# Table of Contents

- About InfoSphere CDC and InfoSphere CDC Management Console ........................................... 6
- System requirements for InfoSphere CDC for InfoSphere DataStage ........................................ 9
- Hardware and software requirements ...................................................................................... 10
- Running in a virtualization environment .................................................................................. 11
- Disk space requirements ........................................................................................................ 12
- RAM requirements .................................................................................................................. 13
- Port requirements .................................................................................................................... 14
- Before you install InfoSphere CDC for InfoSphere DataStage .............................................. 15
- Required user accounts ........................................................................................................... 16
- Using the auto-start option with the Direct Connect connection method .............................. 17
- Assessing disk space and memory requirements ................................................................. 18
- Understanding the importance of an appropriately configured disk subsystem .................... 19
- Understanding the InfoSphere CDC memory footprint ......................................................... 20
- Creating queues in JMS providers .......................................................................................... 21
- Using the Hadoop Distributed File System (HDFS) with InfoSphere CDC for InfoSphere DataStage .......................................................... 22
- Installing or upgrading InfoSphere CDC for InfoSphere DataStage .................................... 23
- Installing InfoSphere CDC for InfoSphere DataStage using an interactive installation .... 24
- To install InfoSphere CDC for InfoSphere DataStage (Windows) ...................................... 25
- To install InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) .......................... 26
- To override the locale for the installation (UNIX and Linux) ............................................... 27
- Installing InfoSphere CDC for InfoSphere DataStage using a silent installation ............... 28
- To perform a silent installation of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ......................................................... 29
- Upgrading InfoSphere CDC for InfoSphere DataStage ....................................................... 30
- To upgrade InfoSphere CDC for InfoSphere DataStage (Windows) .................................. 32
- To upgrade InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ......................... 33
- Configuring InfoSphere CDC for InfoSphere DataStage (Windows) .................................. 35
- Configuring InfoSphere CDC for InfoSphere DataStage instances (Windows) ................. 36
- To add a new instance of InfoSphere CDC for InfoSphere DataStage (Windows) .............. 37
- To edit an instance of InfoSphere CDC for InfoSphere DataStage (Windows) ................. 42
- To delete an instance of InfoSphere CDC for InfoSphere DataStage (Windows) ............... 43
- Configuring InfoSphere CDC (UNIX and Linux) ................................................................. 44
- Configuring InfoSphere CDC instances (UNIX and Linux) ................................................ 45
- To add a new instance of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ... 46
- To edit an instance of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ....... 49
- To delete an instance of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ...... 50
- After you install and configure InfoSphere CDC for InfoSphere DataStage ...................... 51
- Using InfoSphere CDC with IBM InfoSphere DataStage ................................................... 52
- Starting InfoSphere CDC for InfoSphere DataStage ............................................................ 56
- To start InfoSphere CDC for InfoSphere DataStage (Windows) ...................................... 57
- To start InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ............................. 58
- Stopping InfoSphere CDC for InfoSphere DataStage ........................................................... 59
- To stop InfoSphere CDC for InfoSphere DataStage (Windows) ....................................... 60
- To stop InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ............................ 61
- Specifying the InfoSphere DataStage record format in Management Console ................. 62
- Maintaining active TCP connections in a network environment ......................................... 63
To maintain active TCP connections ................................. 64
Data types supported by InfoSphere CDC for InfoSphere DataStage ................................................. 65
System parameters for InfoSphere CDC for InfoSphere DataStage ..................................................... 66
Commands for InfoSphere CDC for InfoSphere DataStage ................................................................. 67
Using the InfoSphere CDC for InfoSphere DataStage commands ..................................................... 68
Setting the TSINSTANCE environment variable .......................................................... 69
Database transaction log commands ...................................................................................... 70
dmshowbookmark - Display bookmark information .................................................................. 71
Exporting and importing configuration commands .................................................................. 73
dmexportconfiguration - Export InfoSphere CDC Configuration ............................................. 74
dmimportconfiguration - Import InfoSphere CDC Configuration ............................................. 75
Monitoring replication commands ..................................................................................... 76
dmclearevents - Clear events .................................................................................................. 77
dmshowevents - Display InfoSphere CDC events .................................................................. 78
Other commands .................................................................................................................. 80
dmbackupmd - Back up metadata ........................................................................................... 81
dmconfigurets - Configure InfoSphere CDC ............................................................................. 82
dmset - Set InfoSphere CDC system parameter ...................................................................... 83
dmshowversion - Show InfoSphere CDC version ................................................................... 84
dmshutdown - Shut down InfoSphere CDC .............................................................................. 85
dmsupportinfo - Collect IBM Support information .................................................................. 87
dmterminate - Terminate InfoSphere CDC processes ............................................................... 89
dmts32 - Start InfoSphere CDC .................................................................................................. 90
dmts64 - Start InfoSphere CDC ................................................................................................. 91
dmmdconsole .................................................. 92
dmmdcommander .............................................. 93
Custom data formats for InfoSphere CDC for InfoSphere DataStage ............................................. 94
Sample custom data formats .................................................................................................. 95
To compile the sample custom data formats (Windows) ............................................................... 96
To compile the sample Java class user exits (UNIX and Linux) ................................................. 97
InfoSphere CDC API reference - Javadocs .............................................................................. 98
Uninstalling InfoSphere CDC for InfoSphere DataStage ......................................................... 99
To uninstall InfoSphere CDC for InfoSphere DataStage (Windows) ...................................... 100
To uninstall InfoSphere CDC for InfoSphere DataStage (UNIX and Linux) ................................ 101
Troubleshooting .................................................................................................................. 102
Using the IBM Support Assistant (ISA DC) .............................................................................. 103
To use ISA DC to collect data for a product problem (command line) .................................... 104
To use ISA DC to collect data for a product problem (GUI) ................................................... 107
To use ISA DC to collect data for a question or an enhancement request (command line) ........ 109
To use ISA DC to collect data for a question or an enhancement request (GUI) .................... 111
Locating log files .................................................................................................................. 112
Troubleshooting and contacting IBM Support ........................................................................ 113
IBM® InfoSphere® Change Data Capture (InfoSphere CDC) is a replication solution that captures database changes as they happen and delivers them to target databases, message queues, or an ETL solution such as InfoSphere DataStage® based on table mappings configured in the InfoSphere CDC Management Console GUI application.

InfoSphere CDC provides low impact capture and fast delivery of data changes for key information management initiatives including dynamic data warehousing, master data management, application consolidations or migrations, operational BI, and enabling SOA projects. InfoSphere CDC also helps reduce processing overheads and network traffic by only sending the data that has changed. Replication can be carried out continuously or periodically. When data is transferred from a source server, it can be remapped or transformed in the target environment.

The following diagram illustrates the key components of InfoSphere CDC.

The key components of the InfoSphere CDC architecture are described below:

- **Access Server**—Controls all of the non-command line access to the replication environment. When you log in to Management Console, you are connecting to Access Server. Access Server can be closed on the client workstation without affecting active data replication activities between source and target servers.

- **Admin API**—Operates as an optional Java™-based programming interface that you can use to script operational configurations or interactions.

- **Apply agent**—Acts as the agent on the target that processes changes as sent by the source.

- **Command line interface**—Allows you to administer datastores and user accounts, as well as to perform administration scripting, independent of Management Console.

- **Communication Layer (TCP/IP)**—Acts as the dedicated network connection between the Source and the Target.
- **Source and Target Datastore**—Represents the data files and InfoSphere CDC instances required for data replication. Each datastore represents a database to which you want to connect and acts as a container for your tables. Tables made available for replication are contained in a datastore.

- **Management Console**—Allows you to configure, monitor and manage replication on various servers, specify replication parameters, and initiate refresh and mirroring operations from a client workstation. Management Console also allows you to monitor replication operations, latency, event messages, and other statistics supported by the source or target datastore. The monitor in Management Console is intended for time-critical working environments that require continuous analysis of data movement. After you have set up replication, Management Console can be closed on the client workstation without affecting active data replication activities between source and target servers.

- **Metadata**—Represents the information about the relevant tables, mappings, subscriptions, notifications, events, and other particulars of a data replication instance that you set up.

- **Mirror**—Performs the replication of changes to the target table or accumulation of source table changes used to replicate changes to the target table at a later time. If you have implemented bidirectional replication in your environment, mirroring can occur to and from both the source and target tables.

- **Refresh**—Performs the initial synchronization of the tables from the source database to the target. This is read by the **Refresh reader**.

- **Replication Engine**—Serves to send and receive data. The process that sends replicated data is the Source Capture Engine and the process that receives replicated data is the Target Engine. An InfoSphere CDC instance can operate as a source capture engine and a target engine simultaneously.

- **Single Scrape**—Acts as a source-only log reader and a log parser component. It checks and analyzes the source database logs for all of the subscriptions on the selected datastore. Not all InfoSphere CDC engines use Single Scrape. For InfoSphere CDC for DB2® for i, there is a Scraper job (that acts as a log reader) and a Mirror job that performs the function of mirroring (see **Mirror** above).

- **Source transformation engine**—Processes row filtering, critical columns, column filtering, encoding conversions, and other data to propagate to the target datastore engine.

- **Source database logs**—Maintained by the source database for its own recovery purposes. The InfoSphere CDC log reader inspects these in the mirroring process, but filters out the tables that are not in scope for replication.

- **Target transformation engine**—Processes data and value translations, encoding conversions, user exits, conflict detections, and other data on the target datastore engine.

There are two types of target-only destinations for replication that are not databases:

- **JMS Messages**—Acts as a JMS message destination (queue or topic) for row-level operations that are created as XML documents.

- **InfoSphere DataStage**—Processes changes delivered from InfoSphere CDC that can be used by InfoSphere DataStage jobs.
Related information:
Supported sources and targets
IBM® InfoSphere® Change Data Capture (InfoSphere CDC) is a replication solution that captures database changes as they happen and delivers them to target databases, message queues, or an ETL solution such as InfoSphere DataStage® based on table mappings configured in the InfoSphere CDC Management Console GUI application.

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- **InfoSphere DataStage**—Processes changes delivered from InfoSphere CDC that can be used by InfoSphere DataStage jobs.
Related information:
Supported sources and targets
System requirements for InfoSphere CDC for InfoSphere DataStage®

Before you install InfoSphere® CDC, ensure that the system you choose meets the necessary operating system, hardware, software, communications, disk, and memory requirements.

In this section, you will learn:

- Hardware and software requirements
- Running in a virtualization environment
- Disk space requirements
- RAM requirements
- Port requirements
Hardware and software requirements

Click the following links to view hardware and software requirements for InfoSphere® CDC, Management Console, and Access Server:

Linux, UNIX, Windows and System i® replication engines: https://ibm.biz/BdxyzE
Mainframe replication engine: https://ibm.biz/Bdxyd5
IBM InfoSphere Change Data Capture, Version 10.2

Running in a virtualization environment

The InfoSphere® CDC products adhere to the Virtualization Policy for IBM® Software and can be run in any virtualization environment for only the supported operating systems and versions listed specifically within IBMInfoSphere Data Replication System Requirements.

For more information on the policy, see http://www-01.ibm.com/software/support/virtualization_policy.html
## Disk space requirements

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>InfoSphere® CDC target system</td>
<td>5 GB</td>
</tr>
<tr>
<td></td>
<td>For installation files, data queues, and log files.</td>
</tr>
<tr>
<td>Global disk quota</td>
<td>Disk space is required on your target system for this quota which is used to store LOB data received from your InfoSphere CDC source system. The amount of disk space required is determined by your replication environment and the amount of LOB data you are replicating. To improve performance, InfoSphere CDC will only persist LOB data to disk if RAM is not available on your target system. Use the mirror_global_disk_quota_gb system parameter to configure the amount of disk space used by this quota.</td>
</tr>
</tbody>
</table>
RAM

Each instance of InfoSphere® CDC requires memory for the Java™ Virtual Machine (JVM). The following default values for memory are assigned:

- **1024 MB of RAM** — Default value for each 64-bit instance of InfoSphere CDC.
- **512 MB of RAM** — Default value for each 32-bit instance of InfoSphere CDC.

Use the InfoSphere CDC configuration tool to configure the memory for each instance of InfoSphere CDC.

Although InfoSphere CDC memory requirements will fluctuate, you must work with your system administrator to ensure the allocated memory for each instance of the product is available at all times. This may involve deployment planning since other applications with memory requirements may be installed on the same server with InfoSphere CDC. Using values other than the defaults or allocating more RAM than is physically available on your server should only be undertaken after considering the impacts on product performance.
Port requirements

InfoSphere® CDC requires that you allocate a port for communication with client workstations running Management Console and other servers. The port must be accessible through a firewall, although you do not require access to the Internet.

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Default port</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP</td>
<td>10401</td>
<td>Accepts connections from: Management Console Other installations of InfoSphere CDC as a source of replication Command line utilities</td>
</tr>
</tbody>
</table>

Related concepts:
Maintaining active TCP connections in a network environment
Before you install InfoSphere CDC for InfoSphere DataStage®

This section contains information on the tasks that you must complete before installing InfoSphere® CDC. This section assumes that you have met all of the hardware, software, database, and port requirements. You must complete all of the tasks below before installing InfoSphere CDC.

In this section, you will learn:

- Required user accounts
- Using the auto-start option with the Direct Connect connection method
- Assessing disk space and memory requirements
- Understanding the importance of an appropriately configured disk subsystem
- Understanding the InfoSphere CDC memory footprint
- Creating queues in JMS providers
- Using the Hadoop Distributed File System (HDFS) with InfoSphere CDC for InfoSphere DataStage
Required user accounts

Setting up a Windows user account
If you are installing InfoSphere® CDC on a Windows system, you must set up a new, or decide on an existing Windows account that you will use to install, configure, or upgrade InfoSphere CDC.

Setting up a UNIX user account
When you are installing InfoSphere CDC on a UNIX machine, you must set up a new, or decide on an existing UNIX account that you will use to install, configure, or upgrade InfoSphere CDC. You can install InfoSphere CDC in the directory of your choice, however, it must be owned by the UNIX account.
Using the auto-start option with the Direct Connect connection method

InfoSphere® CDC for InfoSphere DataStage® offers two connections methods for subscriptions in Management Console: Flat File and Direct Connect. The Direct Connect method has an auto-start option that allows you to start the InfoSphere DataStage job from InfoSphere CDC. If you will be using this option, you will need to ensure the following:

- **UNIX**: The dsenv script must be executed before creating and starting the InfoSphere CDC for InfoSphere DataStage instance.
- **UNIX**: The user account to start the InfoSphere CDC for InfoSphere DataStage instance must belong to the datastage group.
- **Windows**: The user account to start the InfoSphere CDC for InfoSphere DataStage instance must be a system account.
Assessing disk space and memory requirements

InfoSphere® CDC requires disk space and memory when it processes change data from your source database. In order to process change data efficiently and replicate these changes to your target system, it is very important that InfoSphere CDC has adequate disk space and memory for each of the components described in this section.

Memory requirements for the JVM (Java Virtual Machine)

As a Java-based product, InfoSphere CDC requires you to allocate the maximum amount of memory (RAM) to be used by the Java™ Virtual Machine (JVM). This prevents InfoSphere CDC from using all of the available memory on the system where it is installed. The Maximum Memory Allowed value is set on a per-instance basis for each instance you create for your target database. In most cases the default values are appropriate for 32-bit and 64-bit instances. However, if your database is processing an extremely heavy workload, you may have to adjust the default values. The RAM allocated must be physically available on your system.

Disk space requirements for the global disk quota

Disk space is required on your target system for this quota which is used to store in-scope change data that has not been committed in your database. The amount of disk space required is determined by your replication environment and the workload of your source database.

You can configure the amount disk space that is allocated to this quota with the mirror_global_disk_quota_gb system parameter. The default setting of this system parameter is such that InfoSphere CDC will only stop replicating after this disk quota exhausts all available disk space on your system. If you would prefer InfoSphere CDC to stop replicating after it uses a specific amount of disk space, you can specify the value with this system parameter in Management Console.
Understanding the Importance of an Appropriately Configured Disk Subsystem

There are many types of disk subsystems in use to meet either business or performance needs. Not all of these disk subsystems are suitable for use by databases or InfoSphere® Data Replication out of the box. Some may need to be tuned to ensure that appropriate input/output semantics are in place for reliable continuous operation.

Symptoms of an Unreliable Disk Subsystem

Without appropriate disk subsystem configuration, both the database itself or InfoSphere Data Replication may exhibit any of a wide variety of input/output related errors, usually random in nature. Any one of them can stop replication. If the database transaction logs themselves become corrupted due to this kind of misconfiguration, then the database itself may become unrecoverable, putting the entire business at risk. Having an appropriately configured disk subsystem is therefore essential to the operation of both database and InfoSphere Data Replication.

What Makes a Disk Subsystem Unreliable?

Typically, disk mounting options that interfere with or modify the read visibility of write operations are the ones which will cause data to be read inaccurately, thereby causing applications such as databases and InfoSphere Data Replication to report errors and fail. The expectations of these semantics between the database and InfoSphere Data Replication must be compatible with those provided by the options used to mount the disk subsystem in order to avoid corruption issues. Some databases exhibit specific behaviors only with certain disk subsystem types, so proper care and attention is needed to properly configure the disk subsystem.

Special Notes Regarding Specific Configurations

Direct I/O on Linux—Due to the nature of the implementation of direct I/O (directio) on Linux, applications that read from files being written using direct I/O must employ exactly the same direct I/O options as the writing application. If this is not done, the reading application may not ever see the data written by the writing application and the reading application can therefore exhibit a stall. Linux versions of InfoSphere CDC prior to version 6.5.1 Interim Fix 17 for Oracle, version 6.5.2 Interim Fix 20 for Oracle, and InfoSphere Data Replication versions prior to 10.2 for Oracle and Sybase can exhibit this behaviour under certain conditions. The best resolution is to upgrade to the latest Interim Fix level for InfoSphere CDC or to version 10.2 or later for InfoSphere Data Replication.
Current® versions of InfoSphere® CDC on Linux, UNIX, and Windows platforms are written in the Java™ programming language. The memory specified in the InfoSphere CDC configuration tool refers to the amount of memory that the Java Virtual Machine (JVM) will allocate to InfoSphere CDC to run. This memory is strictly enforced by the JVM itself and the JVM will ensure that it is not exceeded. The JVM itself also consumes some memory. The amount of this other memory varies considerably by Java version, bit length, and operating system. A simple Java program consumes 13212 KB of overhead when run in a 32-bit Java 1.5 JVM on AIX®, but 173509 KB of overhead when run in a 32-bit Java 1.5 JVM on Linux. In other words, the overhead on Linux is 13 times larger than the overhead on AIX, when controlling for the other variables.

The amount of memory overhead consumed by the JVM itself can also change over time. This is especially true for Linux and UNIX systems. For those systems, once the operating system allocates memory to a process, it is not reclaimed until the process ends. Thus, the total amount of memory for any given process never goes down.

Given these factors, you should expect that more memory is used by InfoSphere CDC than is allocated in the configuration tool. InfoSphere CDC has no control over this memory usage and cannot track or otherwise manage it.
Creating queues in JMS providers

If you choose to use a JMS provider as the communications protocol for InfoSphere® CDC, you will need to define the queues to be used by InfoSphere CDC before you attempt to configure an instance. The queues will need to be named in the format CDC_<port>, where <port> is the five digit TCP listening port number of the instance. You can left pad the number with zeroes if necessary to ensure five digits (example, CDC_00123). Each InfoSphere CDC instance will require its own queue. Instances cannot share a queue. When you create the queue, you must ensure that they are defined to hold messages of the type BytesMessage.
InfoSphere® CDC for InfoSphere DataStage® version 10.2 Interim Fix 2 and later supports specifying a Hadoop Distributed File System (HDFS) directory as the output directory for flat files. All paths starting with "hdfs://" will be treated as HDFS paths. When an HDFS path has been specified the following configuration options must have been set:
- The path for the Hadoop JAR file is specified in the CLASSPATH environment variable
- The environment parameter HADOOP_CONF_DIR must be set to point to a directory containing the target Hadoop cluster configuration files.

InfoSphere CDC supplies a user exit to customize the data that is being generated by InfoSphere CDC and sent to InfoSphere DataStage. You should employ this option when replicating to HDFS.

**Related concepts:**
Custom data formats for InfoSphere CDC for InfoSphere DataStage
Installing or upgrading InfoSphere CDC for InfoSphere DataStage®

Before attempting to install or upgrade InfoSphere® CDC, consult the database, operating system and hardware requirements for the specific version of the software that you want to install, to ensure that it is compatible with your system. If you are upgrading to a later version or installing a fix pack, an installation of InfoSphere CDC must already be present in order to successfully complete the process.

In this section, you will learn:

- Installing InfoSphere CDC for InfoSphere DataStage using an interactive installation
- Installing InfoSphere CDC for InfoSphere DataStage using a silent installation
- Upgrading InfoSphere CDC for InfoSphere DataStage
  
  You can upgrade InfoSphere CDC by installing a later version of the software over top of an existing installation.

Related concepts:

Before you install InfoSphere CDC for InfoSphere DataStage
Installing InfoSphere CDC for InfoSphere DataStage® using an interactive installation

Note the following before you install or upgrade InfoSphere® CDC on Linux or UNIX:

- Do not install or upgrade InfoSphere CDC as a root user.
- The installation directory requires file system permissions of 700 if you plan to use the same user account to install the product, create and configure instances, or upgrade the product.
- The installation directory requires file system permissions of 770 if you plan to use different user accounts to install the product, create and configure instances, or upgrade the product.

Note: Ensure that the installed version of the Management Console and Access Server applications are either the same version as the InfoSphere CDC replication engine or a later version.

See also:

- To install InfoSphere CDC for InfoSphere DataStage (Windows)
- To install InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
- To override the locale for the installation (UNIX and Linux)
IBM InfoSphere Change Data Capture, Version 10.2

To Install InfoSphere CDC for InfoSphere DataStage® (Windows)

1. Double-click on the installation executable. The IBM®InfoSphere® CDC installation wizard opens.
2. Click Next.
3. If you agree to the license terms, select I accept the terms in the license agreement and then click Next.
4. Select the folder where you want to install InfoSphere CDC and click Next.
5. If you already have an installation of InfoSphere CDC, the installation program will prompt you to upgrade the installation. Click OK to upgrade the installation.
6. Select the location for the product icons and click Next.
7. Review the installation summary and click Install.
8. Select Launch Configuration Tool to launch the configuration tool after the installation. The configuration tool allows you to add an instance of InfoSphere CDC.
9. Click Done to exit the installation.

Related concepts:
Configuring InfoSphere CDC for InfoSphere DataStage (Windows)
To install InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. Log on to the account you set up for InfoSphere® CDC.
2. Copy the InfoSphere CDC installation file for your UNIX or Linux platform from the InfoSphere CDC DVD or the download file.
3. Make the installation binary file executable.
4. Run the installation program by typing the following command:
   ```bash
   /<installation_binary_name>.bin
   ```
   If you already have InfoSphere CDC installed, the installation program will prompt you to upgrade.
5. Press Enter on the Introduction screen to display the license agreement. Follow the instructions on the screen to navigate through the license agreement.
6. To accept the license agreement, type 1.
7. Enter the absolute path to your installation directory or press Enter to accept the default. Note: The directory that you specify must be owned by the account you are using for the installation. If the installation program cannot create the directory, you are prompted to specify a different directory.
8. Review the installation summary. Press Enter to start the installation.
9. After completing the installation, InfoSphere CDC gives you the option of launching the configuration tool for InfoSphere CDC.
10. Type 1 to launch the configuration tool.

Note: If you have X-Windows installed, the installation program will launch the configuration tool in a graphical environment.

**Related concepts:**
Configuring InfoSphere CDC (UNIX and Linux)
IBM InfoSphere Change Data Capture, Version 10.2

To override the locale for the installation (UNIX and Linux)

Use the following procedure to override the locale for the installer. English, Japanese and Simplified Chinese are supported.

1. Navigate to the directory that contains the InfoSphere® CDC installation file.
2. Start the installer with the following flags to override the locale of the installation:
   - English—`<installation_file_name>.bin -l en`
   - Japanese—`<installation_file_name>.bin -l ja`
   - Korean—`<installation_file_name>.bin -l ko`
   - Simplified Chinese—`<installation_file_name>.bin -l zh_CN`

   where:
   - `<installation_file_name>` is the name of the installation file.

After the installation is complete, you have the option of launching the InfoSphere CDC configuration tool. The configuration tool will use the locale settings for your system.
Installing InfoSphere CDC for InfoSphere DataStage® using a silent installation

A silent installation allows you to automatically install InfoSphere® CDC by specifying a command with various parameters. You can use this type of installation method for large-scale deployments of InfoSphere CDC by embedding the silent installation command in a script.

See also:

- To perform a silent installation of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
To perform a silent installation of InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. Log on to the account you set up for InfoSphere® CDC.
2. Copy the InfoSphere CDC installation binary from the InfoSphere CDC CD-ROM or download it from the InfoSphere CDC web site.
3. Make the installation binary executable.
4. Install InfoSphere CDC and generate a response file with the following command:
   `<installation_binary_name> -r <response-file>`
   where:
   - `<response-file>` is the full path to the installation response file.
5. On another system, perform the silent installation by running the following command:
   `<installation_binary_name> -i silent -f <response-file>`
   where:
   - `<response-file>` is the full path to the installation response file.
You can upgrade InfoSphere® CDC by installing a later version of the software over top of an existing installation.

Interim fixes cannot be used to upgrade InfoSphere CDC to later versions. You must first install the general availability (GA) release of the software for the later version and accept the software license agreement, before applying any interim fixes. After the interim fix has been installed, you can start the InfoSphere CDC instances and complete the upgrade.

Before attempting to upgrade the software, you should be aware of the following prerequisites:

- All subscriptions in all InfoSphere CDC for InfoSphere DataStage® instances associated with the installation to be upgraded must be stopped.
- All InfoSphere CDC for InfoSphere DataStage instances associated with the installation must be stopped.
- When logging in, you must use the same account that was used during the original installation of InfoSphere CDC for InfoSphere DataStage.
- It is a best practice to backup the installation directory of the current InfoSphere CDC for InfoSphere DataStage installation.
- It is a best practice to backup the InfoSphere CDC metadata tables (TS_AUTH, TS_BOOKMARK, TS_CONFAUD, and TS_DDLAUD) that are stored in the InfoSphere DataStage database instance that you are replicating to and from. In the event of a failure during the upgrade, having a backup of the metadata will allow you to revert to the point in time before the upgrade. In addition to the InfoSphere CDC metadata tables stored in your database, InfoSphere CDC maintains some other metadata in an internal database. It is a best practice to backup the InfoSphere CDC internal metadata at the same time as the InfoSphere CDC metadata tables in your database are backed up. The dmbackup command can be used to backup the internal InfoSphere CDC metadata tables.
- Do not upgrade InfoSphere CDC as a root user.
- The installation directory requires file system permissions of 700 to install the product, create and configure instances, or upgrade the product.

When upgrading an InfoSphere CDC replication engine, you must also upgrade Management Console and Access Server to the same version or later to access the full range of functionality that was introduced in the later version of the engine. Management Console and Access Server are backward-compatible and will support the functionality available in earlier versions of the engines.

**CAUTION:**

You cannot export and import subscriptions across different versions of InfoSphere CDC. Do not attempt to import a subscription file from a previous version into an upgraded version. Once the upgrade is complete, you should create a new exported subscriptions.xml file.

See also:

- To upgrade InfoSphere CDC for InfoSphere DataStage (Windows)
- To upgrade InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
To upgrade InfoSphere CDC for InfoSphere DataStage® (Windows)

1. Ensure that all subscriptions in all InfoSphere® CDC instances are stopped.
2. Ensure that all InfoSphere CDC instances are stopped.
3. Ensure that you have a backup of the TS_AUTH, TS_BOOKMARK, TS_CONFAUD, and TS_DDLAUD metadata tables that are stored in the database instance that you are replicating to and from. In the event of a failure during the upgrade, having a backup of the metadata will allow you to revert to the point in time before the upgrade. In addition to the InfoSphere CDC metadata tables stored in your database, InfoSphere CDC maintains some other metadata in an internal database. It is a best practice to backup the InfoSphere CDC internal metadata at the same time as the InfoSphere CDC metadata tables in your database are backed up. The dmbackup command can be used to backup the internal InfoSphere CDC metadata tables.
4. Ensure that you have backed up your InfoSphere CDC installation directory. Important: The backup of the installation directory and the metadata tables should be from the same timeframe, so that they contain an identical snapshot of data.
5. Double-click on the installation executable. The IBM® InfoSphere CDC installation wizard opens.
6. Click Next.
7. If you agree to the license terms, select I accept the terms in the license agreement and then click Next.
8. Select the folder for the existing installation of InfoSphere CDC to be upgraded and click Next.
9. If you already have an installation of InfoSphere CDC, the installation program will prompt you to upgrade the installation. Click OK to upgrade the installation.
10. Select the location for the product icons and click Next.
11. Review the pre-upgrade summary and click Install.
12. After upgrading the software, you must start all the configured instances in order to complete the upgrade process. Depending on the number of tables and subscriptions configured, as well as the complexity of the mappings, the upgrade process can take anywhere from several minutes to hours. Once the upgrade process is complete, InfoSphere CDC will be ready for replication and will restart.
IBM InfoSphere Change Data Capture, Version 10.2

To upgrade InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. Ensure that all subscriptions in all InfoSphere® CDC instances are stopped.
2. Ensure that all InfoSphere CDC instances are stopped.
3. Ensure that you have a backup of the TS_AUTH, TS_BOOKMARK, TS_CONFAUD, and TS_DDLAUD metadata tables that are stored in the database instance that you are replicating to and from. In the event of a failure during the upgrade, having a backup of the metadata will allow you to revert to the point in time before the upgrade. In addition to the InfoSphere CDC metadata tables stored in your database, InfoSphere CDC maintains some other metadata in an internal database. It is a best practice to backup the InfoSphere CDC internal metadata at the same time as the InfoSphere CDC metadata tables in your database are backed up. The dmbackup command can be used to backup the internal InfoSphere CDC metadata tables.
4. Ensure that you have backed up your InfoSphere CDC installation directory. Important: The backup of the installation directory and the metadata tables should be from the same timeframe, so that they contain an identical snapshot of data.
5. Log on to the account you set up for InfoSphere CDC.
6. Copy the InfoSphere CDC installation file for the version to which you want to upgrade. This file is available on the InfoSphere CDC DVD or you can download the desired version from the IBM® web site. Ensure that you have copied the installation file for the applicable operating system.
7. Make the installation binary file executable.
8. Run the installation program by typing the following command:
   
   ./ <installation_binary_name>.bin

   If you already have InfoSphere CDC installed, the installation program will prompt you to upgrade.
9. Press Enter on the Introduction screen to display the license agreement. Follow the instructions on the screen to navigate through the license agreement.
10. To accept the license agreement, type 1.
11. Enter the absolute path to your installation directory or press Enter to accept the default. Note: The directory that you specify must be owned by the account you are using for the installation. If the installation program cannot create the directory, you are prompted to specify a different directory.
12. Confirm the absolute path. If it is correct, type Y and press Enter.
13. Type 1 to confirm that you want to upgrade the existing installation and press Enter.
14. Review the pre-upgrade summary. Press Enter to start the upgrade.
15. After upgrading the software, you must start all the configured instances in order to complete the upgrade process. Depending on the number of tables and subscriptions configured, as well as the complexity of the mappings, the upgrade process can take anywhere from several minutes to hours. Once the upgrade process is complete, InfoSphere CDC will be ready for replication and will restart.
Configuring InfoSphere CDC for InfoSphere DataStage® (Windows)

After installing InfoSphere® CDC, the installation program launches a configuration tool. The configuration tool allows you to configure one or more InfoSphere CDC instances for your environment. You must configure InfoSphere CDC before you can start replication.

In this section, you will learn:

- Configuring InfoSphere CDC for InfoSphere DataStage instances (Windows)
Configuring InfoSphere CDC for InfoSphere DataStage® instances (Windows)

You can add, edit, or delete an instance of InfoSphere® CDC. Use the InfoSphere CDC configuration tool to work with instances. You do not have to start and stop instances.
Before you add, edit, or delete an instance, ensure logging is turned on for each database from which you intend to capture data changes.
After you complete the configuration, you can start InfoSphere CDC.
Note: You can back up the metadata for your instance using the dmbackupmd command.
See also:

- To add a new instance of InfoSphere CDC for InfoSphere DataStage (Windows)
- To edit an instance of InfoSphere CDC for InfoSphere DataStage (Windows)
- To delete an instance of InfoSphere CDC for InfoSphere DataStage (Windows)
To add a new instance of InfoSphere CDC for InfoSphere DataStage (Windows)

1. If you are configuring the first instance of InfoSphere® CDC for InfoSphere DataStage® after installation, you can proceed to Step 3 of this procedure.

2. At the command prompt, launch the configuration tool by issuing the following command in the specified directory: `<InfoSphere CDC Installation Directory>\bin\dmconfigurets.exe`

3. At the welcome message, click OK to continue.

4. At the Confirm dsjob path message, the installer auto-detects the current path of dsjob.exe used to automatically start jobs when using the Direct Connect connection method. Click Yes to continue or No to quit installation and change the path variable. Note: The Confirm dsjob path message does not appear if you have not installed InfoSphere Information Server and set up the dsjob path on the same system as you’re installing InfoSphere CDC.

5. On the IBM® InfoSphere CDC New Instance dialog box, you can configure the following options in the Instance area:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Enter a name for your InfoSphere CDC instance. This name must be unique.</td>
</tr>
<tr>
<td><strong>Server Port</strong></td>
<td>Enter the port number which InfoSphere CDC uses for communication with client workstations running Management Console and other servers. Note: This port number cannot be used by other applications installed on the same server. You will use this port number when specifying access parameters for your datastore in the Access Manager perspective in Management Console. InfoSphere CDC displays a default TCP/IP port of 10401. For more information, see your Management Console documentation.</td>
</tr>
<tr>
<td><strong>Auto-Discovery Port</strong></td>
<td>Bypass auto-discovery. This feature is disabled by default. Do not select the box or enter a port number.</td>
</tr>
</tbody>
</table>
6. In the Windows Service area, you can specify the account that will be used to start InfoSphere CDC services. Select one of the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local System account</strong></td>
<td>Start InfoSphere CDC services through the local system administrator account.</td>
</tr>
</tbody>
</table>
7. In the IBM InfoSphere Change Data Capture Authentication area, you can view the user name and specify the password that Management Console uses for authentication. You can configure the following options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User name</td>
<td>InfoSphere CDC displays the username of <code>tsuser</code>. You cannot modify this value.</td>
</tr>
<tr>
<td>Password</td>
<td>Enter the password that is used to authenticate the user above.</td>
</tr>
<tr>
<td>Confirm Password</td>
<td>Enter the password again.</td>
</tr>
</tbody>
</table>

You must specify the `tsuser` user name and password when creating a datastore in Management Console. For more information on how to create a datastore, see your Management Console documentation.

8. If you want to use a JMS provider as the method of communication between datastores, perform the following steps. Otherwise TCP/IP will be used exclusively as the communications protocol. A JMS provider should be used when characteristics of your network prevent the existence of a long term, stable TCP/IP connection.

A. Ensure that a queue has been created by your system administrator and is named correctly. Each InfoSphere CDC instance that is to use a JMS message provider must have a queue named in the format `CDC_<port>`, where `<port>` is the five digit TCP listening port number of the instance (you can left pad the number with zeroes if necessary, to ensure five digits).
B. Click the Communications Protocol tab.
C. Select JMS or TCP/IP.
D. Click Add.
E. Select the required JMS Provider .jar files.
F. Click Add Connection.
G. Enter a remote factory name. A connection factory encapsulates a set of connection configuration parameters that has been defined by an administrator.
H. Enter a user name and password for JMS server authentication. This user name is defined by your JMS provider. Contact your system administrator for more information.
I. Click the JNDI Server tab.
J. Enter the constant that holds the local or remote connection factory name in the JNDI Initial Context box. Java™ Naming and Directory Interface (JNDI) is a programming interface from Oracle for connecting Java programs to naming and directory services.
K. Enter the URL that is relative to the JNDI initial context in the JNDI URL box. In JNDI, all naming and directory operations are performed relative to a context. Therefore the JNDI defines an initial context that serves as a starting point for naming and directory operations. This value should be the fully-qualified class name of the factory class that will create the initial context.
L. If the JNDI server to which you want to connect requires authentication, then you need to provide the user name and password to connect to that system. Contact your system administrator for information about the user name that you should specify.
M. Click OK to save the connection.
N. Click Test if you want to verify the connection. If the JMS Provider is not configured correctly, InfoSphere CDC will use TCP/IP as the communication protocol between datastores.
O. Click OK.

9. Click OK to save your configuration settings for the InfoSphere CDC instance.
10. If InfoSphere CDC has detected an unsupported encoding, a dialog will open asking you to select an alternate encoding from a list. You can filter the list of alternate encodings by clicking one of the following buttons:
   - **Closest match**—Displays the alternated encodings that are the closest match to the data.
   - **Comparable encodings byte length**—Displays the alternate encodings in order of byte length.
   - **All**—Displays all alternate encodings.
   Select an encoding from the list and click OK.
   If you click Cancel, an error message will be displayed and the instance will not be created.

**Related concepts:**
- Port requirements
- Creating queues in JMS providers
- Using InfoSphere CDC with IBM InfoSphere DataStage
Related tasks:
To start InfoSphere CDC for InfoSphere DataStage (Windows)

Related reference:
dmbackupmd - Back up metadata
To edit an instance of InfoSphere CDC for InfoSphere DataStage® (Windows)

1. In the Instances area, select the instance that you want to modify and click Stop if the instance is started.
2. In the Instances area, select an instance and click Edit. The InfoSphere® CDC Edit Instance dialog opens.
3. You can modify any of the values on this dialog box that you specified when adding an instance.
4. Click OK to save your changes and then click Close. The configuration tool will modify the instance.
5. In the Instances area, select the instance that you modified and click Start to start the instance.
To delete an instance of InfoSphere® CDC for InfoSphere DataStage® (Windows)

1. At the command prompt, launch the configuration tool by issuing the following command in the specified directory: `<InfoSphere CDC Installation Directory>\bin\dmconfigurets.exe`

2. In the Instances area, select the instance that you want to delete and click Stop if the instance is started.
3. In the Instances area, select an instance and click Delete.
4. Click Yes to permanently delete the instance.
Configuring InfoSphere CDC (UNIX and Linux)

After installing InfoSphere® CDC, the installation program launches a configuration tool. The configuration tool allows you to configure one or more InfoSphere CDC instances for your environment. You must configure InfoSphere CDC before you can start replication.

In this section, you will learn:

- Configuring InfoSphere CDC instances (UNIX and Linux)
You can add, edit, or delete an instance of InfoSphere® CDC. Use the InfoSphere CDC configuration tool to work with instances. You do not have to start and stop instances.

Before you add, edit, or delete an instance, ensure logging is turned on for each database from which you intend to capture data changes.

See also:

- To add a new instance of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
- To edit an instance of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
- To delete an instance of InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
To add a new instance of InfoSphere® CDC for InfoSphere DataStage® (UNIX and Linux)

1. If you are configuring the first instance of InfoSphere® CDC after installation, you can proceed to Step 3 of this procedure.

2. At the command prompt, launch the configuration tool by issuing the following command in the specified directory:
   `<InfoSphere CDC Installation Directory>\bin\dmconfigurets`

3. At the welcome message, press Enter to continue.

4. At the Confirm dsjob path message, the installer auto-detects the current path of dsjob.exe used to automatically start jobs when using the Direct Connect connection method. Enter y to continue or n to quit installation and change the path variable. Note: The Confirm dsjob path message does not appear if you have not installed InfoSphere Information Server and set up the dsjob path on the same system as you’re installing InfoSphere CDC.

5. Enter 2 and press Enter to add a new instance of InfoSphere CDC.

6. Enter the name of the instance you want to add and press Enter. The instance name must be unique.

7. Enter the port number which InfoSphere CDC uses for communication with client workstations running Management Console and other servers. InfoSphere CDC displays a default port of 10401. Press Enter. This port number cannot be used by other applications installed on the same server. You will use this port number when specifying access parameters for your datastore in the Access Manager perspective in Management Console.

8. Press Enter to bypass auto-discovery. This feature is disabled by default.

9. Enter the amount of physically available RAM that you want to allocate for this instance of InfoSphere CDC and press Enter. By default, the configuration tool allocates 512 MB of RAM for each 32-bit instance and 1024 MB of RAM for each 64-bit instance. Using values other than the defaults or allocating more RAM than is physically available on your server should only be undertaken after considering the impacts on product performance.

10. Depending on the bit version of your server, enter 32 or 64 and press Enter.

11. If you want to use TCP/IP as the exclusive method of communication between datastores, enter n and press Enter. If you want to have the option to use either a JMS provider or TCP/IP as the communications protocol, perform the following steps:
   A. A JMS provider should be used when characteristics of your network prevent the existence of a long term, stable TCP/IP connection.

   Ensure that a queue has been created by your system administrator and is named correctly. Each InfoSphere CDC instance that is to use a JMS message provider must have a queue named in the format CDC_<port>, where <port> is the five digit TCP listening port number of the instance. You can left pad the number with zeroes if necessary to ensure five digits (example, CDC_00123).

   B. Enter y and press Enter.

   C. Enter 2 to add a JMS provider.

   D. Enter the fully qualified path to your JMS provider .jar file and press Enter.

   E. Enter 4 and press Enter to complete the configuration of the JMS providers.

   F. Enter 1 to add a JMS connection.
G. Enter a JMS remote connection factory name and press Enter. For example, jms/ConnectionFactory. A connection factory encapsulates a set of connection configuration parameters that has been defined by an administrator. InfoSphere CDC uses this to create a connection with your JMS provider.

H. Enter the user name and press Enter.

I. Enter the password to authenticate to the JMS server and press Enter.

J. Enter the password a second time to confirm and press Enter.

K. Enter the JNDI initial context and press Enter.

L. Enter the URL that is relative to the JNDI Initial Context and press Enter.

M. Enter the user name for the JNDI Principal and press Enter.

N. Enter the JNDI credentials password and press Enter.

O. Enter the password a second time to confirm and press Enter.

P. Press Enter again to return to the Engine Communication Connection menu.

Q. Press 5 if you want to verify the connection and then press Enter to return to the Engine Communication Connection menu. If the JMS Provider is not configured correctly, InfoSphere CDC will use TCP/IP as the communication protocol between datastores.

R. Enter 7 to complete the configuration of the engine communication connection.

12. InfoSphere CDC displays a username of tsuser that is used for authentication when creating a datastore in Management Console. You cannot modify this value.

13. Enter the password that is used to authenticate the user tsuser.

14. Confirm the password by typing it again.

15. If InfoSphere CDC detects an unsupported encoding, an error message will be displayed and you will be asked to choose an alternate encoding.

A. Enter y to proceed. If you enter n and press Enter to cancel, the instance will not be created.

B. Enter a value to choose how the alternate encodings will be displayed:
   - 1—Displays the available alternate encodings that are the closest match to the database.
   - 2—Displays the available alternate encodings in order of byte length.
   - 3—Displays all available alternate encodings.

C. Enter the number for the encoding to be used and press Enter.

16. The configuration tool creates the InfoSphere CDC instance and prompts you to start the instance. Enter y to start the instance. The configuration tool will prompt you if your configuration is about to overwrite the metadata for an existing instance.

Related concepts:
Port requirements
Creating queues in JMS providers
Using InfoSphere CDC with IBM InfoSphere DataStage

Related reference:
dmbackupmd - Back up metadata
To edit an instance of InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. Stop InfoSphere® CDC by using the dmshutdown command. You cannot edit an instance that is running.

2. At the command prompt, launch the configuration tool by issuing the following command from the <InfoSphere CDC Installation Directory>/bin directory:

   ./dmconfigurets

3. Enter 1 and press Enter to list the installed instances of InfoSphere CDC. Record the name of the instance you want to modify.

4. Enter 3 and press Enter to modify an instance of InfoSphere CDC.

5. Enter the number of the instance that you want to modify and press Enter. The configuration tool allows you to edit a number of values that you specified when adding an instance.

6. After making your changes, enter 5 and press Enter to apply your changes and return to the main menu. Enter 6 and press Enter to discard your changes.
IBM InfoSphere Change Data Capture, Version 10.2

To delete an instance of InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. Stop InfoSphere® CDC by using the dmshutdown command.
2. At the command prompt, launch the configuration tool by issuing the following command from the <InfoSphere CDC installation directory>/bin directory:
   ./dmconfigurets
3. Enter 1 and press Enter to list the installed instances of InfoSphere CDC. Record the name of the instance you want to delete.
4. Enter 4 and press Enter to delete an instance of InfoSphere CDC.
5. Enter the instance name that you want to delete and press Enter.
After you install and configure InfoSphere CDC for InfoSphere DataStage®

Once you have installed and configured InfoSphere® CDC, you can start using InfoSphere CDC.

In this section, you will learn:

- Using InfoSphere CDC with IBM InfoSphere DataStage
- Starting InfoSphere CDC for InfoSphere DataStage
- Stopping InfoSphere CDC for InfoSphere DataStage
- Specifying the InfoSphere DataStage record format in Management Console
- Maintaining active TCP connections in a network environment
As part of the configuration process in Management Console, you can generate a definition file (*.dsx) that is imported into InfoSphere® DataStage®. To generate an InfoSphere DataStage definition file, you must complete the configuration steps in Management Console. For more information, see Generating a InfoSphere DataStage definition file for a subscription in your Management Console documentation.

The .dsx definition file you generate in Management Console and import into InfoSphere DataStage contains the information that is used to re-create columns in InfoSphere DataStage based on the data types of the source columns as determined by your table mapping choices. The .dsx file also contains information on which of the connection methods that you select when you map your tables. The connection type options are:

- Flat File—uses a file system to deposit source changes for InfoSphere DataStage to retrieve.
- Direct Connect—uses TCP/IP as the transport protocol to stream data from InfoSphere CDC to InfoSphere DataStage. Note that to use the full functionality of the Direct Connect option, including the autostart option, you must have Management Console version 6.5 or later, Access Server version 6.5 or later installed as well as having InfoSphere CDC version 6.5 or later installed on the same server as InfoSphere DataStage, a component of IBM® Information Server version 8.5.

Depending on the connection method you choose, flat files are sent (Flat File) or data is streamed (Direct Connect) to InfoSphere DataStage by InfoSphere CDC when either when data limits are reached (determined the Batch Size Threshold settings you’ve indicated in the InfoSphere DataStage Properties dialog box in Management Console after mapping your tables) or when a refresh or mirroring operation ends.

**Understanding the Flat File workflow**

For the Flat File connection method, the package consists of a job sequence, a parallel job, and two utility routines that are used by the job sequence. The job sequence has three parameters. The values for these parameters are specified by Management Console when it generates the InfoSphere DataStage.dsx definition file:

- SPFFolderPath—the full path name for the folder that InfoSphere DataStage searches for the source flat files created by InfoSphere CDC.
- SPFileNamePattern—the file name pattern used to identify the source flat files created by InfoSphere CDC.
- SPEndFileNamePattern—the file name that InfoSphere DataStage creates when subscriptions stop mirroring. The name of this file signals InfoSphere DataStage to stop. If you do not want InfoSphere DataStage to stop, you can change the name of the file with this parameter.

For the Flat File connection method, InfoSphere CDC creates units of work that will be picked up and processed by InfoSphere DataStage. The process begins once a
refresh or mirroring operation begins, and InfoSphere CDC starts writing change information to temporary data files for only those tables in the subscription for which there are changes. Once the Batch Size Threshold limits (or the Time Limit Threshold limit, whichever comes first) are met, InfoSphere CDC hardens the temporary data files at the subscription level with timestamps in the filenames and saves them to the flat file location. No data files are produced for tables that have no changes. Once the refresh or mirroring operation is ended, <TABLE_NAME>.STOPPED files, which serve as status flags, are produced for each table in the subscription, then the bookmark is updated. These files are ready for consumption by the InfoSphere DataStage job.

Attention: If you kill a refresh or mirroring operation using the dmterminate command, the temporary data files cannot be hardened at the subscription level, no <TABLE_NAME>.STOPPED status flag files are generated for the tables in the subscription, and the bookmark is not updated. You must restart the refresh or mirroring process. Be aware that restarting uses the last-saved bookmark and starts a new set of temporary data files to be hardened as thresholds are met. To ensure that the temporary data files are hardened, and the <TABLE_NAME>.STOPPED status flag files are created, use a Normal or Scheduled End shutdown in Management Console, or you can issue a dmshutdown command with the appropriate flags for the severity level. If you use the Abort or Immediate shutdown options, InfoSphere CDC may opt not harden the temporary data files as a way of facilitating these more rapid shutdown requests.

The following diagram illustrates the basic workflow of a InfoSphere DataStage job that using the .dsx definition file generated in Management Console for use in the Flat File connection method. Note that this represents the most basic workflow for the Flat File replication method. Once you have generated the .dsx definition file and imported it into the InfoSphere DataStage Designer, you can define additional stages as necessary and configure the business logic in InfoSphere DataStage Designer to suit your data transformation requirements.

1. On the computer where the source database is installed, the InfoSphere CDC service for the database reads the transaction log to capture changes.
2. The InfoSphere CDC for InfoSphere DataStage server transfers the change data according to the replication definition.
3. The InfoSphere CDC for InfoSphere DataStage server hardens the files and deposits them in the flat file location.
4. The InfoSphere DataStage sequential file reader retrieves the flat files as part of a InfoSphere DataStage job and transforms them.
5. The InfoSphere DataStage sequential file reader deposits the transformed flat files in the new flat file location.
Note: This represents the most basic workflow for the Flat File replication method. Once you have generated the .dsx definition file and imported it into the InfoSphere DataStage Designer, you can define additional stages as necessary and configure the business logic in InfoSphere DataStage Designer to suit your data transformation requirements.

**Understanding the Direct Connect workflow**
For the Direct Connect connection method, the process is similar. The size and time limits set in the InfoSphere DataStage Properties dialog box determine when data is sent, and the matching Project Name, Job Name, and Connection Key information set in the InfoSphere DataStage Properties dialog box permit InfoSphere CDC to send the data to InfoSphere DataStage directly, without saving any of the data as flat files.

For the Direct Connect connection method, the data is not written to a file, but is sent instead over a TCP/IP connection directly to InfoSphere DataStage to be processed by a specific InfoSphere DataStage job that you have identified by specifying the matching Project Name, Job Name, and Connection Key in the InfoSphere DataStage Properties dialog box in Management Console after mapping your tables. The InfoSphere DataStage Connector processes the data, then transforms and translates it into a format recognized by the InfoSphere DataStage job.

Additionally, with the Direct Connect connection method, you can enable the autostart feature to run in active mode, which allows InfoSphere DataStage to start a job when appropriate and begin to stream data to InfoSphere DataStage. Running with autostart enabled requires both InfoSphere CDC and InfoSphere DataStage to be installed on the same server. If autostart is not enabled, you must run jobs from InfoSphere DataStage before the Direct Connect data stream can begin. For instructions on enabling autostart, see the Management Console documentation.

Important: In order to use the autostart function in the Direct Connect method on a UNIX or Linux system, ensure that you have correctly set the database library directory in the dsenv file for InfoSphere Information Server. See the topic on "Ensuring that InfoSphere DataStage users have the correct localization settings (Linux, UNIX)" and "Configuring the dsenv file" in the InfoSphere Information Server Planning, Installation, and Configuration Guide.

The following figure illustrates workflow when you use the Direct Connect connection method:

1. On the computer where the source database is installed, the InfoSphere CDC service for the database reads the transaction log to capture changes.
2. The InfoSphere CDC server transfers the change data according to the replication definition.
3. The InfoSphere CDC server sends the CDC Transaction stage through a TCP/IP session that is created with replication begins. Periodically, the InfoSphere CDC server also sends a COMMIT message along with bookmark information to mark the transaction boundary in the captured log.

4. In the InfoSphere DataStage job, the data flows over links from the CDC Transaction stage to the target database connector stage. The bookmark information is sent over a bookmark link. For each COMMIT message sent by the InfoSphere CDC server, CDC Transaction stage creased end-of-wave (EOW) marker that is sent on output links to the target database connector stage.

5. The target database connector stage connects to the target database and sends data over the session. When the target database connector stage receives an EOW marker on all input links, it writes bookmark information to the bookmark table and then commits the transaction to the target database.

6. Periodically, the InfoSphere CDC server requests bookmark information from the bookmark table on the target database. In response to the request, the CDC Transaction stage fetches the bookmark information through ODBC and returns it to the InfoSphere CDC server.

7. The InfoSphere CDC server receives the bookmark information which is used to determine:
   - the starting point in the transaction log where changes are read when replication begins; the starting point in the transaction log is the ending point from the previous replication.
   - if the existing transaction log can be cleaned up.
Starting InfoSphere CDC for InfoSphere DataStage®

When you install InfoSphere® CDC on a supported Windows server, you can start it manually after the initial configuration. Starting InfoSphere CDC starts the services in Windows. The services will automatically start after a reboot.

When you install InfoSphere CDC on a supported UNIX server, you can issue a command to start it. After installing InfoSphere CDC, start it so that you can create a datastore for this instance in Management Console.

See also:

- To start InfoSphere CDC for InfoSphere DataStage (Windows)
- To start InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
IBM InfoSphere Change Data Capture, Version 10.2

To start InfoSphere CDC for InfoSphere DataStage® (Windows)

1. At the command prompt, launch the configuration tool by issuing the following command in the specified directory: \<InfoSphere CDC Installation Directory> \bin\dmconfigurets.exe

2. In the Instances area, select the instance that you want to start and click Start. The configuration tool starts the instance of InfoSphere® CDC. You can also use the Windows Services dialog to start and stop InfoSphere CDC services.
To start InfoSphere® CDC for InfoSphere DataStage® (UNIX and Linux)

Depending on the operating system you are running, issue one of the following start commands:
- dmts32 -l <instance_name>
- dmts64 -l <instance_name>
Stopping InfoSphere CDC for InfoSphere DataStage®

It may be necessary to stop InfoSphere® CDC when you want to change the configuration settings, take a server or database offline for maintenance purposes, or if you want to upgrade InfoSphere CDC. You can use the configuration tool or commands to stop InfoSphere CDC.

See also:

- To stop InfoSphere CDC for InfoSphere DataStage (Windows)
- To stop InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
To stop InfoSphere CDC for InfoSphere DataStage® (Windows)

1. End replication on all subscriptions in Management Console. For more information on how to end replication on subscriptions, see your Management Console documentation.

2. Launch the configuration tool by issuing the following command in the specified directory:\<InfoSphere CDC Installation Directory>\bin\dmconfigurets

3. In the Instances area, select the instance that you want to stop and click Stop. The configuration tool stops the InfoSphere® CDC instance and services. The services will automatically start again after a reboot.

You can also use the Windows Services dialog to start and stop InfoSphere CDC services.
To stop InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. End replication on all subscriptions in Management Console. For more information on how to end replication on subscriptions, see your Management Console documentation.

2. Depending on how you want to stop InfoSphere® CDC, issue one of the following stop commands in the bin directory in your InfoSphere CDC installation directory:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>dmshutdown [-I &lt;instance_name&gt;]</td>
<td>Use this command to gracefully shut down InfoSphere CDC. If you have multiple active InfoSphere CDC installations on the same UNIX or Linux server, and you want to shut them all down, run this command from the installation directory for each InfoSphere CDC instance.</td>
</tr>
<tr>
<td>dmterminate [-L &lt;locale&gt;]</td>
<td>Use this command to terminate all processes for all instances running on a UNIX or Linux server. Use this command when you cannot completely shut down InfoSphere CDC using the dmshutdown command.</td>
</tr>
</tbody>
</table>
IBM InfoSphere Change Data Capture, Version 10.2
Specifying the InfoSphere DataStage record format in Management Console

When using the InfoSphere® DataStage® mapping type in Management Console for both Flat File and Direct Connect, you can select one of the following record formats. The type of format you choose will depend on your business requirements. For more information, see your Management Console documentation.

**Single Record**

In this format an update operation is sent as a single row. InfoSphere CDC generates a file that contains the following as part of each record:
- Standard columns containing information about the change:
  - DM_TIMESTAMP contains the value from the &TIMESTAMP journal control field.
  - DM_TXID contains the value from the &CCID journal control field.
  - DM_OPERATION_TYPE contains a single character indicating the type of operation that is sent from the source system:
    - "I" for an insert.
    - "D" for a delete.
    - "U" for an update.
    For more information about the journal codes that InfoSphere CDC generates, see [About journal codes](#).
  - DM_USER contains the value from the &USER journal control field.
  - Before images for columns in the following format: before_mycolumnname
  - After images for columns in the following format: mycolumnname

**Multiple Record Format**

In this format an update operation is sent as two rows. The first row is the before image and the second row is the after image. InfoSphere CDC generates a file with journal control fields, before images for columns, and after images for columns. Separate records are produced for before and after images, and the format of each record is as follows:
- Standard columns containing information about the change:
  - DM_TIMESTAMP contains the value from the &TIMESTAMP journal control field.
  - DM_TXID contains the value from the &CCID journal control field.
  - DM_OPERATION_TYPE contains a single character indicating the type of operation that is sent from the source system:
    - "I" for an insert.
    - "D" for a delete.
    - "B" for the row containing the before image of an update.
    - "A" for the row containing the after image of an update.
  - DM_USER contains the value from the &USER journal control field.
  - The columns in the table mapping in the following format: mycolumnname
Maintaining active TCP connections in a network environment

If your deployment of InfoSphere® CDC is in a network environment that uses a firewall, VPN gateway, or local system tools to detect idle TCP connections, it may be necessary to configure the product to prevent these connections from being closed during periods of application inactivity between the source and target. By default, InfoSphere CDC sends a message over TCP connections every 20 seconds to ensure these connections remain active during periods of inactivity. If your network policies close TCP connections for idle periods of less than 20 seconds, you must change the configuration of each instance of InfoSphere CDC to ensure the TCP connections remain open.

See also:

- To maintain active TCP connections
1. For each instance of InfoSphere® CDC, navigate to one of the following directories depending on your operating system: UNIX or Linux:

   <CDC_installation_directory>/instance/<instance_name>/conf

   Windows:<CDC_installation_directory>\instance\<instance_name>\conf

2. Open the comms.ini file in a text editor.
3. Change the KEEP_ALIVE_TIMEOUT parameter to a value that is lower than the time used to detect idle connections in your network. For example, if your network disables idle TCP connections after 15 seconds, you can change the KEEP_ALIVE_TIMEOUT parameter to a value of 10 seconds: KEEP_ALIVE_TIMEOUT=10
4. Save the comms.ini file.
5. For the changes to take effect, use the configuration tool to restart all instances of InfoSphere CDC.
InfoSphere CDC will now send messages over the TCP connection every 10 seconds.
Data types supported by InfoSphere CDC for InfoSphere DataStage

For information about data types supported by InfoSphere® CDC for InfoSphere DataStage®, see Supported data types.
For information about system parameters for InfoSphere® CDC for InfoSphere DataStage®, see System parameters for InfoSphere CDC for InfoSphere DataStage®.
This section discusses the commands available with InfoSphere® CDC. Using these commands you can control replication, manage your tables for replication, monitor replication, and perform various other tasks.

In this section, you will learn:

- Using the InfoSphere CDC for InfoSphere DataStage commands
- Setting the TSINSTANCE environment variable
- Database transaction log commands
- Exporting and importing configuration commands
- Monitoring replication commands
- Other commands
Using the InfoSphere CDC for InfoSphere DataStage® commands

You can issue InfoSphere® CDC commands at a command line prompt or as part of a batch file or shell script. Commands are case-sensitive in UNIX and Linux environments and are located in the bin directory of your InfoSphere CDC installation directory. You must run the commands from this directory.

Note: Use the -? flag to list the available parameters for a command and a short description of each parameter. For example, dmstartmirror -?.

Command formats

For each command, the following items of information are provided:

- **Syntax**—Identifies the name of the command and lists the command parameters.
- **Parameters**—Describes each parameter in the command and identifies the values that can be specified.
- **Result**—Indicates the values that are returned by the command if it is successful. These values can be useful for scripting. This section also specifies the information that is displayed on the screen, if any, as a result of executing the command.
- **Examples**—Provides one or more examples of invoking the command.

Parameter formats

Note the following conventions in the definition of the command parameters:

- Angle brackets ( < > ) indicate a **mandatory** parameter.
- Square brackets ( [ ] ) indicate an **optional** parameter. If you omit the parameter, InfoSphere CDC uses a default value.
- A vertical bar ( | ) separating one or more parameters indicate that only one of the parameters in the list can be used. When one or more vertical bars appear in a list of parameters that is enclosed by square brackets [ ], the choices are limited to the parameters in the list, but you have the option to not specify any of the parameters.
- Ellipsis ( ... ) means that a parameter or option can be repeated more than once.
- You can issue the commands in UNIX or Linux or Windows.
IBM InfoSphere Change Data Capture, Version 10.2

Setting the TSINSTANCE environment variable

Before using InfoSphere® CDC commands, you can set the TSINSTANCE environment variable to the name of your InfoSphere CDC instance. After you set the TSINSTANCE environment variable, you no longer have to specify the instance name when issuing commands.

Windows

Issue the following command at the command prompt:

```bash
SET TSINSTANCE=<instance_name>
```

where:
- `<instance_name>` is the name of your InfoSphere CDC instance.

UNIX or Linux

The following command is for kshell. You can run similar commands in other shells:

```bash
export TSINSTANCE=<instance_name>
```

where:
- `<instance_name>` is the name of your InfoSphere CDC instance.
This section contains commands that help you manage your database transaction log or bookmarks.

See also:

- `dmshowbookmark` - Display bookmark information
IBM InfoSphere Change Data Capture, Version 10.2

dmshowbookmark - Display bookmark Information

CAUTION:
Improper use of this command in conjunction with the dmsetbookmark command can result in data loss or data duplication. You should only execute the dmsetbookmark command when directed by IBM Technical Support.

Use this command on your InfoSphere® CDC target system to obtain the replication position (bookmark) in the stream of change data for a subscription. After generating the replication position information with this command, you can use the dmsetbookmark command on the source system to set the replication position for a subscription.

Syntax

dmshowbookmark [-I <INSTANCE_NAME>] -s <SOURCE_ID>
[-f <bookmark_file_name>] [-x <bookmark_file_name>] [-v] [-L <locale>]

Parameters
- -I <INSTANCE_NAME>
  - The name of the InfoSphere CDC instance. You can set the TSINSTANCE environment variable to the name of your InfoSphere CDC instance. After this is complete, you no longer have to specify the instance when issuing commands.

- -s <SOURCE_ID>
  - Specifies the source ID of the subscription for which you want to obtain the replication position (bookmark). Source IDs are automatically generated based on truncating the subscription name to 8 characters during subscription creation. Source IDs must be unique.

- -f <bookmark_file_name>
  - Specifies the name of the binary file that will be generated by this command. The generated file contains information about the replication position (bookmark) for the specified subscription.
  - You can specify an absolute path for the location where you want to create the file. If you do not specify an absolute path, the file is created in the InfoSphere CDC installation directory.
  - Use the -f parameter in the dmsetbookmark command to read the binary file generated by this parameter.
  - Note: Use the -x parameter if you are issuing this command from the target of a DB2® for LUW DPF source environment.

- -x <bookmark_file_name>
  - Specifies the name of the XML file that will be generated by this command. The generated file contains information about the replication position (bookmark) for the specified subscription. Use this parameter if you are replicating from a DB2 for LUW DPF source environment. The XML file contains replication positions (bookmarks) for all partitions. You can specify an absolute path for the location where you want to create the file. If you do not specify an absolute path, the file is created in the InfoSphere CDC installation directory.
  - Use the -f parameter in the dmsetbookmark command to read the XML file generated by this parameter.
- -v
  - Displays verbose information about the replication position (bookmark), including a hexadecimal-encoded string. The amount of information displayed depends on the type and version of the source engine. The hexadecimal-encoded string is always displayed. This parameter displays a subset of what the dmdecodebookmark command displays. If not specified, only a hexadecimal-encoded string is displayed. Note: Use the -x parameter if you are issuing this command from the target of a DB2 LUW DPF source environment.

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

**Result**
This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

**Examples**

dmshowbookmark -I MYINSTANCE -s MASTER -f bookmarkInfoSphere CDC obtains the replication position (bookmark) information for the specified instance and the MASTER source ID. Replication position (bookmark) information is contained in the bookmark binary file which will be placed in the InfoSphere CDC installation directory since no absolute path has been specified.

dmshowbookmark -I MYINSTANCE -s FINANCE -x mybookmarksInfoSphere CDC obtains the replication position (bookmark) information for the specified instance and the FINANCE source ID. Replication position (bookmark) information is contained in the mybookmarks XML file which will be placed in the InfoSphere CDC installation directory since no absolute path has been specified.
Exporting and Importing configuration commands

This section contains commands that allow you to export and/or import your InfoSphere® CDC global configuration.

See also:

- dmexportconfiguration - Export InfoSphere CDC Configuration
- dmimportconfiguration - Import InfoSphere CDC Configuration
IBM InfoSphere Change Data Capture, Version 10.2

dmexportconfiguration - Export InfoSphere CDC Configuration

Use this command to export the configuration details of an installed instance of InfoSphere® CDC. Configuration details are sent to an XML configuration file. You can use the dmimportconfiguration command to import the XML file that you create with this command into another instance of InfoSphere CDC.

Note: This command does not export subscription-specific settings that are configured in Management Console. Subscription-specific settings can be exported to an XML file in Management Console.

Note: This command is interactive and will prompt you for your password. You cannot script this command.

Syntax

dmexportconfiguration <absolute_path_to_configuration_file> [-L <locale>]

Parameters

- <absolute_path_to_configuration_file>
  - The absolute path to the XML configuration file that you want to export.

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

Examples

dmexportconfiguration c:\configuration.xmlInfoSphere CDC exports the XML file to the specified absolute path.

Related reference:

dmimportconfiguration - Import InfoSphere CDC Configuration
IBM InfoSphere Change Data Capture, Version 10.2

**dmimportconfiguration** - Import InfoSphere CDC Configuration

Use this command to import the InfoSphere® CDC configuration settings from an XML file which you created with the dmexportconfiguration command. Note: You can script this command and use an InfoSphere CDC silent installation to deploy InfoSphere CDC on multiple systems.

**Syntax**

dmimportconfiguration <absolute_path_to_configuration_file> [-L <locale>]

**Parameters**

- `<absolute_path_to_configuration_file>`
  - The absolute path to the XML configuration file that you are importing.

- `-L <locale>`
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

**Result**

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

**Examples**

dmimportconfiguration c:\configuration.xml

InfoSphere CDC imports the XML configuration file from the specified absolute path.

**Related reference:**

dmexportconfiguration - Export InfoSphere CDC Configuration
Monitoring replication commands

This section contains commands that help you monitor replication in InfoSphere® CDC.

See also:

- dmclearevents - Clear events
- dmshowevents - Display InfoSphere CDC events
IBM InfoSphere Change Data Capture, Version 10.2

dmclearevents - Clear events

Use this command to delete events from the Event Log view in Management Console.

Syntax

dmclearevents [-I <INSTANCE_NAME>] [-S|-T|-B] [-A|-s <SUBSCRIPTION_NAME> ...] [-L <locale>]

Parameters

- -I <INSTANCE_NAME>
  - Specifies the name of the InfoSphere® CDC instance. Alternatively, you can specify the TSINSTANCE environment variable in place of this value.

- -S
  - Specifies that InfoSphere CDC clears events from the source.

- -T
  - Specifies that InfoSphere CDC clears events from the target.

- -B
  - Specifies that InfoSphere CDC clears events from both the source and target. If none of the S, T, and B options are specified, InfoSphere CDC assumes B by default.

- -A
  - Specifies that InfoSphere CDC clears events for all subscriptions.

- -s <SUBSCRIPTION_NAME>
  - Specifies that InfoSphere CDC clears events for the indicated subscription. To specify multiple subscriptions, list the subscriptions separated by a space.

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

Examples

dmclearevents -I MYINSTANCE -S -AInfoSphere CDC clears events from the source for all subscriptions for the specified instance.
dmclearevents -I MYINSTANCE -B -s FINANCE MARKETINGInfoSphere CDC clears events from both the source and target for the Finance and Marketing subscriptions for the specified instance.
IBM InfoSphere Change Data Capture, Version 10.2

dmshowevents - Display InfoSphere CDC events

Use this command to display InfoSphere® CDC events to standard output. You can use this command as an alternative to showing InfoSphere CDC events in the Event Log view in Management Console. The output of this command shows events in chronological order with the most recent event shown first in the list.

Syntax

dmshowevents [-I <INSTANCE_NAME>] [-a|-s <SUBSCRIPTION_NAME> ... | -t <SOURCE_ID> ...]|-s <SUBSCRIPTION_NAME> ... -t <SOURCE_ID> ...> [-h] [-c max_msg] 
[-L <locale>]

or

dmshowevents -I <INSTANCE_NAME> <-a|-s <SUBSCRIPTION_NAME> |-t <SOURCE_ID> ...> [-h] [-c <max_msg>] [-L <locale>]

Parameters

- -I <INSTANCE_NAME>
  - Specifies the name of the InfoSphere CDC instance. Alternatively, you can specify the TSINSTANCE environment variable in place of this value.

- -a
  - Specifies that InfoSphere CDC shows events for all subscriptions.

- -s <SUBSCRIPTION_NAME>
  - Specifies the name of the subscription for which InfoSphere CDC displays source events. To specify multiple subscriptions, list the subscriptions separated by a space.

- -t <SOURCE_ID>
  - Specifies the source ID of the subscription for which InfoSphere CDC displays target events. List the source IDs if you specify more than one. Source IDs are automatically generated based on truncating the subscription name to 8 characters during subscription creation. Source IDs must be unique.

- -h
  - Specifies that InfoSphere CDC displays a header before the list of events. This option helps you identify each item of information that is displayed for each event.

- -c <max_msg>
  - Specifies the maximum number of events that InfoSphere CDC displays. If you omit this parameter or you specify a value greater than the total number of events, InfoSphere CDC displays all events for the specified subscriptions and source IDs.
    - Minimum Setting—0. No events are shown.
    - Maximum Setting—2147483647

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the operation was successful. If it fails, the
command returns a non-zero value.

Examples

dmshowevents -I NEWINSTANCE -s FINANCEInfoSphere CDC displays all events for the Finance subscription for the specified instance.
dmshowevents -I MYINSTANCE –a –lInfoSphere CDC displays all events for all subscriptions. A header is displayed before the list of events for the specified instance.
dmshowevents -I NEWINSTANCE –s FINANCE MARKETING –t ATLANTA –h –c 20InfoSphere CDC displays the most recent 20 events for the Finance and Marketing subscriptions and for the Atlanta source ID. A header is displayed before the list of events for the specified instance.

Sample output

```
<table>
<thead>
<tr>
<th>TIME</th>
<th>AGENTTYPE</th>
<th>SUBSCRIPTION</th>
<th>EVENTID</th>
<th>SEVERITY</th>
<th>EVENTPROGRAM</th>
<th>EVENTTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-04-21 17:23:08.817</td>
<td>T</td>
<td>ATLANTA</td>
<td>95</td>
<td>Information</td>
<td>class com.datamirror.ts.target.publication.c</td>
<td>IBM InfoSphere Change Data Capture Communications ending.</td>
</tr>
<tr>
<td>2006-04-21 17:23:07.911</td>
<td>T</td>
<td>ATLANTA</td>
<td>1536</td>
<td>Information</td>
<td>class com.datamirror.ts.target.publication.c</td>
<td>Describe conversation started by ATLANTA.</td>
</tr>
<tr>
<td>2006-04-21 17:23:07.333</td>
<td>T</td>
<td>ATLANTA</td>
<td>1531</td>
<td>Information</td>
<td>class com.datamirror.ts.target.publication.c</td>
<td>Communication with ATLANTA successfully started on Data channel.</td>
</tr>
<tr>
<td>2006-04-21 17:23:06.973</td>
<td>T</td>
<td>ATLANTA</td>
<td>1534</td>
<td>Information</td>
<td>class com.datamirror.ts.engine.a</td>
<td>Code page conversation from the source database's code page 1252 to the target database's code page Cp1252 for ATLANTA will be performed by the Remote system.</td>
</tr>
</tbody>
</table>
```

Fields in each record are separated by vertical bars ( | ). These fields are identified in the first line of the output. In the AGENTTYPE field, S indicates source and T indicates target.
Other commands

This section contains miscellaneous commands that allow you to determine the version of InfoSphere® CDC, verify communications, stop InfoSphere CDC, set system parameters, and back up your metadata.

See also:

- dmbackupmd - Back up metadata
- dmconfigurets - Configure InfoSphere CDC
- dmset - Set InfoSphere CDC system parameter
- dmshowversion - Show InfoSphere CDC version
- dmshutdown - Shut down InfoSphere CDC
- dmsupportinfo - Collect IBM Support information
- dmterminate - Terminate InfoSphere CDC processes
- dmt32 - Start InfoSphere CDC
- dmts64 - Start InfoSphere CDC
- dmmconsole
- dmmcommander
IBM InfoSphere Change Data Capture, Version 10.2

dmbackupmd - Back up metadata

Use this command to create a backup of the InfoSphere® CDC metadata database which contains information about your current replication configuration. You should always back up your metadata when there are changes to your subscription configuration and table status. You can only back up your metadata while InfoSphere CDC is running.

The backup of the metadata database is created in `<Installation_directory>/instance/<instance_name>/conf/backup` for UNIX and Linux and in `<Installation_directory>\instance\<instance_name>\conf\backup` for Windows. The files in the `backup` directory should be stored on separate media for possible recovery.

Syntax

dmbackupmd [-I <INSTANCE_NAME>] [-L <locale>]

Parameters

- **-I <INSTANCE_NAME>**
  - Specifies the name of the InfoSphere CDC instance. Alternatively, you can specify the TSINSTANCE environment variable in place of this value.

- **-L <locale>**
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.
IBM InfoSphere Change Data Capture, Version 10.2

**dmconfigurets - Configure InfoSphere CDC**

Use this command to launch the InfoSphere® CDC configuration tool. You can use this tool to create instances and configure your installation of InfoSphere CDC. If the DISPLAY environment variable has been set, the configuration tool will attempt to launch the graphical user interface (GUI) version of the configuration tool when this command is issued. If you do not have the graphical libraries installed to view the GUI, you will need to ensure that the DISPLAY environment variable has been cleared in order to launch the command line version.

**Syntax**

`dmconfigurets [-L <locale>]`

**Parameters**

- `-L <locale>`
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

**Result**

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.
IBM InfoSphere Change Data Capture, Version 10.2

**dmset - Set InfoSphere CDC system parameter**

Use this command to view or change InfoSphere® CDC system parameters. You can also change system parameters in Management Console.

Note: You can set any system parameter using this command. However, it will only display system parameters that are set to non-default values.

**Syntax**

```
dmset [-I <INSTANCE_NAME>] [<parameter_name>=[<parameter_value>]] [-L <locale>]
```

**Parameters**

- `-I <INSTANCE_NAME>`
  - Specifies the name of the InfoSphere CDC instance. Alternatively, you can specify the TSINSTANCE environment variable in place of this value.

- `<parameter_name>`
  - Specifies the name of the InfoSphere CDC system parameter.

- `<parameter_value>`
  - Specifies the value that you want to assign to the system parameter.

- `-L <locale>`
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

**Result**

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

**Examples**

```
dmset -I MYINSTANCEDisplays all of the system parameters that are set to non-default values.
dmset -I MYINSTANCE events_max_retain=20000Sets the events_max_retain system parameter to 20000.
dmset -I MYINSTANCE events_max_retainDisplays the current value of the specified parameter.
dmset -I MYINSTANCE stop_replication=Deletes the stop_replication system parameter.
```
IBM InfoSphere Change Data Capture, Version 10.2

dmshowversion - Show InfoSphere CDC version

Use this command to display the InfoSphere® CDC version and build number. Run this command before you contact your IBM® representative.

Syntax

dmshowversion [-L <locale>]

Parameters

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the operation was successful. If it fails, this command returns a non-zero value.
IBM InfoSphere Change Data Capture, Version 10.2

dmshutdown - Shut down InfoSphere CDC

Use this command to stop an instance of InfoSphere® CDC. This command is often used prior to taking a server or database offline for maintenance purposes or upgrading InfoSphere CDC.

Note: As a best practice before you run this command and to ensure that it completes successfully, use the dmendreplication command to end replication on all subscriptions that use the instance specified in this command.

To end replication on subscriptions that use the specified instance, you can use the –a parameter which will generate an error when forcefully ending replication on subscriptions that use the instance as a target.

If this command does not end InfoSphere CDC processes and stop the specified instance, use the dmterminate command on the UNIX and Linux platforms to force a complete shut down.

Syntax

dmshutdown [-I <INSTANCE_NAME>] [-c|-i|-a] [-L <locale>]

Parameters

- -I <INSTANCE_NAME>
  - Specifies the name of the InfoSphere CDC instance. Alternatively, you can specify the TSINSTANCE environment variable in place of this value.

- -c
  - Specifies that InfoSphere CDC stops the specified instance with the Normal option. InfoSphere CDC will use this option by default if you do not specify -i or –a. The instance will only stop if no subscriptions are currently running. Normal is the most appropriate option for most business requirements and is the preferred method for stopping an instance in most situations.

- -i
  - Specifies that InfoSphere CDC stops the specified instance with the Immediate option. The instance will only stop if no subscriptions are currently running. Starting the target instance after using this option can be slower than -c.

- -a
  - Specifies that InfoSphere CDC stops the specified instance and ends replication on all subscriptions that use the instance with the Abort option. Subscriptions that use the specified instance will end replication with an error. This option stops all in progress work and then ends replication rapidly. Starting replication on subscriptions after using this option can be much slower than using -c. A refresh in progress will be interrupted and the target will stop processing any data that has not been committed before replication ends. Attention: Use this option if your business reasons require a rapid end to replication and you are willing to tolerate a much slower start when you resume replication on the specified subscriptions.

A sudden business requirement for an unplanned shutdown of your source system may require this option for ending replication.

Note: As a best practice, use the dmendreplication command to end replication on all subscriptions that use the instance specified in this command.
- `-L <locale>`   
  - The name of the locale used for the InfoSphere CDC instance. The default is the locale of the machine where InfoSphere CDC is installed.

**Result**

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

**Examples**

dmshutdown -I MYINSTANCE -cInfoSphere CDC stops the specified instance with the Normal option. The instance will only stop if no subscriptions are currently running.

dmshutdown -I MYINSTANCE –aInfoSphere CDC stops the specified instance and ends replication with the Abort option for all subscriptions that use the instance. Subscriptions that use the specified instance will end replication with an error.

**Related reference:**
dmterminate - Terminate InfoSphere CDC processes
dmsupportinfo - Collect IBM Support Information

Note: You should only run this command when the Management ConsoleSupport Assistant cannot connect to your InfoSphere® CDC datastore because it is not running or it will not run.

Use this command (when requested by IBM® Technical Support) to collect InfoSphere CDC environment information in a generated .zip file that is used to diagnose and troubleshoot your support issue.

Once the command has completed collecting information and generating the .zip file, the output will display the full path and name of the .zip file. If you run this command multiple times, the generated .zip files are numbered randomly. Note that you are responsible for deleting the generated .zip files when they are no longer required.

Syntax

dmsupportinfo [-I <INSTANCE_NAME>] [-t "yyyy-MM-dd hh:mm:ss to yyyy-MM-dd hh:mm:ss"] [-L <locale>]

Parameters

- -I <INSTANCE_NAME>
  - Specifies the name of the InfoSphere CDC instance. Alternatively, you can specify the TSINSTANCE environment variable in place of this value. If you do not specify an instance (possibly because you could not create an instance), this command will only collect non-instance specific information.

- -t "yyyy-MM-dd hh:mm:ss to yyyy-MM-dd hh:mm:ss"
  - Specifies the date and time range (relative to the time zone of the operating system where you issue this command) used by InfoSphere CDC to retrieve environment information. Note: As a best practice, specify a date and time range that only captures the time period when you experienced problems. This allows for easier problem diagnosis and reduces the size of the files retrieved.

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

Example
dmsupportinfo -I PRODUCTION -t "2009-12-03 08:00:00 to 2009-12-03 12:00:00"

Retrieves support information for the Production instance from 8:00 AM to 12:00 PM on December 3, 2009. This is the time range when you experienced support issues with this instance of InfoSphere CDC.

Related concepts:
Troubleshooting and contacting IBM Support
IBM InfoSphere Change Data Capture, Version 10.2

dmterminate - Terminate InfoSphere CDC processes

Note: This command is only supported on the UNIX and Linux platforms.
Use this command to terminate all InfoSphere® CDC processes for all instances running on a UNIX or Linux server that you cannot completely shut down with the dmshutdown command. InfoSphere CDC terminates only processes that are started by the UNIX account used to run this command.
You can use this command prior to taking a server or database offline for maintenance purposes or upgrading InfoSphere CDC to the latest version.
Use the dmshutdown command to gracefully shut down InfoSphere CDC. If dmshutdown is unable to completely shut down InfoSphere CDC, then use dmterminate to terminate any active InfoSphere CDC processes that still remain after issuing dmshutdown.

Syntax

dmterminate [-L <locale>]

Parameters

- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.
IBM InfoSphere Change Data Capture, Version 10.2

dmt32 - Start InfoSphere CDC

Use this command to start a 32-bit instance of InfoSphere® CDC.

Syntax

dmt32 [-I <INSTANCE_NAME>] [-L <locale>]

Parameters

- I <INSTANCE_NAME>
  - Specifies the InfoSphere CDC instance for which you want to start.

- L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

Examples

dmt32 -I -MYINSTANCEInfoSphere CDC starts for the specified instance.
IBM InfoSphere Change Data Capture, Version 10.2

dmst64 - Start InfoSphere CDC

Use this command to start a 64-bit instance of InfoSphere® CDC.

Syntax

dmst64 [-I <INSTANCE_NAME>] [-L <locale>]

Parameters

- -I <INSTANCE_NAME>
  - Specifies the InfoSphere CDC instance for which you want to start.
- -L <locale>
  - The name of the locale used for the InfoSphere CDC instance. The default is your machine's locale.

Result

This command returns a value of 0 if the command was successful and a non-zero value if the command fails.

Examples

dmst64 -I MYINSTANCEInfoSphere CDC starts for the specified instance.
This command is for internal use only.
This command is for internal use only.
Custom data formats for InfoSphere CDC for InfoSphere DataStage

Note: This feature is only available with the Flat File connection type

By specifying a custom data format, you can customize the data that is being sent to InfoSphere® DataStage®. By customizing the data, the DSX file that is generated by Management Console and imported into InfoSphere DataStage may no longer be relevant. You are responsible for ensuring that the DSX file is still relevant in InfoSphere DataStage. For example, you may have an existing InfoSphere DataStage file-based job that will not read the default data format generated by Management Console. In this case, it may be easier for you to specify a custom data format rather than modifying your existing InfoSphere DataStage job.

Note: A custom data format must implement the DataStageDataFormatIF interface. Sample custom data format are provided with InfoSphere CDC. You can extend or modify these samples to suit your environment.

In this section, you will learn:

- Sample custom data formats
- InfoSphere CDC API reference – Javadocs
Sample custom data formats

InfoSphere® CDC provides sample custom data formats that you can extend or modify to suit your environment. The samples are found in samples.jar, which is located in the samples directory in your InfoSphere CDC installation directory. The file contains the following samples:

- **SampleDataStageDataFormat.java**—formats the data suitable for the InfoSphere DataStage® sequential file reader and column importer stages. This sample is located in com.datamirror.ts.userexit.sample.

Note the following:

- To run the sample custom data formats without modifying them, you must specify the fully qualified path to the compiled custom data formats in Management Console. For example, com.datamirror.ts.target.publication.userexit.sample.UserExitSample.
- Compiled sample custom data formats are located in the ts.jar file which is found in the lib directory in your InfoSphere CDC installation directory. Note that the compiled custom data formats in the ts.jar file have a *.class extension.
- If you want to modify the sample custom data formats, you must compile the custom data formats after you make changes to the source code.
- The custom data formats class must also be in your classpath.

See also:

- To compile the sample custom data formats (Windows)
- To compile the sample Java class user exits (UNIX and Linux)
To compile the sample custom data formats (Windows)

1. Stop InfoSphere® CDC.

2. Unzip the samples.jar file into the lib folder in your InfoSphere CDC installation folder. Make sure you maintain the folder structure when unzipping the jar file. After unzipping the jar file, you will have a folder structure like the following:

   `<installation_folder>/lib/com/datamirror/ts/target/publication/userexit/sample`

3. Make your changes to the sample custom data format.

4. Compile the modified custom data format. For example, if you want to compile UserExitSample.java, open a command window, navigate to the lib folder and issue the following command: `javac -classpath ts.jar;.
com/datamirror/ts/target/publication/userexit/sample
UserExitSample.java`

   If this command runs successfully, there will be no output on your screen. Note: Your system must have the Java™ JDK to run this command.

5. After running the command successfully, navigate to the following directory and confirm that you have created a UserExitSample.class file:

   `<installation_directory>/lib/com/datamirror/ts/target/publication/userexit/sample`

6. Start InfoSphere CDC.

7. The final step to configure the custom data format is to specify the fully qualified path to UserExitSample in Management Console. For example:

   `com.datamirror.ts.target.publication.userexit.sample.UserExitSample`

   Note: Do not specify the .class extension.

Note: If you plan to use the sample custom data formats in production environments, you will have to test the samples before they are deployed. IBM® does not assume responsibility for adverse results caused by modified or customized custom data formats.
IBM InfoSphere Change Data Capture, Version 10.2

To compile the sample Java class user exits (UNIX and Linux)

1. Stop InfoSphere® CDC.
2. Unzip the samples.jar file into the lib directory in your InfoSphere CDC installation directory. Make sure you maintain the directory structure when unzipping the jar file. After unzipping the jar file, you will have a directory structure like the following:

   `<installation_directory>/lib/com/datamirror/ts/target/publication/userexit/sample`

3. Make your changes to the sample custom data format.
4. Compile the modified custom data format. For example, if you want to compile UserExitSample.java, open a command window, navigate to the lib folder and issue the following command:

   `javac -classpath ts.jar:. com/datamirror/ts/target/publication/userexit/sample/UserExitSample.java`

   If this command runs successfully, there will be no output on your screen.
   Note: Your system must have the Java™ JDK to run this command.
5. After running the command successfully, navigate to the following directory and confirm that you have created a UserExitSample.class file:

   `<installation_directory>/lib/com/datamirror/ts/target/publication/userexit/sample`

6. Start InfoSphere CDC.
7. The final step to configure the custom data format is to specify the fully qualified path to UserExitSample in Management Console. For example:

   `com.datamirror.ts.target.publication.userexit.sample.UserExitSample`

   Note: Do not specify the .class extension.

Note: If you plan to use the sample custom data formats in production environments, you will have to test the samples before they are deployed. IBM® does not assume responsibility for adverse results caused by modified or customized custom data formats.
The API reference is available in Javadoc format in your InfoSphere® CDC installation directory. To view the API reference, navigate to the api directory below and click the index.html file to open the Javadoc documentation in your browser:
- Windows—<InfoSphere CDC installation directory>\docs\api
- UNIX and Linux—<InfoSphere CDC installation directory>/docs/api
Uninstalling InfoSphere CDC for InfoSphere DataStage®

This section provides step-by-step instructions on how to uninstall InfoSphere® CDC.
In this section, you will learn:

- To uninstall InfoSphere CDC for InfoSphere DataStage (Windows)
- To uninstall InfoSphere CDC for InfoSphere DataStage (UNIX and Linux)
To uninstall InfoSphere CDC for InfoSphere DataStage® (Windows)

1. Go to Windows Control Panel > Add or Remove Programs.
2. Locate IBM®InfoSphere® Change Data Capture and click Change/Remove.
3. Click Uninstall on the uninstall wizard. This deletes your all your InfoSphere CDC instances under this installation.
4. Click Done after the uninstallation has completed.
To uninstall InfoSphere CDC for InfoSphere DataStage® (UNIX and Linux)

1. Stop InfoSphere® CDC by using the dmshutdown command.
2. At the command prompt, launch the configuration tool by issuing the following command from the <InfoSphere CDC installation directory>/bin directory:
   
   ./dmconfigure

3. Enter 1 and press Enter to list the installed instances of InfoSphere CDC. Record the names of all these instances. Uninstalling InfoSphere CDC is simply deleting the InfoSphere CDC instances.
4. Enter 4 and press Enter to delete the first instance of InfoSphere CDC.
5. Enter the instance name that you want to delete and press Enter.
6. Repeat the above steps to delete all the InfoSphere CDC instances you recorded previously.
7. Delete the InfoSphere CDC installation directory.
IBM InfoSphere Change Data Capture, Version 10.2

Troubleshooting

If you encounter issues while running InfoSphere® CDC, you have a number of options for tracking and troubleshooting issues to help with problem resolution. There are three methods that you can use in InfoSphere CDC for tracking and troubleshooting issues:

- Data Collection with the IBM® Support Assistant (ISA DC)
- Management Console Support Assistant
- The dmsupportinfo command, which is executed on the replication engine

If you are trying to troubleshoot issues with InfoSphere CDC version 10.2 or later on Linux, UNIX and Windows operating systems, you should use the ISA DC tool unless otherwise instructed by IBM Technical Support.

In this section, you will learn:

- Using the IBM Support Assistant (ISA DC)
- Locating log files
  - In addition to the Management Console event log, InfoSphere CDC produces other logs to help troubleshoot installation and replication errors.
- Troubleshooting and contacting IBM Support
Using the IBM Support Assistant (ISA DC)

You can use the IBM® Support Assistant Data Collection tool (ISA DC) to collect InfoSphere® CDC data to provide to IBM Technical Support to assist you in troubleshooting issues with InfoSphere CDC, to request a product enhancement or to ask a question about InfoSphere CDC.

ISA DC can be used with InfoSphere CDC replication engines that are version 10.2 or later, except InfoSphere CDC for z/OS®.

The ISA DC tool is included in the InfoSphere CDC installation process, and does not require configuration. The executable files are located in the isa folder in the InfoSphere CDC directory. Simply run the isadc.bat, isadc.sh or index.html file, as appropriate, to launch the tool.

Prerequisites and considerations for using ISA DC

Prerequisites:
The following prerequisite must be satisfied on the machine on which ISA DC will be run, in order to successfully use the tool:
- IBM JRE/JDK version 1.6 or later

Considerations:
The following issues should be taken into consideration before you attempt to use ISA DC:
- ISA DC cannot be run remotely. It must be run on the machine where the instance is configured.
- ISA DC cannot be used to collect data from InfoSphere CDC for z/OS.
- If InfoSphere CDC is installed but you have not configured an instance or are unable to configure an instance, ISA DC can still be used to collect minimal data to assist IBM Technical Support in resolving the issue.

See also:

- To use ISA DC to collect data for a product problem (command line)
- To use ISA DC to collect data for a product problem (GUI)
- To use ISA DC to collect data for a question or an enhancement request (command line)
- To use ISA DC to collect data for a question or an enhancement request (GUI)
IBM InfoSphere Change Data Capture, Version 10.2

To use ISA DC to collect data for a product problem
(command line)

1. Launch the IBM® Support Assistant. Run the isadc.bat or isadc.sh file, located in the isa\isadc folder in the root directory of the InfoSphere® CDC instance.
2. Enter 1 to accept the license agreement and press Enter. After the license agreement has been accepted, it will not be shown again.
3. Provide a file name and press Enter. The name provided will be given to the .zip file containing the data collection results. If you do not want to assign a name to the data collection results, press Enter and a default name will be used.
4. Enter 1 to confirm your chosen file name and press Enter to continue.
5. Enter 1 to run the InfoSphere Change Data Capture Support Assistant Data Collector and press Enter. The Welcome page is displayed.
6. Read the Welcome page information and enter 1 to proceed. Press Enter.
7. Enter 1 to collect data for a product problem and press Enter.
8. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
   If you want to go back and change your input for the previous step, enter 3 and press Enter.
9. Select the name of the InfoSphere CDC instance for which data will be collected. If you have multiple instances of InfoSphere CDC configured, you will be asked to select which instance for which you want to collect. Enter the corresponding number for the instance name and press Enter.
   If you have a single InfoSphere CDC instance configured, it will be selected automatically and this step will be skipped.
   Even if you do not have an instance configured, ISA DC will still collect what data is available. If no instance is configured, you can skip to Step 14.
10. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
    If you want to go back and change your input for the previous step, enter 3 and press Enter.
11. If your selected instance is not running, you will be alerted by ISA DC. As only minimal data is available if the instance is stopped, it is preferable that the instance be running during data collection. Try to start your instance. When the instance is running, enter 1 and press Enter.
    If you cannot start your instance and want to continue the data collection process, enter 2 and press Enter.
12. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
    If you want to go back and change your input for the previous step, enter 3 and press Enter.
13. If the instance is running, you will be asked for information regarding when the problem occurred.
    A. Enter the date and time when you think the problem began and press Enter. This information must be entered in the following format: yyyy-mm-dd hh:mm:ss
B. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.

C. Determine the period of time for which the data will be collected and press Enter. The amount specified will be applied as a before value and an after value to the date and time specified previously. For example, if you select 1 Day as the time period, data will be collected for 24 hours before the specified date and time and for the 24 hours after the specified date and time.

D. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.

14. Select the method to transfer the data collection archive file and press Enter. Choose one of the following options:
- **Send using secure transfer to IBM Support (HTTPS)**—Sends the .zip file to IBM Support using a secure protocol.
- **Send using FTP to IBM Support (unencrypted)**—Sends the .zip file to IBM Support using an unencrypted protocol.
- **Send using FTP to another location (unencrypted)**—Sends the .zip file to a recipient of your choice, using an unencrypted protocol.
- **End the collection without sending**—Ends the data collection and creates the .zip file, but does not transfer it.

15. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.

16. If you chose to end the collection without sending the output, ISA DC will notify you when the .zip file has been successfully created. Enter 1 and press Enter to exit the application.

17. If you chose to transfer the file using HTTPS, follow these steps:
   A. If you want to receive a confirmation email when the upload was successful, enter an email address and press Enter. If you do not want to receive confirmation, press Enter to continue.
   B. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.
   C. Enter the PMR number that was given to you by IBM Technical Support and press Enter. Ensure that the PMR number follows the required naming convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is entered, you will be asked to correct the PMR number and re-send the data.
   D. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.
18. If you chose to transfer the file to IBM Technical Support using unencrypted FTP, follow these steps:
   A. Enter the PMR number that was given to you by IBM Technical Support and press Enter. Ensure that the PMR number follows the required naming convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is entered, you will be asked to correct the PMR number and re-send the data.
   B. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
      If you want to go back and change your input for the previous step, enter 3 and press Enter.

19. If you chose to transfer the file using unencrypted FTP, follow these steps:
   A. Enter the FTP host name and press Enter.
   B. Enter the user name and press Enter.
   C. Enter the password for the user name and press Enter.
   D. Enter the path for the directory on the FTP server and press Enter.
   E. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
      If you want to go back and change your input for the previous step, enter 3 and press Enter.

20. When you receive notice that the operation has completed successfully, enter 1 and press Enter to exit the application.
To use ISA DC to collect data for a product problem

1. Launch the IBM® Support Assistant. Run the index.html file, located in the isa\isadc folder in the root directory of the InfoSphere® CDC instance.
2. Read the license agreement and click OK to accept it. After the license agreement has been accepted, it will not be shown again.
3. Click Start. The Welcome screen opens.
4. Click OK.
5. Select A product problem from the drop down box.
6. Click OK.
7. Select the name of an InfoSphere CDC instance from the drop down list and click OK. If you have multiple instances of InfoSphere CDC configured, you will be asked to select which instance for which you want to collect.
   If you have a single InfoSphere CDC instance configured, it will be selected automatically and this step will be skipped.
8. If your selected instance is not running, you will be alerted by ISA DC. As only minimal data is available if the instance is stopped, it is preferable that the instance be running during data collection. Try to start your instance. When the instance is running, select Yes, I have started the instance from the drop down box and click OK.
   If you cannot start your instance and want to continue the data collection process, select No, continue with minimal data collection from the drop down box and click OK.
9. If the instance is running, you will be asked for information regarding when the problem occurred. Enter the date and time when you think the problem began and click OK. This information must be entered in the following format: yyyy-mm-dd hh:mm:ss.
10. Determine the period of time for which the data will be collected and click OK. Choose one of the following values:
     - 6 hours
     - 12 hours
     - 1 Day
     - 2 Days
     - 7 Days
     The amount specified will be applied as a before value and an after value to the date and time specified previously. For example, if you select 1 Day as the time period, data will be collected for 24 hours before the specified date and time and for the 24 hours after the specified date and time.
11. If you chose to end the collection without sending the output, select Do not transfer data to IBM. ISA DC will notify you when the .zip file has been successfully created.
12. If you want to transfer the data to IBM using a secure transfer (HTTPS), select the Transfer to IBM option.
   A. Choose the HTTPS transfer type option.
   B. Enter the PMR number that was given to you by IBM Technical Support.
      Ensure that the PMR number follows the required naming convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is provided, seek assistance from IBM Technical Support.

entered, you will be asked to correct the PMR number and re-send the data.
C. Enter your email address.
D. Click Transfer.

13. If you want to transfer the data to IBM using unencrypted FTP, select the Transfer to IBM option.
A. Choose the FTP transfer type option.
B. Enter the PMR number that was given to you by IBM Technical Support.
   Ensure that the PMR number follows the required naming convention of
   PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is
   entered, you will be asked to correct the PMR number and re-send the data.
C. Click Transfer.

14. If you choose to send the data to a location other than IBM using unencrypted FTP, click Transfer to another server via FTP
A. Enter the email address or IP address of the recipient in the Hotmail/IP Address field.
B. Enter the user name.
C. Enter the password.
D. Enter the path for the directory on the FTP server.
E. Click Transfer.

15. When you receive notice that the operation has completed successfully, click Browse directory if you want to see the file you created or click Start New Collection to collect more data. To exit the application, close your browser tab or window.
IBM InfoSphere Change Data Capture, Version 10.2

To use ISA DC to collect data for a question or an enhancement request (command line)

1. Launch the IBM® Support Assistant. Run the isadc.bat or isadc.sh file, located in the isa\isadc folder in the root directory of the InfoSphere® CDC instance.
2. Enter 1 to accept the license agreement and press Enter. After the license agreement has been accepted, it will not be shown again.
3. Provide a file name and press Enter. The name provided will be given to the .zip file containing the data collection results.
   If you do not want to assign a name to the data collection results, press Enter and a default name will be used.
4. Enter 1 to confirm your chosen file name and press Enter to continue.
5. Enter 1 to run the InfoSphere Change Data Capture Support Assistant Data Collector and press Enter. The Welcome page is displayed.
6. Read the Welcome page information and enter 1 to proceed. Press Enter.
7. Enter 2 to collect data for a question or an enhancement request and press Enter.
8. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
   If you want to go back and change your input for the previous step, enter 3 and press Enter.
9. Select the method to transfer the data collection archive file and press Enter. Choose one of the following options:
   - **Send using secure transfer to IBM Support (HTTPS)**—Sends the .zip file to IBM Support using a secure protocol.
   - **Send using FTP to IBM Support (unencrypted)**—Sends the .zip file to IBM Support using an unencrypted protocol.
   - **Send using FTP to another location (unencrypted)**—Sends the .zip file to a recipient of your choice, using an unencrypted protocol.
   - **End the collection without sending**—Ends the data collection and creates the .zip file, but does not transfer it.
10. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
    If you want to go back and change your input for the previous step, enter 3 and press Enter.
11. If you chose to end the collection without sending the output, ISA DC will notify your when the .zip file has been successfully created. Enter 1 and press Enter to exit the application.
12. If you chose to transfer the file using HTTPS, follow these steps:
    A. If you want to receive a confirmation email when the upload was successful, enter an email address and press Enter. If you do not want to receive confirmation, press Enter to continue.
    B. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter.
       If you want to go back and change your input for the previous step, enter 3 and press Enter.
    C. Enter the PMR number that was given to you by IBM Technical Support and press Enter. Ensure that the PMR number follows the required naming
convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is entered, you will be asked to correct the PMR number and re-send the data.

D. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.

13. If you chose to transfer the file to IBM Technical Support using unencrypted FTP, follow these steps:

A. Enter the PMR number that was given to you by IBM Technical Support and press Enter. Ensure that the PMR number follows the required naming convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is entered, you will be asked to correct the PMR number and re-send the data.

B. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.

14. If you chose to transfer the file using unencrypted FTP, follow these steps:

A. Enter the FTP host name and press Enter.

B. Enter the user name and press Enter.

C. Enter the password for the user name and press Enter.

D. Enter the path for the directory on the FTP server and press Enter.

E. Enter 1 to process your input and continue collecting data. Press Enter. If you want to cancel the collection, enter 2 and press Enter. If you want to go back and change your input for the previous step, enter 3 and press Enter.

15. When you receive notice that the operation has completed successfully, enter 1 and press Enter to exit the application.
To use ISA DC to collect data for a question or an enhancement request (GUI)

1. Launch the IBM® Support Assistant. Run the index.html file, located in the isa\isadc folder in the root directory of the InfoSphere® CDC instance.
2. Read the license agreement and click OK to accept it. After the license agreement has been accepted, it will not be shown again.
3. Click Start. The Welcome screen opens.
4. Click OK.
5. Select A question or enhancement request from the drop down box.
6. Click OK.
7. If you chose to end the collection without sending the output, select Do not transfer data to IBM. ISA DC will notify you when the .zip file has been successfully created.
8. If you want to transfer the data to IBM using a secure transfer (HTTPS), select the Transfer to IBM option.
   A. Choose the HTTPS transfer type option.
   B. Enter the PMR number that was given to you by IBM Technical Support. Ensure that the PMR number follows the required naming convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is entered, you will be asked to correct the PMR number and re-send the data.
   C. Enter your email address.
   D. Click Transfer.
9. If you want to transfer the data to IBM using unencrypted FTP, select the Transfer to IBM option.
   A. Choose the FTP transfer type option.
   B. Enter the PMR number that was given to you by IBM Technical Support. Ensure that the PMR number follows the required naming convention of PMRNumber.BranchNumber.CountryCode. If an unknown PMR number is entered, you will be asked to correct the PMR number and re-send the data.
   C. Click Transfer.
10. If you choose to send the data to a location other than IBM using unencrypted FTP, click Transfer to another server via FTP
    A. Enter the email address or IP address of the recipient in the Hotmail/IP Address field.
    B. Enter the user name.
    C. Enter the password.
    D. Enter the path for the directory on the FTP server.
    E. Click Transfer.
11. When you receive notice that the operation has completed successfully, click Browse directory if you want to see the file you created or click Start New Collection to collect more data. To exit the application, close your browser tab or window.
IBM InfoSphere Change Data Capture, Version 10.2

Locating log files

In addition to the Management Console event log, InfoSphere® CDC produces other logs to help troubleshoot installation and replication errors.

Review the log files in the `<CDC_installation_directory>\Uninstall\Logs` directory if you encounter any errors during the installation of InfoSphere CDC.

If you encounter replication errors or replication stops, review any of these trace logs:

- `<CDC_installation_directory>/log`—This directory contains information for an InfoSphere CDC problem. Refer to this directory if the problem is related to configuring an InfoSphere CDC instance. However, it is always useful to refer to this directory as well as the `<CDC_installation_directory>/instance/<instance_name>/log` directory to troubleshoot any problem.

- `<CDC_installation_directory>/instance/<instance_name>/log`—This directory stores trace files for a specific InfoSphere CDC instance. It is also useful to refer to the `<CDC_installation_directory>/instance/<instance_name>/log` directory to troubleshoot your problem. When tracing has been enabled, the trace files will be enabled under `<CDC_installation_directory>/instance/<instance_name>/log/on`.

- `<CDC_installation_directory>/instance/<instance_name>/tmp`—This directory temporarily stores data such as incomplete large transactions and large LOB data values.

- `<CDC_installation_directory>/instance/<instance_name>/stagingstore`—This directory stores single scrape staging store data that does not fit in memory. When an InfoSphere CDC instance is stopped normally, the contents of this staging store are written to files that are stored in this directory.
The following support page contains the latest troubleshooting information and details on how to open a service request with IBM® Support:

For contact information in your region:

**Related reference:**
dmsupportinfo - Collect IBM Support information