Sterling Integrator

CLA2 Upgrade Impacts

Version 5.0, Fix Pack 5009, Interim Fix 1

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> **Note**
> Before using this information and the product it supports, read the information in "Notices" on page 15.

# Contents

Chapter 1. CLA2 Background

Before you can understand the impact that upgrading to the new Command Line Adapter 2 (CLA2) version will have on your system, you should first review what the CLA2 does.

The CLA2 enables Sterling B2B Integrator to run executable programs, scripts, or operating system commands from a business process.

When the CLA2 runs a command, the java Run Time.exec() method is called to fork the JVM and runs the command. The fork call works by making a complete copy of the running process before it runs the new command. Running this inside of the ASI JVM would require a large amount of memory. For this reason, CLA2 is a separate JVM with a small memory footprint. The CLA2 server accepts commands, runs them, and returns the results.

The CLA2 server can be deployed locally or remotely.

The following diagram illustrates how the ASI JVM can be deployed locally, on the same host as the CLA2 server.
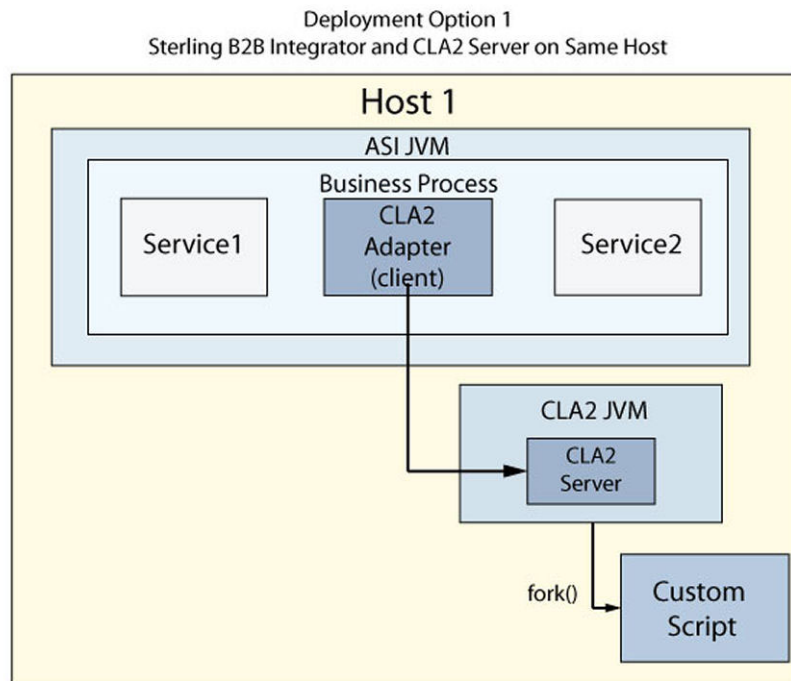
The following diagram illustrates how the ASI JVM can be deployed remotely, on a different host from the CLA2 server.

Deployment Option 2
Sterling B2B Integrator and CLA2 Server on Different Hosts

Host 1

ASI JVM

Business Process

Service1

CLA2 Adapter (client)

Service2

SSL

Host 2

CLA2 JVM

CLA2 Server

fork()

Custom Script
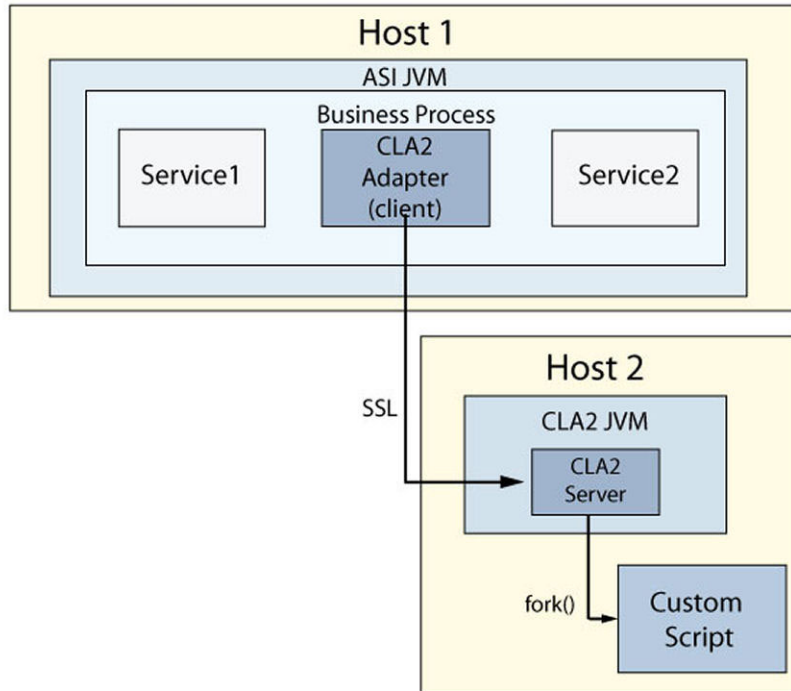
Chapter 2. Summary of Changes

This is a summary of the items that changed or were updated in CLA2 on your system as a result of upgrading to this Fix Pack

The following list contains information about the changes that were made to CLA2:

- The local CLA2 server is disabled by default and will not start automatically. You must enable the local CLA2 server in order to use it.
- The local CLA2 server will only bind to localhost. This is the default behavior. It will prevent off-machine connections.
- Audit log entries (separate from debug) are generated by the CLA2 server:

```
03-19-2013 14:26:01:938 (161352094) AUDIT CmdLine2Thread.runCommand()
: Originating hostname:/127.0.0.1:36726 Connected to:/127.0.0.1:4152
with WFID :1008 with cmdLine : ls -la
```

- Optional support for channel encryption using SSL is provided.
- Optional support for authentication that is based on cryptographic signing is provided.
- Management scripts are provided to help deploy remotely, start and stop, and set up a Windows service.
- A regression suite specific to CLA2 is provided to verify all CLA2 functionality.
- An option to show the command string in the status report of the CLA2 adapter in the BP tracking screen is provided. To enable this feature, set the following property in the `customer_overrides.properties` file:

```
cla2client.showCommandInStatusRpt=true
```

- The SWIFTNet adapter includes all listed changes to CLA2.
- The PGP adapter includes all listed changes to CLA2.
- The product documentation is updated to include all listed changes to CLA2.

Chapter 3. Upgrade Impacts - CLA2 Server

The following upgrade impacts apply to the CLA2 server.

- If you want to use CLA2, you must enable the CLA2 server after you apply the Interim Fix. It is disabled by default. If you don't enable the server, the business process will fail with a connection error. The local CLA2 server is enabled by adding the following parameter to the `sandbox.cfg` file and running the **setupfiles.sh** script:

  ```
  LAUNCH_CLA2_SERVER=true
  ```

- The local CLA2 server is intended to run commands only from the local ASI JVM. If you execute commands from a remote ASI JVM, you must configure the local CLA2 server to bind on network interfaces other than localhost. Add the following parameter to the `customer_overrrides.properties` file for each cluster node:

  ```
  cla2server.CLA2NetworkHost=ALL
  ```

- You must redeploy any remote CLA2 servers because they contain new jar files, properties, configuration files, and scripts. If the remote CLA2 server is not redeployed, the business process will fail with the following error:

  ```
  CmdLine2Impl.processResult: The CommandLine2 Adapter may be pointed a
  CommandLine2 Server that is running an old version of the CLA2Client.jar
  and therefore needs to be updated and configured properly
  ```

- To have thread and heap dumps displayed on the JVM Monitor page, you must enable the CLA2 local server. The following message is displayed if the local CLA2 server is not enabled:

  ```
  CommandLine2 Adapter is not enabled and must be enabled to take a thread
  dump through the JVM Monitor. Alternatively you may take a thread dump at
  the command line.
  ```

- The SWIFTNet and PGP adapters use the CLA2 adapter. All listed changes to CLA2 adapter also apply to those adapters.

Chapter 4. Upgrade Impacts - Adapters

This topic explains any upgrade impacts to the default adapter configurations and customer-specific configurations (if any) that you added for CLA2.

Configurations for the CLA2, SWIFTNet, and PGP adapters that are shipped with the product are set up by default to point to the correct security artifacts. No changes are needed for these adapter configurations.

However, any custom adapter configurations you created for CLA2, PGP, or SWIFTNet must be edited and configured as required to set the new **Access Authentication** and **Use SSL** features.

Chapter 5. Upgrade Impacts - CLA2 Certificates and Key Management

There are several upgrade impacts to certificate and key management:

- The authentication option in CLA2 requires a private key to be checked into the system certificate UI. The private key is referenced when you configure the adapter. The public key must be made available to the CLA2 server through a JKS file.
- The SSL option in CLA2 requires a CA certificate to be checked into the CA certificates UI. The CA is referenced when you configure the adapter. The private key must be made available to the CLA2 server through a JKS file.
- Updates to all of these keys and certificates can be made through the UI and any tool that supports modifying the JKS file, such as the keytool in the JDK.
- When you apply the patch, default keys are created in the database and exported to a JKS file so that they are available to the local CLA2 server. The same keys can be used for remote CLA2 servers.
- The certificates and keys are not checked for expiration.
- All remote CLA2 servers must use the same keys. The CLA2 adapter must be configured to use only one signing key and one CA certificate.

The following diagram shows the relationship between the ASI JVM, with a JKS database store, and a remote CLA2 server, with a file system JKS store.
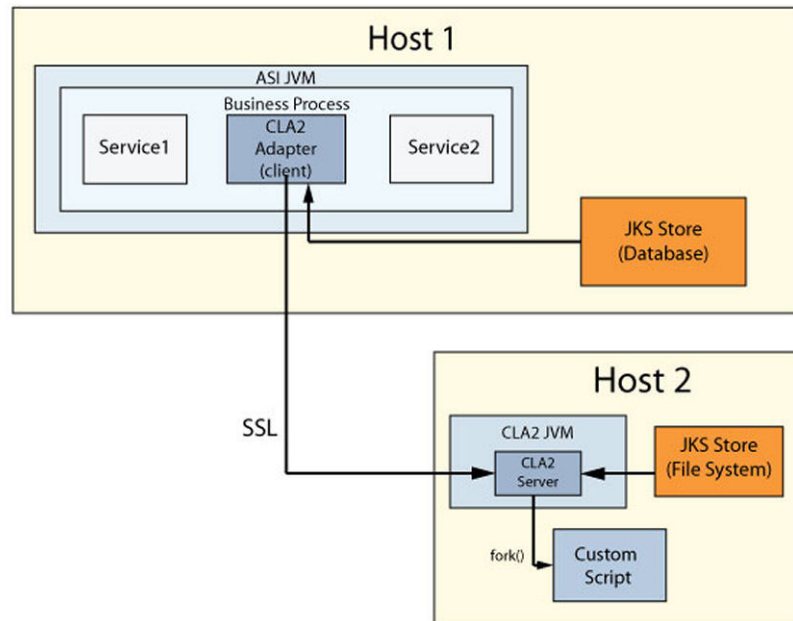
Chapter 6. CLA2 Server - Optional Configurations

Depending on your business needs, there are several optional configurations that you can set on the server. All of these options can be configured through customer overrides for a local CLA2 server, and through the CLA2 server properties file for a remote CLA2 server.

Table 1. Optional server configurations

Server Setting	Description
Debug	Debug has been expanded to show more information. Debug should only be used during problem diagnosis. Debug can be enabled using debug=Yes. Debug is disabled by default.
Audit	Audit entries have been added to show which user ran which commands and when. Audit is enabled by setting audit=Yes. Audit is enabled by default.
SSLRequired	SSL is disabled by default but can be enabled by setting SSLRequired=Yes for the CLA2 server. Correspondingly, the CLA2 adapter must also have SSL enabled.
enableAuthentication	Authentication is enabled by default. It can be disabled by setting enableAuthentication=false
CLA2NetworkHosts	Use a comma-separated list of network interfaces to bind against, or the keyword ALL to indicate that the server should bind to all network interfaces. The default is to bind to localhost only.
securityTimeout	Amount of time in seconds that a signed command is valid. After this time, authentication will fail with a security timeout violation. On slow systems, this timeout can be extended.

Chapter 7. CLA2 Potential Error Cases

The following items can be used to troubleshoot your CLA2 implementation:

Table 2. Troubleshooting Tips

Symptom	Possible Solution
You are using CLA2, and are having a problem with CLA2 (SWIFTNet or PGP).	Make sure that the local CLA2 server is enabled. The following error message was probably displayed during startup: `CmdLine2 Client is disabled. Not starting CmdLine2 Client... If you wish to enable starting of the CmdLine2 Client be sure to set or add LAUNCH_CLA2_SERVER=true in sandbox.cfg.` This is the first thing that you should check for.
A service call failed with an error.	The CLA2 server (local or remote) is configured to require authentication, but the adapter is not configured to sign the commands.
A service call failed with an error.	The CLA2 server (local or remote) is configured to require SSL, but the adapter is not configured to use SSL.
The following error is displayed: `java.io.InvalidClassException: com. sterlingcommerce.woodstock.services. cmdline2.CmdLine2Result; local class incompatible: stream classdesc serialVersionUID = 3543723007161392447, local class serialVersionUID = 42`	If the remote CLA2 server was not redeployed to pick up the latest classes, the CLA2 service call will fail with this error. Update the remote CLA2 server.
Issues reading the JKS file.	The same major version of the JDK must be used on the CLA2 server that is used in Sterling B2B Integrator. If the JDKs do not match, the system will have trouble reading the JKS file.

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