pool. This property was previously contained in the <i>poolManager.properties</i> file. This value must not exceed the value specified for the <i>databasePool.maxconn</i> parameter in the <i>jdbc.properties</i> file.
<i>databasePool.initsize</i>	Initial size of the database pool. This property was previously contained in the <i>poolManager.properties</i> file.
<i>databasePool.waittime</i>	Amount of time (in milliseconds) to wait for a connection to become available before indicating to the software to abort the current action and try again later. This property is only used if <i>databasePool.behaviour</i> is set to 1.
For more information, see the <i>Lightweight JDBC Adapter</i> topic or the <i>JDBC Adapter</i> topic in Sterling Integrator Documentation site.	

4. Run the *setupfiles.cmd* utility located in the *install_dir\install\bin* directory of the Sterling Integrator installation directory.
5. Stop and restart Sterling Integrator to use the updated settings.

If you are upgrading from version 3.1 and you used the JDBC adapter or the Lightweight JDBC adapter but you did not use a *jdbc_customer.properties.in* file in that version, perform the following steps:

1. Save a copy of the *jdbc.properties* file and the *poolManager.properties* file from Sterling Integrator 3.1 installation. You will need any properties settings you customized for your external database.
2. Set up your Lightweight JDBC adapter or JDBC adapter according to the instructions in the *Lightweight JDBC Adapter* topic or the *JDBC Adapter* topic in Sterling Integrator Documentation site.

File System Adapter and Command Line2 Adapters

You must configure your File System and Command Line2 adapters before you remove the previous release directory. Reconfigure any File System and Command Line2 adapters that were configured to use directories or scripts in the installation directory for the previous Sterling Integrator release. Ensure that you create new directories and save scripts outside of the release 5.0 installation directory and edit each configuration to use the appropriate directories and scripts.

Note: Creating directories and saving scripts outside of the release 5.0 installation directory makes future upgrade processes easier.

Note: The Command Line2 adapter has replaced the Command Line adapter. To replace the Command Line adapter, follow the instructions in Command Line Adapter.

Command Line2 Adapter

If you are using the Command Line2 adapter and have located the *CLA2Client.jar* file anywhere other than the default location, you must replace it with the new version. For information about the default location and how to start the Command Line2 adapter, see the Command Line2 adapter information in the online Documentation site.

If you are upgrading to Sterling Integrator 5.0 from a Gentran Integration Suite version lower than 4.0.1 and are using the Command Line2 adapter, you must update the version of the *CLA2Client.jar* file with the *CLA2Client.jar* located in the *install_dir\install\client\cmdline2* directory. If you installed the *CLA2Client.jar* file

anywhere other than the default location, you must replace each copy of the file with the new version. If you only installed it in the default location, the update occurs automatically during the upgrade process.

Command Line Adapter

If you are upgrading to Sterling Integrator 5.0 from a Gentran Integration Suite version prior to 4.0 and are using the Command Line adapter, you must update the version of the CLAClient.jar file with the CLA2Client.jar located in the *install_dir\install\client\cmdline2* directory. If you installed the CLAClient.jar file anywhere other than the default location, you must replace each copy of the file with the new version. If you only installed it in the default location, the update occurs automatically during the upgrade process.

Note: CLA instances are now pointing to the CLA2 Service definition. After importing old service instances of CLA onto Sterling Integrator 5.0, you need to reconfigure the imported CLA services to re-set the Remote Name and Remote Port service configuration parameters. For more information, refer to the documentation for the Command Line Adapter and Command Line2 Adapter.

Odette FTP Adapter

If you use the Odette FTP Adapter and are using the Partner Profile XML file version 2.00 used in Gentran Integration Suite 4.3, you must modify it to match the new Partner Profile version 3.00. To modify the XML file, refer to the following table:

Section	Name of Structure or Field	Action	Comment
Partner Profiles	<GeneralParameters> <PartnerProfileVersion>3.00 </PartnerProfileVersion></GeneralParameters>	Use correct version label of the Partner Profile.	New Version label: 3.00
Physical Partner	Description	Add field and description content	Mandatory in OFTP Partner database
Physical Partner	SubMailbox	Add field, if used.	Optional
Physical Partner	<AuthenticationCertificate type="..."> <Subject>string</Subject> <Issuer>string</Issuer> <Serial>Bignumber_string </Subject></AuthenticationCertificate>	Add Structure, if used.	OFTP 2.0: Mandatory for security only. Structure may be repeated.
Physical Partner	<AuthenticationCertificate type="Private Key"> <Subject>string</Subject> <Issuer>string</Issuer> <Serial>Bignumber_string </Subject></AuthenticationCertificate>	Add Structure, if used.	OFTP 2.0: Mandatory for security only.
Physical Partner/CAPI	DWindowSize	Delete field	
Physical Partner/IP	IPFilter		Uses IPv4 or IPv6 addresses.
Physical Partner IP	SSL	Add field, if used.	OFTP 2.0: Mandatory for security only.
Physical Partner IP	CipherStrength	Add field, if used.	OFTP 2.0: Mandatory for security only.

Physical Partner IP	<SSLCertificate type = "..."> <Subject>string</Subject> <Issuer>string</Issuer> <Serial> Bignumber_string </Subject> </SSLCertificate>	Add structure, if used.	OFTP 2.0: Mandatory for security, only. Structure may be repeated.
Physical Partner Contract	Description	Add field and description content.	Mandatory in OFTP Partner database.
Physical Partner Contract	MultipleLoginSessions		Now used.
Physical Partner Contract	DuplicateFilePeriod	RenameDuplicateFileProcessingTestingsTo DuplicateFilePeriod	
Physical Partner Contract	SessionLogLevel	Add fields.	Optional
Physical Partner Contract	GroupNameList	Add fields, if used.	Optional
Physical Partner Contract	SecureAuthentication	Add fields.	OFTP 2.0: Mandatory
Physical Partner Contract	<TimeScheduleTable>... <TimeScheduleTable>	Delete structure and create schedules in the Sterling Integrator Scheduler instead.	Initiator Business Process and Business Process user fields are still used.
Physical Partner Contract	OdetteFTPAPILevel	Rename OdetteAPILevel to OdetteFTPAPILevel	
Logical Partner	Description	Add field and description content.	Mandatory in OFTP Partner database.
Logical Partner	<FileServiceCertificate type = "..."> <Subject>string</Subject> <Issuer>string</Issuer> <Serial>string</Subject> </FileServiceCertificate>	Add structure, if used.	OFTP 2.0: Mandatory for security, only. Structure may be repeated.
Logical Partner Contract	Description	Add field and description content.	Mandatory in OFTP Partner database.
Logical Partner Contract	FileTransmissionRetries	Rename FileTransmitRetries to FileTransmissionRetries	
Logical Partner Contract	SignedEERPRequest	Add field, if used.	
Logical Partner Contract	EERP/NERPSignatureCheck	Add field, if used.	
Logical Partner Contract	File Signing	Add field, if used.	
Logical Partner Contract	File Encryption	Add field, if used.	
Logical Partner Contract	CipherSuite	Add field, if used.	
Logical Partner Contract	File Compression	Add field, if used.	
Logical Partner Contract	CharEncoding	Add field, if used.	
Logical Partner Contract	Receive VirtualFilenamePattern	Add field, if used.	
Logical Partner Contract	EERPTimeout	Rename WaitForEERP to EERPTimeout	
Logical Partner Contract	FileScheduleTimeout	Add field, if used.	
Logical Partner Contract	InboundBusinessProcess	Add field, if used.	Optional

Logical Partner Contract	InboundBusinessProcess	Add field, if used.	Optional, if no Inbound business process is specified.
--------------------------	------------------------	---------------------	--

After changing the Partner Profile for version 3.00, import the Partner Profile into the new Odette FTP Partner Profile database. For additional information, see *Odette FTP Partner Profile*.

Restoring Performance Tuning Configuration

To restore your original performance tuning configuration to the new release, Sterling Integrator provides the Performance Tuning Wizard. You use the wizard to re-enter the settings you saved earlier.

Note: Before completing this procedure, see *Final Upgrade Notes*.

To restore the performance tuning configuration:

1. From Sterling Integrator **Administration Menu**, select **Operations > System > Performance > Tuning**.
2. Under Edit, click **Go!**
3. Click **Edit settings**.
4. Complete the Performance Tuning Wizard, using the settings you obtained from the previous release.

Starting an Upgraded Cluster

After you upgrade all nodes of a cluster, configure the cluster using the following procedure:

1. Node 1
 - a. At a DOS prompt, go to the *install_dir*\install\bin directory.
 - b. Run the command `startCluster.cmd 1`.
 - c. After `startCluster.cmd 1` completes successfully, click the start icon that was created during the installation.

Note: You should run `startCluster.cmd` command only after you install Sterling Integrator. You should not run `startCluster.cmd` command when you restart a Sterling Integrator instance. However, if you have installed a patch or a hot-fix, refer *Custom Configurations* to start the cluster without updating the database settings.

2. Node 2
 - a. At a DOS prompt, go to the *install_dir*\install\bin directory.
 - b. Run the command `startCluster.cmd 2`.
 - c. After `startCluster.cmd 2` completes successfully, click the start icon that was created during the installation.
 - d. Follow this same procedure for other nodes. For example, Node 3 would use the command `startCluster.cmd 3`.

Final Upgrade Notes

The upgrade is complete. At this point, you should download and apply the latest maintenance update from Support on Demand before using Sterling Integrator.

Note: The upgrade process enables services that might have been disabled before the upgrade. If you want to disable these services again, you must disable them in Sterling Integrator 5.0 after the upgrade process.

After you upgrade, do not use the previous release of Gentran Integration Suite. However, you should maintain your backup for future reference.

For additional information, see the following sections:

- *Changes to Network Interface Bindings*
- *Advanced File Transfer Tab*
- *Reconfiguring Archive Settings*
- *Correcting Missing Manager IDs*

Changes to Network Interface Bindings

To increase the security of the Administrator Console user interface, Sterling Integrator version 5.0 binds only to specific network interfaces. After upgrading, if the previous URL for Sterling Integrator returns Page cannot be displayed, you can adjust property settings to correct the problem.

1. On the server where Sterling Integrator resides, edit the `noapp.properties.in` file.
2. Locate the **admin_host** parameter. The default settings are as follows:
hostname1 is the name of primary network interface, the one given highest priority by Sterling Integrator.
localhost is the name of the network interface on the server where Sterling Integrator resides.

Default entries

```
admin_host.1 = hostname1 admin_host.2 = localhost
```

3. Correct the parameters.
 - If no interface is being displayed, edit *hostname1* so that it correctly identifies the primary network interface that accesses Sterling Integrator.
 - If an additional network interface needs to access Sterling Integrator, add an additional *admin_host* entry, as shown below.

Edited entries

```
admin_host.1 = hostname1 admin_host.2 = localhost admin_host.3 =  
hostname2
```

4. Stop Sterling Integrator.
5. Run the `setupfiles.cmd` utility located in the `install_dir\install\bin` directory.
6. Restart Sterling Integrator to use the updated settings.

For the Dashboard user interface, Sterling Integrator version 5.0 provides unrestricted binding to network interfaces through the perimeter server. To restrict access to the Dashboard user interface, you can adjust property settings so that only one network interface accesses Sterling Integrator.

1. On the server where Sterling Integrator resides, edit the `perimeter.properties.in` file.

2. Locate the **localmode.interface** parameter. The default setting is unrestricted, as shown below.

Unrestricted Setting (Default)

```
localmode.interface=*
```

3. To restrict access to the Dashboard, enter the network interface that you want Sterling Integrator to support.

Restricted Setting

```
localmode.interface=hostname1
```

4. Stop Sterling Integrator.
5. Run the setupfiles.cmd utility located in the *install_dir*\install\bin directory.
6. Restart Sterling Integrator to use the updated settings.

Advanced File Transfer Tab

The Advanced File Transfer tab in the Dashboard interface will not be enabled by default after an upgrade installation of Sterling Integrator 5.0. You will need to configure the Dashboard to enable the tab.

If you have a license for Advanced File Transfer, perform the following steps to add the Advanced File Transfer tab:

1. Log in as Admin.
2. Click **Manage Layout**.
3. Click **Add Pane**.
4. Enter the following name:
Advanced File Transfer
5. Click **Apply**.
6. Click the **customize** icon for the new **Advanced File Transfer** tab.
7. Click **Add Portlet**.
8. Select the Add box for **Advanced File Transfer Management**.
9. Click **Apply**.
10. Select **Clear Borders and Title** from the Decoration menu.
11. Click **Save and Apply**.

Reconfiguring Archive Settings

The upgrade does not automatically reconfigure the archive configuration. You must reconfigure the Backup Directory setting in Archive Manager after an upgrade.

To reconfigure your Archive settings, use the following procedure:

1. From the Administration Menu, choose **Operations > Archive Manager**.
2. Under Configure Archive Settings, click **Go!**
3. If a message displays about the UI Lock, click **OK** to continue.
4. Click **Next**.
5. Update the Backup Directory field with the correct path information:
6. Click **Save**.
7. Confirm the settings and click **Finish**.

Correcting Missing Manager IDs

If you created a Manager ID with no corresponding User ID in your previous version of Sterling Integrator, the Manager ID may be missing after upgrading to Sterling Integrator 5.0. If this occurs, create a user in the system with a User ID that matches the missing Manager ID.

Accessing User Documentation for Sterling Integrator

The user documentation is available via an online documentation site on the Web. Providing the documentation in an online environment allows for frequent updates of content based on user feedback and usability.

We also understand the need for a printed copy of documentation. You can print topics of information using your Internet browser, or you can download documents in PDF format. You also have the option to request a documentation CD.

Using the Online Documentation

The documentation for Sterling Integrator is located on the Sterling Commerce Documentation web site. You can type a word or phrase and search the entire library for information. Or you can move through a hierarchy of contents pages to identify the topic you want. After you find the topic you want, you can read it online or print it using your browser's Print function.

To access the Documentation site, from within Sterling Integrator or one of its tools, select the Help icon. (Note that the application must reside on a computer that supports Internet access and an Internet browser.)

You can also access the Documentation site by opening your Internet browser and typing the following URL:

<http://www.sterlingcommerce.com/Documentation/SI50/homepage.htm>

Documentation Available in PDF Format

The online documentation includes documents in PDF format that you can download. To download PDF documents, click the **Documentation in PDF Format** link from the main online documentation page.

Requesting a Documentation CD

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http://support.sterlingcommerce.com/forms/Gentran_GIS_UpgradeRequest.aspx

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