IBM Control Center overview

IBM® Control Center is a centralized monitoring and management system.

It gives operations personnel the capability to continuously monitor the status of Configuration Managers, engines, and adapters across the enterprise for the following server types from one central location:

* IBM Sterling Connect:Direct®
* IBM Sterling Connect:Enterprise®
* IBM Sterling B2B Integrator
* IBM Sterling File Gateway
* IBM Global High Availability Mailbox
* IBM Sterling Connect:Express
* IBM QuickFile
* IBM MQ Managed File Transfer
* Many FTP servers

Operations personnel can also monitor the creation, modification, and deletion of Sterling Secure Proxy objects.

In addition, you can determine where your IBM Control Center is installed and running and manage the configurations of Sterling Connect:Direct servers.

Monitoring and managing your file transfer and B2B environments

IBM® Control Center can help you answer questions about activities in your managed file transfer and B2B environment.

It helps you answer questions such as:

* Did my business process run on time?
* Did my file transfer take place when it should have?
* Are my servers operating the way they should?

IBM Control Center gives you tools to effectively monitor and manage your environment by giving you a common, centralized view of that environment. This insight into the environment helps you offer higher levels of service to your internal and external customers. IBM Control Center accomplishes this service level management by:

* Providing a real-time view of all your servers across products, platforms, and locations. To facilitate monitoring “like” servers, you can group them into server groups, by business unit or location for example, for a single view of system-wide activity.
* Monitoring activities such as business processes and file transfers.
* Monitoring the overall health of the environment in terms of server status, adapter status, Global Mailbox data center status, and cluster health.
* Using a common set of capabilities to create an early warning system for exceptions by:
  + Ensuring critical processing windows are met through service level criteria (SLCs) you set up for your environment.
  + Reducing the impact on downstream processing by verifying that expected processing occurs based on rules you define that are triggered by server events.
  + Providing proactive notification for at-risk business processes in the form of emails, SNMP traps, and alerts.
* Consolidating information for throughput analysis, capacity planning, post-processing operational or security audits, and workload analysis. This consolidation helps ensure that your file transfer and B2B environments are functioning at a high level.
* Reducing the risk of error associated with manual system administration, including:
  + The requirement to log on to each individual server to view activity
  + The necessity of separately configuring servers for error and exception notification

Benefits by server type

IBM® Control Center provides benefits for each server type supported.

**Sterling B2B Integrator**

* Offers centralized visibility into the business processes and file transfer activities of your trading partners in a clustered, multi-node environment.
* Allows you to rerun business processes from a central location.
* Allows monitoring of the list nodes, clustered nodes, adapters, and perimeter server.
* Lets you configure notification about processes, or steps in processes, that did or did not occur or are late.
* Lets you monitor queue depths for Sterling B2B Integrator queues.
* Enables you to view Sterling B2B Integrator Java environment details, location of Sterling B2B Integrator installation, adapter properties and configuration, and perimeter service configuration.

**Sterling File Gateway**

* Provides enhanced, granular control over monitoring and alerting options compared to what is available in Sterling File Gateway.
* Enables monitoring of arrived file events, route events, and delivery events.
* Lets you configure notification about processes, or steps in processes, that did or did not occur or are late.
* Allows monitoring of Mailbox Service and Mailbox Browser Interface (MBI).

**Global Mailbox**

* Provides detailed information about the data centers, servers, and services that compose the Global Mailbox system so that you can diagnose and troubleshoot issues.
* Displays a graphical representation of your Global Mailbox system so that you can see data centers that servers depend upon, other data centers that share services with a data center, and connections between these elements.
* Enables monitoring of Global Mailbox system events, message creation, and replication so that you can troubleshoot issues when they occur.

**Sterling Secure Proxy**

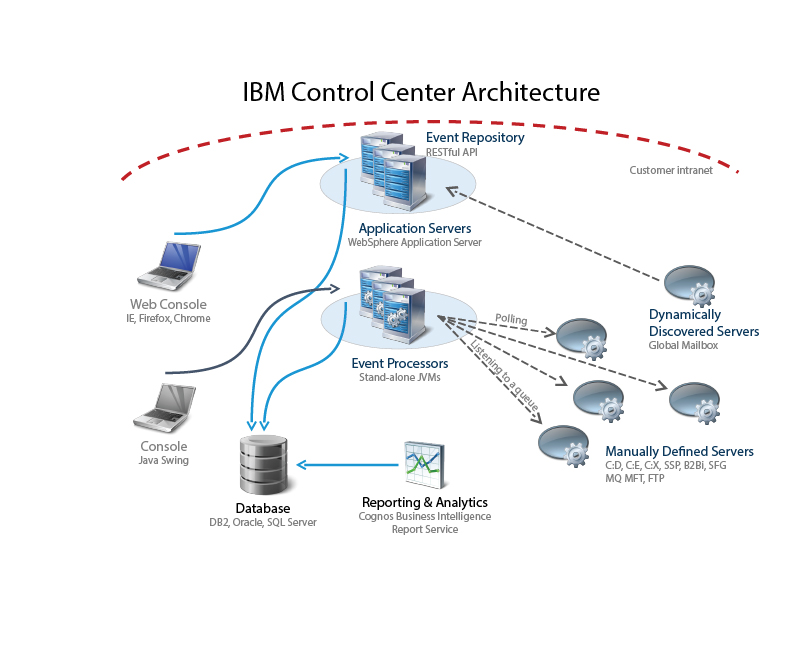
* Provides monitoring of Sterling Secure Proxy Configuration Managers and their associated engines and adapters, also known as proxies.
* Allows you to view logs in a readable format and monitor the modifications made to all Sterling Secure Proxy objects: accepters, adapters, Configuration Manager users, external authentication servers, engines, key stores, netmaps, password policies, perimeter servers, policies, single signons, step injections, system globals, system SSL information, and user stores.
* Lets you configure notification about processes, or steps in processes, that did or did not occur or are late.

# IBM Control Center technical overview

IBM® Control Center consists of user interfaces, application servers, event processors (EPs), and databases. IBM Control Center supports dynamically discovered servers and manually defined servers, and collects events from these types of servers in different ways.

The following diagram depicts the IBM Control Center architecture.

*Figure 1. IBM Control Center architecture*



## **User interfaces**

IBM Control Center user interfaces include the console and web console.

The web console is a web-based user interface that is hosted by the WebSphere Application Servers. The web console provides functions that are used routinely, such as monitoring activity and status, managing configuration objects, and running reports. All web consoles, regardless of the application servers they are connected to in a cluster, display the same information.

The console is a user interface that can be installed locally and opened as a web application on the computer. The console provides similar user functions as the web console for monitoring server activity and status. In addition, the console allows administrators to configure IBM Control Center and the configuration objects that are necessary for monitoring servers, manage the configurations of IBM Sterling Connect:Direct® servers, and define reports than can be run from the console or web console. Like web consoles, when multiple EPs are implemented, all consoles connected to EPs in a cluster display the same information.

## **Onboarding servers**

IBM Control Center supports onboarding servers through dynamic discovery and manual definition.

Dynamically discovered servers, such as IBM Global High Availability Mailbox, are onboarded when the servers begin posting events to the event repository (ER) through RESTful Application Programming Interfaces (APIs). WebSphere Application Servers host the ER. You do not need to configure IBM Control Center before the servers post events to the ER. The ER servlet dynamically discovers the new servers, assigns them to EPs, and writes events to the unprocessed event table in the IBM Control Center database. EPs then collect events of assigned servers from the unprocessed event table and process those events for rules and alerts.

Manually defined servers, such as IBM Sterling Connect:Direct and IBM Sterling B2B Integrator, are onboarded after the servers are configured in IBM Control Center through the console. EPs need to collect events from manually defined servers through polling, listening on a queue, or receiving Simple Network Management Protocol (SNMP) traps. EPs process events from manually defined servers immediately after the events are received.

## **Processing events**

After the ER servlet writes events from the dynamically discovered servers to the unprocessed event table, EPs poll the unprocessed event table for events from the dynamically discovered servers they are monitoring. Events from the servers are then passed through a series of services on the IBM Control Center EP for processing, including the visibility service, metadata service, rule service, and service level criteria (SLCs) service. The events trigger rules and SLCs, and associated actions. After EPs process the events, EPs write these events to the events table and remove them from the unprocessed event table.

EPs communicate with manually defined servers through the node services. EPs handle events from these servers immediately after the events are received. Similar to dynamically discovered servers, events from manually defined servers are also passed through visibility service, metadata service, rule service, and SLC service. Events also trigger rules and SLCs, and are written to the events table in the database after they are processed.

## **Databases and the reporting engine**

IBM Control Center uses a production database to store events and statistics that are gathered from the monitored servers. The unprocessed events table in the production database is used to record events that are received from dynamically discovered servers. The events table is used to record the processed events from both dynamically discovered servers and manually defined servers for historical purposes.

A reports database is used to generate IBM Control Center reports. Cognos Business Intelligence server is used as the reporting engine with the production and reports databases to access and report information about monitored servers.

## **High availability**

The high availability architecture can use one or more EPs and WebSphere Application Servers. When you install multiple EPs and WebSphere Application Servers, you can implement IBM Control Center in a high availability environment. When an EP in the cluster is down, the servers that are assigned to the EP are temporarily distributed to other EPs for event processing according to the defined EP failover policy. WebSphere Application Servers can host multiple web consoles and ERs. When a web console or an ER is down, the workload is failed over to other web consoles or ERs if a load balancer is configured.

If multiple EPs are implemented and connect to the same databases, you can set up and configure two Cognos Business Intelligence servers to support a high availability environment. One Cognos Business Intelligence server works as the primary reporting engine and the other is the secondary reporting engine.

IBM Control Center supports native database high availability solutions such as the database high availability solution provided by Oracle Real Application Clusters 12c.

# Application servers

Application servers are a cluster of WebSphere® Application Servers that host the web console and the event repository (ER) servlets.

Application servers enable the ER servlet to forward events to the unprocessed events (CC\_UNPROCESSED\_EVENT) table in the IBM® Control Center database.

When multiple WebSphere Application Servers are installed, these servers are running in a cluster and are highly available. WebSphere Application Servers can host multiple web consoles and ERs. All web consoles, regardless of the application server they are connected to in a cluster, display the same information. You can choose to configure a load balancer for the application server. When an ER is down, the workload can be failed over to other ERs if the load balancer is used.

Because the complete copy of completed file transfers and completed processes data is stored in the IBM Control Center database, the web console obtains the data from the database instead of event processors (EPs).

# Event repository

Event repository (ER) is the place where events from dynamically discovered servers, such as IBM® Global High Availability Mailbox servers, are posted to in the standard event format. ERs are hosted on WebSphere® Application Servers.

Existing events are converted to the standard event format before they are written to the ER. The ER receives and stores the events in the unprocessed events (CC\_UNPROCESSED\_EVENT) table in the IBM Control Center database. When an ER is down, the workload can be failed over to other ERs if the load balancer is configured.

The ER HTTP endpoint shares the same host address and port number with the application server; for example, http://host:port/sccwebclient/events.

# Event processors

An event processor (EP) performs duties that were performed by the IBM® Control Center engine before V6.1. With an EP, you can manage and monitor multiple servers and process events from the monitored servers.

When multiple EPs are configured in a high availability environment, they are automatically or manually assigned to monitor servers depending on the configurations. All events from a server are processed by the same EP. The functions of all EPs are the same except for the controller EP. The controller EP is responsible for monitoring EPs and performing functions that cannot be delegated to other EPs. When an EP is down, the servers that are monitored by the EP are temporarily distributed to other EPs in the cluster according to the failover and load balancing policies configured for the EP.

If you have the administrator permission of IBM Control Center, you can rebalance your server assignments among EPs in the same cluster, including EPs that are not running. To do so, go to **Manage** > **Event processors** in the web console and click the rebalance button. When you click the button, your servers are evenly distributed among all EPs in the cluster based on the number of servers, except servers that are not allowed to reassign. This rebalance can take several minutes to complete.

**Important:** By default, Sterling Connect:Enterprise® for z/OS®, FTP z/OS, and WS\_FTP server types are pinned to a specific EP. These server types are not included in a rebalance or monitored by another EP when the assigned EP stops running. If you want to unpin these server types or to include them in a rebalance, in the advanced properties for each server, clear the **Pin this server to the currently assigned event processor** setting.

# Event processing

While events from dynamically discovered servers and manually defined servers are collected in different ways, event processors (EPs) process events all in the same way.

## **Collecting events from dynamically discovered servers**

Dynamically discovered servers, such as IBM® Global High Availability Mailbox, post events to a RESTful API known as the event repository (ER) that is hosted by the application servers. Because these servers post events to IBM Control Center, these types of servers do not need to be explicitly registered or added by an administrator. IBM Control Center is able to dynamically discover these types of servers.

Dynamically discovered servers do not need to be manually added through the IBM Control Center console. To monitor a dynamically discovered server, you need to configure the server to publish events to the URL of event repository, in the standard event format.

IBM Control Center dynamically discovers new servers that post events and automatically assigns the servers to the least busy EP.

## **Collecting events from manually defined servers**

You need to configure manually defined servers in IBM Control Center, such as IBM Sterling Connect:Direct® and IBM Sterling B2B Integrator, before the servers can communicate with IBM Control Center.

Events from manually defined servers are not posted to the ER. Instead, events are collected by the assigned EPs through polling, listening on a queue, or receiving Simple Network Management Protocol (SNMP) traps.

## **Processing events**

EPs communicate with manually defined servers and process events from these servers right after the events are received. Node services in IBM Control Center are responsible for the communications that transpire between monitored servers and IBM Control Center.

Similar to dynamically discovered servers, events from manually defined servers are written to the EVENTS table in the database after they are processed.

IBM Control Center EP processes events from both dynamically discovered servers and manually defined servers and evaluates events through DVG membership, rules, and SLCs. Events are passed through the following series of services:

1. Visibility service - The visibility service applies data visibility group (DVG) criteria to all events before the events are passed on to the metadata service.
2. Metadata service - The metadata service applies enabled and active metadata rules to all events.
3. Rule service - The rule service applies enabled, active, linked, and non-linked rules to all events after they are processed by the metadata rule service. Events that are handled by the rule service trigger rules and their associated actions to be taken. The following actions can be taken:
   * Generating an email
   * Sending an SNMP trap
   * Raise an alert
   * Sending a self-defined server command to the server the event resulted from
   * Running a self-defined operating system command or script by the EPs to the operating system
4. SLC service - The SLC service generates events when things do or do not happen within a certain time frame or occur for a specified duration according to performance objectives that you define. Those events are run through the rules service to take actions.

Controller event processor

A controller event processor (controller EP) is an event processor that monitors other EPs in the cluster and is responsible for functions that cannot be delegated to other EPs.

The first event processor that is started in the IBM® Control Center is designated as the controller EP. If the controller EP is down, one of the active EPs is designated as the new controller EP. When the former controller EP is restarted, it rejoins the cluster as a regular EP and resumes monitoring the servers it was previously monitoring.

The controller EP periodically checks if any EPs in the cluster are down. If the controller EP detects that an EP that was up and now is down, it temporarily distributes the servers that the EP monitors to the other EPs according to the defined EP failover policy. The controller EP is responsible for functions that cannot be delegated to other EPs, such as:

* Processing service level criteria (SLCs)
* Processing traps sent by a Sterling Connect:Direct® File Agent
* Triggering configuration jobs
* Partitioning and purging databases

# Databases

Databases refer to traditional relational databases such as IBM® DB2®, Oracle, or Microsoft SQL Server. Event processors (EPs) that connect to and have access to a common database are part of the same cluster. IBM Control Center typically uses a production database and a reports database to record, store, and report information.

## **Production database**

IBM Control Center records the information that is gathered from the monitored servers for historical purposes in the production database. For example, data that is obtained from monitored servers and is used in user reports is stored in the production database. As information is received from manually defined servers, events are generated and passed through the rule, metadata, and SLC services as they are written to the events table of the database. For dynamically discovered servers, events are first written to the unprocessed event table. After events are processed, they are written to the events table.

The database server should be used by IBM Control Center only and should not be shared with other applications.

## **Reports database**

To generate IBM Control Center reports, the Cognos® Business Intelligence server is used with the production and reports databases to access and report information about monitored servers.

## **Staging database**

If you have a staging database and are upgrading to IBM Control Center V6.1, you can continue to use the staging database. However, the staging database is no longer efficient for reading, writing, storing, and maintaining. If you are using both a production and staging database, you should move your data to the partitioned database.

## **Database partitioning**

IBM Control Center can be set up to use database partitioning. This process allows the data in the production database to be partitioned by date. Database partitioning can improve database performance.

# Reporting and analytics

IBM® Control Center uses the IBM Cognos® Business Intelligence server as the reporting engine.

To generate IBM Control Center reports, the Cognos Business Intelligence server is used with the production and reports databases to access and report information about monitored servers.

Each Cognos Business Intelligence server connects to an event processor (EP). If the EP goes down, the Cognos Business Intelligence server stops working. The Cognos Business Intelligence server is used to generate reports for data from all EPs in the cluster. You can configure a secure connection to encrypt transactions between the IBM Control Center EP and Cognos Business Intelligence server and between the console and Cognos Business Intelligence server when you are running reports.

If multiple EPs are implemented and connect to the same databases, you can set up and configure two or more Cognos Business Intelligence servers to support a high availability environment. One Cognos Business Intelligence server works as the primary, active, reporting engine, and the other is the secondary, passive, reporting engine. If you install more than one Cognos Business Intelligence server, you can configure some of the servers to not automatically start when an EP starts. However, the Cognos Business Intelligence servers are going to stop when an EP is stopped.

# Servers

IBM® Control Center supports onboarding servers through dynamic discovery and manual definition.

## **Dynamically discovered servers**

Dynamically discovered servers, such as IBM Global High Availability Mailbox servers and IBM Transformation Extender Advanced, are monitored by IBM Control Center through listening for events that are posted to the event repository (ER).

You do not need to configure IBM Control Center before the servers post events. You need to configure the dynamically discovered server to publish events to IBM Control Center.

The ER dynamically discovers the new servers, assigns them to event processors (EPs), and writes events to the unprocessed event table in the IBM Control Center database. EPs then collect events from the assigned servers through collecting events from the unprocessed event table.

## **Manually defined servers**

Manually defined servers are servers that you need to manually configure in IBM Control Center for monitoring. IBM Control Center monitors these servers through polling, listening on a queue, or receiving Simple Network Management Protocol (SNMP) traps.

IBM Control Center supports the following manually defined servers:

* IBM Sterling Connect:Direct®
* IBM Sterling Connect:Direct File Agent
* IBM Sterling Connect:Enterprise®
* IBM Sterling B2B Integrator
* IBM Sterling File Gateway
* IBM Sterling Connect:Express
* IBM QuickFile
* IBM MQ Managed File Transfer
* FTP servers

EPs collect and receive events from the manually defined servers that are assigned to them, and process the events immediately after they are received.

IBM Control Center retrieves the following data from the manually defined server resources:

**Sterling B2B Integrator**

* File transfer activities
* Business process activities

**Sterling File Gateway**

* Arrived file events
* Delivery events
* Route events

**Sterling Secure Proxy**

* Information about audit events for each engine that is defined to the Sterling Secure Proxy Configuration Manager
* Heartbeat messages with information on the Sterling Secure Proxy Configuration Manager, Configuration Manager engines, and the adapters for the engines
* Audit Event messages with information on Sterling Secure Proxy objects that are created, updated, and deleted

You need to configure the manually defined servers in IBM Control Center so that IBM Control Center can access these resources. For some manually defined servers, you need to configure them on the server side as well.

User interfaces

IBM® Control Center has two user interfaces: the console and web console.

Both the IBM Control Center console and web console enable you to display information that is gathered from event processors (EPs) through an HTTP or HTTPS connection. Access to and functions of these interfaces are limited by the role-based privileges assigned to a user. The user interfaces serve the following purposes:

**Console**

The console is a Java-based user interface that enables you to configure IBM Control Center, view activity and status, and define and run reports. A console is installed locally on the computer that is connected to one of the EPs. When multiple EPs are implemented, all consoles display the same information regardless of the EPs that they are connected to. If a server is added through dynamic discovery and is assigned to an EP, any consoles that are connected to an EP in the cluster display the new server in the Server groups list.

**Web console**

The web console is a web-based user interface of IBM Control Center. It provides functions such as monitoring activity and status, managing configuration objects, and running reports. All web consoles that are attached to EPs in a cluster display the same information in near real time. If a server is added through dynamic discovery and is assigned to an EP, any web consoles that are connected to an EP in the cluster display the new server in the server list.

The following table describes the functions available in the consoles, which is limited by the interface (console versus web console) and the user's role-based privileges.

| **Function** | **Console** | **Web Console** |
| --- | --- | --- |
| Configure Sterling Connect:Direct® servers with configuration management. | X |  |
| Create and maintain users and data visibility groups. | X |  |
| Create and manage rules, actions, calendars, email lists, schedules, and message categories. | X | X |
| Create and manage simple service level criteria (SLCs). |  | X |
| Create and manage standard SLCs, wildcard SLCs, and workflow SLCs. | X |  |
| Change system settings. | X | X |
| Stop Sterling Connect:Direct servers. | X |  |
| Manage processes for Sterling Connect:Direct, Sterling B2B Integrator, and Sterling B2B Integrator by acting on queued processes (deleting, suspending, or releasing a process). | X |  |
| Launch the Sterling Connect:Direct Browser User Interface to access Sterling Connect:Direct, the Sterling B2B Integrator Dashboard to access Sterling B2B Integrator, and the Sterling File Gateway Console to access Sterling File Gateway. | X |  |
| View server properties, such as server version. | X | X |
| View and handle alerts from the Active Alerts Monitor and Handled Alerts Monitor. View alert properties and the rule or SLC properties associated with an alert.1 |  | X |
| View server activity from the Queued Process Monitor and the Completed Process Monitor.1 |  | X |
| View completed file transfers from the Completed File Transfers Monitor. |  | X |
| Check status from the Server Status Monitor, Daemon Status Monitor, and Adapter Status Monitor. | X | X |
| View process statistics for a particular process or for one or more servers, server groups, or a particular server type. | X | X |
| Clear processes from the queued processes list. |  | X |
| View a list of processes that were cleared by users. |  | X |
| Create reports. | X |  |
| Run and view reports. | X | X |
| View the volume of files for selected servers over a specific time period. |  | X |
| View the size of files for selected servers over a specific time period. |  | X |
| Access the workspace to view and personalize content (based on user permissions). |  | X |
| Access IBM Cognos Workspace to configure the workspaces for IBM Control Center users. | X |  |
| Export widgets from the workspace, and email the file to another user. |  | X |
| Create custom Cognos reports. | X |  |
| Import RAVE visualizations into Cognos. | X |  |
| Export workspaces from one IBM Control Center instance and import into another IBM Control Center instance. |  | X |
| Export widgets from one IBM Control Center instance and import into another IBM Control Center instance |  | X |
| View the details of the IBM Control Center EPs, view the details of the servers that each EP monitors, and reassign servers. |  | X |
| Customize the columns to be displayed for the Completed File Transfers and Completed Processes tables. |  | X |
| 1 In the console, the menu for these functions are still available under **Monitor**. You are redirected to the web console to view the alert and process details. |  |  |

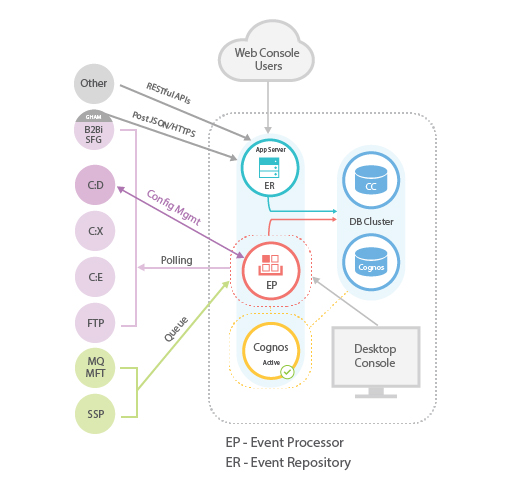
The consoles provide the following types of tools to assist you:

* Help - The consoles provide a full, searchable help system accessed from the Help menu. In addition, the status bar in many dialog boxes displays valid parameter values. Tooltips include a short parameter definition, valid entry requirements, and default value if any.
* Wizards - When you are defining IBM Control Center objects, such as rules, actions, and SLCs, wizards guide you through the process.

# High availability

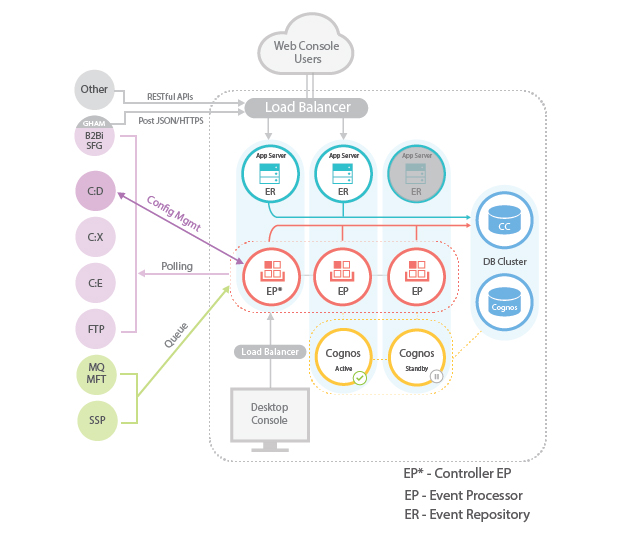
When you install more than one event processor (EP), WebSphere® Application Server, and at least one Cognos® Business Intelligence server, you can implement IBM® Control Center in a high availability environment.

To understand what an IBM Control Center high availability implementation can look like, it is best to first consider a non-high availability implementation as shown in the following diagram:



In a non-high availability environment with IBM Control Center, your components include the console, web console, reporting database, production database, one EP, one Cognos Business Intelligence server, one WebSphere Application Server, and your selected monitored servers.

The following diagram shows IBM Control Center deployed in a high availability environment:



In a high availability environment with IBM Control Center, your components include the console, web console, reporting database, production database, load balancers, multiple EPs, multiple instances of WebSphere Application Server, multiple Cognos Business Intelligence servers, an event repository, and your selected monitored servers.

## **High availability with event processors**

In a high availability environment, the servers that are monitored by a failed EP can be temporarily reassigned to other EPs in the cluster. If multiple EPs are installed, the controller EP periodically checks to see whether any EPs in the cluster are down. If the controller EP detects that an EP is down, the controller EP temporarily distributes the servers that the EP monitors to other EPs. You can configure an EP to run for event processing purposes without running a WebSphere Application Server or Cognos Business Intelligence server.

## **High availability with controller event processors**

All EPs in a cluster periodically check whether the controller EP is active. The first EP that notices that the controller EP is down takes over as the controller EP. When the controller EP is back online, it joins the cluster as a normal EP.

## **High availability with the console**

When a console connects to an EP in the cluster, you can view all servers that are monitored by all EPs in the cluster and their property information. With the console, you can also perform the following actions for the servers that are monitored by any EPs in the cluster:

* Pausing or resuming monitoring
* Refreshing the adapter list for a Sterling B2B Integrator server
* Refreshing the BP list for a Sterling B2B Integrator server
* Retrieving the license key for a Sterling B2B Integrator server
* Resetting the Max Concurrent Process Count
* Testing connection
* Turning on or turning off the debug level logging

You cannot pause or resume monitoring, test connections, or turning on and off debug level logging with dynamically discovered servers.

The consoles also supports failover. When a console connects to an EP in the cluster and the EP goes down, the console automatically connects to another active EP in the cluster.

## **High availability with WebSphere Application Server**

Multiple web consoles and event repositories (ERs) can be hosted on multiple WebSphere Application Server. You can configure a load balancer to evenly distribute web console sessions and ER workloads across any WebSphere Application Server that is installed, and to provide failover of web consoles and ERs. In a high availability environment, you can configure a WebSphere Application Server to not automatically shut down when an EP is stopped.

## **High availability with Cognos Business Intelligence servers**

If multiple EPs are implemented and connect to the same databases, you can set up and configure multiple Cognos Business Intelligence servers to support a high availability environment. One Cognos Business Intelligence server works as the primary reporting engine and the other Cognos Business Intelligence servers are the secondary reporting engines. When one Cognos Business Intelligence server is down, all the Cognos Business Intelligence server connections are switched to the other active Cognos Business Intelligence servers. If you install more than one Cognos Business Intelligence server, then you can configure some of the servers to not automatically start when an EP starts. However, when an EP stops the Cognos Business Intelligence server is going to stop.

You can access the workspaces and reports through any web console in the high availability environment.

## **High availability with databases**

IBM Control Center supports native database high availability solutions such as the database high availability solution provided by Oracle Real Application Clusters 12c.

Configuration objects

IBM® Control Center uses information you configure to determine how the engine needs to monitor servers in your environment and the user roles that have access to servers and IBM Control Center objects.

You define the following types of items when configuring IBM Control Center:

* Servers in your environment and how they might logically be grouped
* Roles that specify actions users can perform and data they can view and work with on the servers and server groups defined in IBM Control Center
* Calendars and schedules that define the day, date, and time constraints to place on the work that IBM Control Center performs
* Data visibility groups (DVGs) that limit what data (events) a user has access to
* Email lists that you can associate with rules/actions to notify groups of individuals when an event occurs
* Rules that specify server events that cause actions to be taken, and when those rules are active
* Service level criteria (SLCs) that specify processing must occur within a specific time frame and for a specific duration of time

# IBM Control Center information

The result of the configuration objects you define for IBM® Control Center is a wealth of information about the servers in your environment. An understanding of the types of information available in IBM Control Center will help you to access the information you need about those servers.

Types of information

IBM® Control Center provides you with several different types of information about the servers in your environment.

**Status**

Visual status indicators display in the consoles. You can tie rules/actions to status when you are defining work for IBM Control Center to perform.

**Server, adapter, Global Mailbox system data centers, and daemon status**

The following status monitors are available:

* Server Status Monitor
* Adapter Status Monitor
* Daemon Status Monitor
* Event Processor Status Monitor (web console only)

The Environmental health widget in the web console dashboard provides an aggregated health status of the servers in your environment, which gives you a place to begin troubleshooting server issues. The Environmental health widget shows a server, adapter (for Sterling B2B Integrator), file agent (for Sterling Connect:Direct®), data center (for Global Mailbox), daemon (for Sterling Connect:Enterprise®), or engines (for Sterling Secure Proxy) chart for each server type in your environment that you have permission to view. Each chart provides a color indicator and a corresponding status indicator of the ratio of alerts for the nodes, adapters, clusters, Global Mailbox system data centers, or daemons. From the charts, you can navigate to lists of filtered or unfiltered alerts. You can also access a list of status changes for a server type when applicable.

**Activity status**

The Process Activity Monitors display completed processes (Completed Process Activity Monitor) and queued processes (Queued Process Activity Monitor) on single or multiple servers or server groups, all managed servers of one type, or all managed servers.

The Recent file transfer activity widget in the web console dashboard provides a graph that depicts volume of file transfers over time for each type of monitored server. From the widget, you can access a list of transfers for each server type to troubleshoot server issues. The Recent file transfer activity widget provides server information for the servers that you have permission to view. Each line on the graph shows the volume of transfer activity for all servers of a server type for 30 days.

**Actions**

When an event occurs and it matches a rule, an action for the matched rule is initiated, such as displaying an alert in the consoles, sending an email, generating an SNMP trap, or initiating OS or server commands.

**File transfer status**

The Completed files list shows a searchable, and filterable list of the most recently recorded file transfers that you have permission to view. Searching and filtering this list facilitates troubleshooting file transfer issues. Access the Completed files list directly from the web console main menu, from the Recent file transfer activity widget, and the Transfer scorecard widget. To access the Completed files list from the web console, click **Monitor**> **Completed files**. To access the completed files list from one of the widgets, click the section of the widget graph about which you want more information.

**Alerts**

Visual indicators (icons) displayed in the consoles with varying severity levels that you specify in actions. Alerts are displayed as active or handled. The alerts monitors (Active Alerts Monitor and Handled Alerts Monitor) provide near real-time display of alert data as it occurs.

**Attention:** The Active Alerts monitor shows only the latest alert when more than one alert is triggered by the same SLC instance or linked rule.

When working with alerts, you can:

* View the properties of an alert, and you can view the statistics associated with a process related to an alert. You can also view the SLC or rule that generated the alert.
* Add a comment to the alert.
* Move an alert from active to handled status. When you move an alert to handled, you are required to add a comment about the update.

The Active alerts widget in the web console dashboard provides an aggregated view of total active alerts. From the widget, you can navigate to a list of active alerts to troubleshoot issues with servers monitored by IBM Control Center. The Active alerts widget displays alert information for the servers that you have permission to view. The widget counts the number of active alerts for three severity levels: high, medium, and low.

**Emails**

When an event occurs, an email can be sent to an individual or list of individuals defined as the action of a rule.

**SNMP trap**

A message generated and sent to one or more Simple Network Management Protocol (SNMP) hosts.

**Logs**

Information saved in log files for historical purposes that can help you troubleshoot issues.

**Audit logs**

Standard report of changes made to both IBM Control Center objects and Sterling Connect:Direct server configuration objects. Audit logs can be run as an on-demand report or displayed on the IBM Control Center console.

**Reports**

Used to gather information about the servers in your environment.

**Standard IBM Control Center Reports**

Produced from the IBM Control Center consoles on demand or automatically from schedules. Standard reports can grab any field in the database, and you can specify filtering criteria on report data. However, you cannot manipulate the format of standard reports or use them to perform complex queries, and they cannot be used to do calculations.

# Monitor status

You can monitor the status of managed servers, Sterling B2B Integrator adapters, Sterling Secure Proxy, Sterling Connect:Enterprise® master daemons, and Global Mailbox data centers in your enterprise through the IBM® Control Center status monitors and the Environmental Health widget.

The status monitors include: Server Status Monitor, Adapter Status Monitor, and Daemon Status Monitor. You can open multiple monitor windows at the same time.

You can also determine the status of servers, adapters, daemons, and Global Mailbox system data centers in the web console Environmental Health widget.

So, how do you find out that the status of your server, adapter, Global Mailbox system, or daemon changes without constantly checking the status monitors or the Environmental Health widget? You can define rules based on status that cause a certain action to be taken when that status exists. For example, you can define a rule based on a server down condition with an action of sending an email notification status.

Monitor server status

The Server Status Monitor window provides a dynamic summary of managed server activity.

You can view the following types of server status:

* An individual server or server group
* Multiple servers or server groups
* All managed servers of one type
* All managed servers

The following types of information are displayed for servers; however, the exact information that displays depends on server type:

* Current server status, represented by a status icon
* Server IBM® Control Center name or alias
* Number of high, medium, and low severity alerts on the server
* Version of Sterling Connect:Direct®, Sterling Connect:Enterprise®, Sterling Connect:Express, QuickFile, Sterling B2B Integrator, Sterling Secure Proxy, or FTP software on a server
* For Sterling Connect:Direct, Sterling Connect:Express, QuickFile, and Sterling B2B Integrator servers, information about maximum number of concurrent sessions on the server. You can also see the number of executing and non-executing processes for these server types.
* For MQ MFT servers, information about maximum number of concurrent transfers on the server.
* For Sterling Secure Proxy servers, status of engines associated with a Sterling Secure Proxy Configuration Manager. Each Configuration Manager is considered to be as separate Sterling Secure Proxy instance that can be monitored by IBM Control Center.

Monitor adapter status

The**Adapter Status Monitor**displays summary information about adapters that are running on Sterling B2B Integrator and Sterling Secure Proxy servers. You can also view adapter and Sterling B2B Integrator perimeter server properties through the Adapter Status Monitor.

The following types of information are displayed for Sterling B2B Integrator adapters:

* Whether the adapter is turned on or off
* Whether the adapter is currently running or stopped
* Display name for the adapter
* Nodes on which the adapter is deployed
* Type of adapter
* Sterling B2B Integrator perimeter server through which the adapter accesses the network
* State of the perimeter server

IBM® Control Center does not monitor Sterling B2B Integrator protocol adapters when those adapters are not actively monitoring business processes or protocols. For clustered Sterling B2B Integrator servers, status is monitored for all servers in a cluster. However, to avoid duplication, only unique adapter entries are displayed.

The following types of information are displayed for Sterling Secure Proxy adapters:

* Adapter name
* Date the adapter was started
* State of the adapter: started, stopped, error, pending, or warning
* System message
* Listen port for the adapter
* Protocol used by the adapter

Monitor daemon status

The **Daemon Status Monitor**displays information about the master daemon status of managed Sterling Connect:Enterprise® for UNIX servers.

The following types of information are displayed:

* Daemon name
* Type of daemon
* Host workstation the daemon is running on
* Daemon process identifier, originator, resource, and session identifier
* Whether the daemon is up or down

Monitor Sterling Secure Proxy engine status

In the IBM® Control Center web console, the**Engine Status Monitor** displays summary information about Sterling Secure Proxy engines that are running on Sterling Secure Proxy servers.

The following types of information are displayed for Sterling Secure Proxy engines:

* Name of the engine
* Whether the engine is running or stopped
* Date that the engine was started
* Date when the engine configuration was updated last
* Version of the engine and the Configuration Manager associated with the engine
* System message

Monitor Global Mailbox status

You can get the health status of your Global Mailbox system from the Environmental Health widget.

The widget provides an at a glance status for the data centers in your Global Mailbox system. You can click a data center chart to access information about the servers in each data center and the server services and components. The following types of information are available for Global Mailbox:

* The current status for each of the servers, including management nodes, in a data center represented by a status icon
* A graphical representation of the relationships between servers and their services and connections
* Detailed information about the servers and their components, such as server details, properties, services, connections, messages, and events

Monitor activity

From the Activity Monitors, you can view a configurable number of completed processes and queued processes for monitored servers.

From the two Activity Monitors: Queued Process Activity Monitor and Completed Process Activity Monitor. From the monitors, you can view processes on single or multiple servers or server groups, all managed servers of one type, or all managed servers. In addition to viewing queued and completed processes from the monitors, you can also:

* Take a snapshot of process activity for queued and completed Sterling Connect:Direct®, Sterling Connect:Express, QuickFile, MQ MFT, and Sterling B2B Integrator processes.
* Sort the entries in the order you want to see them and then print or save the entries.
* View statistics that are related to any process listed in the Process Activity Monitors
* View process statistics that are related to one or more servers, server groups, or server type
* Restart Sterling B2B Integrator business processes
* Act on a queued Sterling Connect:Direct and Sterling Connect:Express process, including deleting, suspending, or releasing it
* Use an existing process in the Completed Process Activity Monitor list to set up monitoring for future transactions using the**Monitor this** option in the IBM® Control Center web console.

Users who are DVG-restricted can access only the process steps that are associated with their data visibility group. As a result, DVG-restricted users cannot delete, suspend, or release queued processes. In the Completed Process Activity Monitor, users who are DVG-restricted see only the completed processes that are tagged for the DVGs associated with their role. However, unrestricted users see the maximum number (defaults to 200) configured by the administrator.

When you are viewing process activity in the Queued Process Activity Monitor, consider the following additional information about monitored server types:

* IBM Control Center does not “know” about FTP or Sterling Connect:Enterprise® activity until it occurs. Therefore, the Queued Process Activity Monitor is disabled for those server types.
* Held and deferred processes do not display in the Queued Process Activity Monitor for Sterling Connect:Express for z/OS.
* For QuickFile, IBM Control Center can detect when a packageStart event occurs, which is generated before an upload or download. However, IBM Control Center does not generate events for uploads or downloads until they are complete. As a result, you might not see any QuickFile activity in the monitor due to the timing of the events that are generated by IBM Control Center.

Working with alerts

When a rule is triggered and its action is set to an alert level, the alert is displayed in the Active Alerts Monitor.

To remove this alert from the Active Alerts monitor, it must be “handled” (moved with appropriate comment to the Handled Alerts Monitor). Consider the following scenario:

* A rule is in place that watches for a Server Down event and generates a Sev 1 alert for that event.
* When that server goes down, an alert is generated and displayed in the Active Alerts Monitor.
* An operator who is watching the Active Alerts monitor notices the alert, investigates the server, and restarts the server.
* After the server is back up, the alert needs to be “handled” by specifying an appropriate comment, such as “restarted the server.”
* The user ID and the date and time when the alert was “handled” are recorded in the database along with the comment.
* The alert is moved to the Handled Alerts Monitor.

# Installing IBM Control Center

Installation process

There are multiple tasks that you must complete to install IBM® Control Center.

Perform the following high-level tasks to install IBM Control Center:

* Create production and reports databases for use by IBM Control Center
* Install and configure the IBM Control Center engine
* Run the **configCC** utility after you install IBM Control Center if you are using a UNIX installation or a console installation.
* Log on to the IBM Control Center engine using the IBM Control Center console

To install IBM Control Center, you complete the following tasks at computers where you plan to install the IBM Control Center engine:

1. Review the Release Notes and information center topics about installing, upgrading, and migrating IBM Control Center.
2. Download product updates from IBM Passport Advantage®. Maintenance updates are available from Fix Central or Support Portal.
3. Determine the computers where IBM Control Center will be installed. Based on the operating system, estimate the engine and database requirements.
4. Gather the database information that is required during the IBM Control Center installation.
5. Create the production, and reports databases to store IBM Control Center processing information either on UNIX or Microsoft Windows.

**CAUTION:**

**A database with partitioned IBM Control Center tables is the preferred for better performance and data purging.**

The reports database is used by Cognos Business Intelligence server to generate IBM Control Center reports.

**Attention:** When you run the configCC utility after you install IBM Control Center, you are prompted for a Cognos dispatcher port value that is used by Cognos Business Intelligence server to communicate with IBM Control Center. Cognos Business Intelligence server uses the port that you specify and the following 15 ports for internal communications. If you install multiple copies of IBM Control Center on the same computer, you cannot use port 58085 for one installation and 9400 for another installation.

1. If consoles will access the IBM Control Center engine using a secure connection, gather information to configure the HTTPS connection.
2. Install the IBM Control Center engine.
3. If you plan to secure the connections between the IBM Control Center engine and the databases and between Cognos Business Intelligence server and the databases, complete the necessary setup on the database server, IBM Control Center engine, and Cognos Business Intelligence server.

After you install the IBM Control Center engine, complete the following tasks at computers where you will run the IBM Control Center console:

1. Install the IBM Control Center console
2. If the console needs to access the IBM Control Center engine using a secure connection, configure a secure connection between the IBM Control Center engine and the consoles.

Pre-installation checklist

There are several considerations and tasks to complete before you decide to install IBM® Control Center for the first time. This pre-installation checklist helps you install IBM Control Center successfully for either a high availability or non-high availability environment.

**Important:** When you install IBM Control Center and configure the Microsoft SQL server, determine whether you want to enable the globalization parameter. If you enable this parameter, then IBM Control Center can store multi-byte characters among all of your event processors. If you do not enable this parameter during the initial installation and use a multi-byte character, then IBM Control Center cannot run and you must manually remove the character from your database. If you choose to enable the globalization parameter later, you must reinstall IBM Control Center.

The following table is a checklist of items to help you make decisions before you install IBM Control Center for the first time:

| **#** | **IBM Control Center pre-installation checklist** | **Related links** | **Your notes** |
| --- | --- | --- | --- |
| 1 | Review the release notes. | [Release Notes](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.overview.doc/scc_releasenotes.html#releasenotes) |  |
| 2 | Review topics about installing, including topics about a high availability and a non-high availability environment. Determine whether you plan to install one or more IBM Control Center event processors. | * [Installing IBM Control Center](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Installing_SCC.html#installingsterlingcontrolcenter) * [Installing IBM Control Center in a high availability environment](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_install_icc_high_availability.html#concept_ed2_qtc_bt) |  |
| 3 | Review topics about upgrading. | [Installing maintenance and fixes for IBM Control Center](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_install_maintenance_fixes.html#concept_cvj_jjd_2p) |  |
| 4 | Review topics about migrating information. | [Upgrading and migrating](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.migrate.doc/scc_migrating_intro.html#concept_v3f_p3l_1p) |  |
| 5 | Download any product updates from IBM Passport Advantage. | [IBM Passport Advantage](http://www-01.ibm.com/software/passportadvantage/) |  |
| 6 | Determine the computers where IBM Control Center needs to be installed. |  |  |
| 7 | Determine which operating system you will install IBM Control Center on. IBM Control Center supports Microsoft Windows, Solaris, AIX, UNIX, and Linux operating systems. You can install IBM Control Center from the command line or with a GUI installer. | * [Installing IBM Control Center](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Installing_SCC.html#installingsterlingcontrolcenter) * [Installing IBM Control Center in a high availability environment](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_install_icc_high_availability.html#concept_ed2_qtc_bt) |  |
| 8 | If you are installing IBM Control Center in a high availability environment, determine on which event processors you will install Cognos® Business Intelligence server. You need to install the Cognos Business Intelligence on at least one event processor.  **Important:** If you install IBM Control Center with multiple EPs and do not install a Cognos Business Intelligence server on each EP, then you must ensure a successful Cognos Business Intelligence server connection on each EP. | [Configuring Cognos Business Intelligence servers for high availability](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_config_cognos_HA.html#task_kzb_gch_rs) |  |
| 9 | Based on the operating system, estimate the engine and database system requirements.  **Important:** If you are running at 80 percent or more CPU capacity with IBM Control Center V6.0, then in V6.1 you need to add more CPU. Adding more CPUs is necessary to properly scale an IBM Control Center environment with multiple EPs. | * [Detailed System Requirements](http://www.ibm.com/support/docview.wss?uid=swg27036103) * [Determining engine and database requirements](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.plan.doc/SCC_Determine_Engine_and_DB_Req.html#SCC_Determine_Engine_and_DB_Req) |  |
| 10 | Determine the type of database you will use to store IBM Control Center processing information. | * [Creating and setting up databases](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_DBs.html) * [Detailed System Requirements](http://www.ibm.com/support/docview.wss?uid=swg27036103) |  |
| 11 | If you install IBM Control Center on z/Linux, make sure that you install a 64-bit version of IBM System z/Linux on the computer where the event processor is installed. | * [Detailed System Requirements](http://www.ibm.com/support/docview.wss?uid=swg27036103) * Your z/Linux documentation |  |
| 12 | If consoles access the IBM Control Center event processor by using a secure connection, gather information to configure the HTTPS connection. | [Determine HTTPS information for the engine and console connection](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Determine_HTTPS_Info.html) |  |
| 13 | If you are installing multiple IBM Control Center event processors, ensure an event processor is the controller event processor. All event processors must be installed on the same operating system. Ensure that any Sterling Connect:Direct® File Agent is configured to send traps to the controller EP. | [Controller event processor](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.overview.doc/scc_controller_event_processor.html#concept_p34_qvw_mt) |  |
| 14 | If you are installing multiple event processors, determine the server assignment, failover, and monitoring policy for the event processors. | [Setting a server assignment, failover, and monitoring policy for an event processor](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.admin.doc/scc_set_failover_load_policy_EP.html#task_i34_k4x_rs) |  |

Installation checklist

There are several considerations and tasks to complete when you install IBM® Control Center for the first time. The installation checklist helps you install IBM Control Center successfully for either a high availability or non-high availability environment.

**Important:** If you do not enable the globalization parameter for the Microsoft SQL server during an IBM Control Center installation, then you cannot use multi-byte characters. When you use a multi-byte character without enabling this parameter, then IBM Control Center cannot run and you must manually remove the character from your database. If you choose to enable the globalization parameter later, you must reinstall IBM Control Center.

The following table is a checklist of items to follow when you install IBM Control Center for either a high availability or non-high availability environment:

| **#** | **IBM Control Center installation checklist** | **Related links** | **Your notes** |
| --- | --- | --- | --- |
| 1 | Create your production and reports databases for IBM Control Center use. In a high availability environment, all event processors must use the same database. | * [Creating Linux, UNIX, and Windows DB2 databases and database users](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Creating_LUW_DB2_Databases.html#SCC_Creating_LUW_DB2_Databases) * [Creating DB2 databases and database users on z/OS](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_DB2_Create_DB2_Users_zOS.html#SCC_DB2_Create_DB2_Users_zOS) * [Creating an Oracle database and database users (schemas)](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Oracle_Create_DB_Users.html#SCC_Oracle_Create_DB) * [Creating Microsoft SQL Server databases and database users](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_MSSQL_Create_DBs_Users.html#SCC_MSSQL_Create_DBs_Users) * [Configuring secure connections](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Overview_Config_Secure_connect.html#ID22) |  |
| 2 | Install and configure the IBM Control Center event processor. Complete the installation through a GUI installer or command line installer. | * [Installing and configuring IBM Control Center from the command line on UNIX](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Install_Engine_Console_UNIX.html#ID12) * [Installing and configuring IBM Control Center by using the GUI installer on Microsoft Windows](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Install_Engine_Console_Win.html#ID157) * [Installing and configuring IBM Control Center on z/Linux](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Install_Engine_Console_zLinux.html#ID186) |  |
| 3 | If you are installing IBM Control Center for a high availability environment, install your first event processor.  To install your next event processor, your first event processor must be configured and started.  **Important:** If you enable JMS when you configure your event processors, then ensure that all event processors are JMS-enabled and have the same JMS configuration parameters. | * [Installing IBM Control Center in a high availability environment](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_install_icc_high_availability.html#concept_ed2_qtc_bt) * [Installing and configuring IBM Control Center for high availability with the GUI installer](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_install_configure_icc_HA_gui.html#task_ajv_5tc_bt) * [Installing and configuring IBM Control Center for high availability from the command line](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_install_configure_icc_HA_command_line.html#task_kdq_c5c_bt) |  |
| 4 | Run the **configcc** utility to change the IBM Control Center settings if you are using a UNIX installation or a command line installation. |  |  |
| 5 | If you need a personal workspace, group workspace, or run reports, then you must install Cognos® Business Intelligence server on at least one event processor. Install Cognos Business Intelligence server on the event processor locations you chose. You do not have to install the Cognos Business Intelligence server with every event processor.  **Important:** If you install IBM Control Center with multiple EPs and do not install a Cognos Business Intelligence server on each EP, then you must ensure a successful Cognos Business Intelligence server connection on each EP. | [Configuring Cognos Business Intelligence servers for high availability](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/scc_config_cognos_HA.html#task_kzb_gch_rs) |  |
| 6 | If you plan to secure the connections between the IBM Control Center event processor and the databases, and between Cognos Business Intelligence server and the databases, then complete the necessary setup on the database server, IBM Control Center engine, and Cognos Business Intelligence server. | * [Creating a secure connection between the event processor and the databases](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Create_Secure_Connection_Engine_DBs.html#SCC_Create_Secure_Connection_Engine_DBs) * [Configuring a secure connection to the non-z/OS DB2 database server](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Configure_Secure_Connection_DB2_DB.html#SCC_Configure_Secure_Connection_DB2) * [Configuring a secure connection to the DB2 for z/OS database server](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Configure_Secure_Connection_DB2_zOS_DB.html#task_e1y_d4q_ll) * [Configuring a secure connection to the Microsoft SQL Server 2008 database server](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Configure_Secure_Connection_MSSQL_DB.html#SCC_Configure_Secure_Connection_MSSQL_DB) * [Configuring a secure connection to the Oracle database server](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Configure_Secure_Connection_Oracle_DB.html#SCC_Configure_Secure_Connection_Oracle_DB) |  |
| 7 | If you plan to monitor FTP servers, install the FTP agents. Configure your FTP servers to send SNMP traps to the active event processor. If you plan to have a high availability environment, configure the Sterling Connect:Direct® File Agent to send traps to the controller event processor. | [Setting up IBM Control Center to monitor Sterling Connect:Direct File Agent](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.configure.doc/SCC_Set_Up_Monitor_CD_File_Agents.html#ID43) |  |
| 9 | **Note:** Skip this step if you are not using IBM Control Center to monitor IBM Sterling Connect:Enterprise® for z/OS® servers.  Configure IBM Sterling Connect:Enterprise for z/OS servers to communicate with IBM Control Center, and send traps that contain event data to the event processors that are installed. All traps must be sent to the same port. If you plan to have a high availability environment, configure IBM Sterling Connect:Enterprise for z/OS to send traps to all installed event processors. | [Configuring Sterling Connect:Enterprise for z/OS](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Configure_CE_zOS.html#ID1277) |  |
| 10 | **Note:** Skip this step if you are not using IBM Control Center to monitor IBM Global High Availability Mailbox servers.  Configure Global Mailbox servers to communicate with IBM Control Center. | [Configuring IBM Global High Availability Mailbox to publish events to IBM Control Center](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.configure.doc/scc_config_unsecure_conn_event_processing.html#task_ysx_l4y_ns) |  |
| 11 | Install the IBM Control Center console. | [Setting up a console](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.install.doc/SCC_Set_Up_Console.html#ID1188) |  |
| 12 | If the console needs to access the IBM Control Center event processor with a secure connection, configure a secure connection between the IBM Control Center event processor and the consoles. | [Configuring the console for a secure connection](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/SCC_Configure_Console_Secure_Connect.html#ID2101) |  |
| 13 | If you want to create a secure connection between the IBM Control Center event repository and dynamically discovered servers, update the configuration file of the event publisher SDK on the server side. | [Creating a secure connection between the event repository and dynamically discovered servers](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/scc_create_secure_unsecure_conn_event_processing.html#concept_xw3_fpy_ns) |  |
| 14 | Enable authentication to the event repository. Enabling this authentication means that servers in a high availability environment need to pass IBM Control Center authentications to send events to IBM Control Center. | [Enabling authentication for posting events to the IBM Control Center event repository](https://www.ibm.com/docs/en/SS4Q96_6.1.0/com.ibm.help.scc.secure.doc/scc_enable_authen_ep_sdk.html#task_f4p_xdr_ns) |  |
| 15 | Start IBM Control Center. |  |  |

# Preparing to install IBM Control Center

You need to complete certain tasks before you install IBM® Control Center.

Before you can install IBM Control Center for either a high availability or non-high availability environment, you must complete certain tasks. Some of the tasks include completing database worksheets, creating your databases, and installing required operating system patches.

Creating and setting up databases

The IBM® Control Center engine uses DB2®, Oracle, or Microsoft SQL Server production and staging databases to store statistics and other information collected from monitored servers. In addition, Cognos® Business Intelligence server uses a reports database to generate IBM Control Center reports.

IBM Control Center supports the following database server types:

* DB2 on Linux, UNIX, and Microsoft Windows
* DB2 on z/OS®
* Oracle on UNIX, and Microsoft Windows
* Microsoft SQL Server on Microsoft Windows servers

IBM Control Center uses the following databases:

* Production database - To store activities and configuration information for monitored servers.
* Staging database (optional) - To offload the data from the production database.

**CAUTION:**

**A database with partitioned IBM Control Center tables is the preferred database setup over a staging database for performance reasons. If you set up database partitioning, do not set up a staging database. However, if your database does not support partitioning, it is a best practice to use both production and staging databases.**

* Reports database - To generate IBM Control Center reports.

For optimal performance, use a different database configuration for IBM Cognos than the production and staging databases.

Keep the following general requirements in mind when choosing and creating IBM Control Center databases:

* You must use the same database server type for all IBM Control Center databases.
* The databases must be created on a database server that the IBM Control Center engine can communicate with.

Before you install IBM Control Center, complete the following high-level tasks to create and setup databases for use with IBM Control Center:

1. Review all topics related to database requirements and configuration and create databases/schemas for IBM Control Center with the required settings.

**Tip:** Use the production, staging, and reports database worksheets to record database information.

1. After you create the required databases, provide the database server details such as host, port, user ID, password, and database name during the IBM Control Center installation and configuration process. IBM Control Center creates the required tables, views, and indexes during the installation and configuration process.
2. Ensure IBM Control Center database users are given the required permissions to access the created databases.

**Important:** The database servers should be used by IBM Control Center only and should not be shared with other applications. It is also recommended that the production database and reporting database are separated.

# Creating Linux, UNIX, and Windows DB2 databases and database users

To use DB2® databases on Linux, UNIX, and Windows with IBM® Control Center, you need to create the databases with required settings.

## **Before you begin**

Install the DB2 server and ensure that you have the authority to create the databases and database users.

## **About this task**

Complete the high-level tasks for creating DB2 databases on Linux, UNIX, and Windows for use with IBM Control Center.

## **Procedure**

1. Create the databases with the required settings.
2. Grant the user the required permissions to access the databases that are created.

## **What to do next**

During the IBM Control Center installation or later when the conficCC utility is run, configure IBM Control Center to use the DB2 databases.

# Required settings for DB2 databases on Linux, UNIX, and Windows operating systems

When you are creating DB2® databases on Linux, UNIX, and Windows operating systems, use the required settings to ensure IBM® Control Center can use the databases.

| **Required setting** | **Production DB** | **Reports DB** | **Staging DB** | **More information** |
| --- | --- | --- | --- | --- |
| Code set | UTF-8 | UTF-8 | UTF-8 | Set this setting during database creation. |
| Buffer Pools | One buffer pool with the page size of 32K  One buffer pool with the page size of 16K  One buffer pool with the page size of 8K  One buffer pool with the page size of 4K | One buffer pool with the page size of 32K  One buffer pool with the page size of 16K  One buffer pool with the page size of 8K  One buffer pool with the page size of 4K | One buffer pool with the page size of 32K  One buffer pool with the page size of 16K  One buffer pool with the page size of 8K  One buffer pool with the page size of 4K | A default buffer pool is created as part of the database creation. The page size of the buffer pool defaults to the page size specified during database creation. |
| Regular Table Spaces | One regular table space with the page size of 32K  One regular table space with the page size of 16K  One regular table space with the page size of 8K  One regular table space with the page size of 4K | One regular table space with the page size of 32K  One regular table space with the page size of 16K  One regular table space with the page size of 8K  One regular table space with the page size of 4K | One regular table space with the page size of 32K  One regular table space with the page size of 16K  One regular table space with the page size of 8K  One regular table space with the page size of 4K | One regular default table space is created as part of the database creation. The size of the table space defaults to the page size specified during database creation. |
| User Temporary Table Spaces |  | One user temporary table space with a page  size of 32K |  |  |
| System Temporary Table Spaces | One system temporary table space with a page  size of 32K | One system temporary table space with a page  size of 32K |  |  |
| Table Space permissions | The database user must have access permissions to the newly created table spaces | The database user must have access permissions to the newly created table spaces | The database user must have access permissions to the newly created table spaces |  |
| Database user permissions | CREATETAB, BINDADD, CONNECT, IMPLICIT\_SCHEMA | CREATETAB, BINDADD, CONNECT, IMPLICIT\_SCHEMA | CREATETAB, BINDADD, CONNECT, IMPLICIT\_SCHEMA | The database user ID that will be specified during IBM Control Center configuration must have these permissions for the database. |

# Additional settings for configuration parameters on DB2 databases

For optimal performance, use these parameters and values for DB2® databases.

| **Parameter** | **Description** | **Value** |
| --- | --- | --- |
| SELF\_TUNING\_MEM | Enables the DB2 self-tuning memory manager (STMM) to automatically and dynamically set memory allocations to memory consumers such as buffer pools, lock lists, package cache, and sort heap. | ON |
| DATABASE\_MEMORY | Allows DB2 to adjust the amount of database memory depending on load, memory pressures, and other factors. | AUTOMATIC (Windows and AIX®)  COMPUTED (Linux, and Solaris) |
| LOCKLIST | Allows STMM to dynamically manage memory allocations. | AUTOMATIC |
| MAXLOCKS | Allows STMM to dynamically manage memory allocations. | AUTOMATIC  If AUTOMATIC is not supported: 100 |
| PCKCACHESZ | Allows STMM to dynamically manage memory allocations. | AUTOMATIC |
| SHEAPTHRES\_SHR | Allows STMM to dynamically manage memory allocations. | AUTOMATIC |
| SORTHEAP | Allows STMM to dynamically manage memory allocations. | AUTOMATIC |
| NUM\_IOCLEANERS |  | AUTOMATIC |
| NUM\_IOSERVERS |  | AUTOMATIC |
| DFT\_PREFETCH\_SZ |  | AUTOMATIC |
| MAXAPPLS |  | AUTOMATIC |
| APPLHEAPSZ |  | AUTOMATIC |
| APPL\_MEMORY |  | AUTOMATIC |
| APP\_CTL\_HEAP\_SZ |  | 512  **Attention:** APP\_CTL\_HEAP\_SZ is deprecated in DB2 V9.5. |
| DBHEAP | Amount that is required depends on the amount of memory available and the traffic volume. | AUTOMATIC  **Attention:** The default DBHEAP value is inadequate. |
| LOGFILSIZ | Refer to the topic [Log Configuration](http://www.ibm.com/support/knowledgecenter/SS3JSW_5.2.0/com.ibm.help.performance_mgmt.doc/SIPM_DB2_Log_Cfg.html). | 65536 if you are configuring 20 transaction logs of 256 MB (65536 4KB pages) |
| LOGPRIMARY | Number of primary transaction logs. Refer to the topic [Log Configuration](http://www.ibm.com/support/knowledgecenter/SS3JSW_5.2.0/com.ibm.help.performance_mgmt.doc/SIPM_DB2_Log_Cfg.html). | 40 or more |
| LOGSECOND | Number of secondary transaction logs. These logs are allocated by DB2 when it cannot reuse any of the primary logs due to active transactions. Refer to the topic [Log Configuration](http://www.ibm.com/support/knowledgecenter/SS3JSW_5.2.0/com.ibm.help.performance_mgmt.doc/SIPM_DB2_Log_Cfg.html). | 12 |
| NUM\_LOG\_SPAN | Refer to the topic [Log Configuration](http://www.ibm.com/support/knowledgecenter/SS3JSW_5.2.0/com.ibm.help.performance_mgmt.doc/SIPM_DB2_Log_Cfg.html). | LOGPRIMARY - Safety buffer |
| DFT\_DEGREE | Sets the default degree of parallelism for intrapartition parallelism. In general, online transactional applications such as Sterling B2B Integratortypically experience a high volume of short queries that do not benefit from parallel queries. | 1 – Disable intrapartition parallelism |
| DB2LOCK\_TO\_RB |  | STATEMENT |
| STMT\_CONC |  | OFF |
| DB2\_COMPATIBILITY\_VECTOR | Enables one or more DB2 compatibility features. | NULL |

Additional settings for DB2 database features

Use these settings for DB2® databases.

| **Feature** | **Description** | **Value** |
| --- | --- | --- |
| Currently Committed Semantics | The DB2 database used the default Cursor Stability (CS) isolation level in all versions until DB2 9.7. If an application changed a row and another application tried to read that row before the first application committed the changes, the second application waited until the commit.  You can now set the currently committed semantics of the CS level, which informs DB2 that when the second application tries to read a locked row, it will get an image of what the row looked like before committing the change.  In the enhanced currently committed semantics, only committed data is returned, as it was in previous versions. However, now the read operation does not wait for the write operation to release the row locks. Instead, the read operation returns the data before the start of the write operation.  The currently committed semantics is turned on by default in the new DB2 9.7 database. The new database configuration parameter, **cur\_commit** is used to override this behavior.  Currently committed semantics requires more log space for write operations. In addition, extra space is required for logging the first update of a data row during a transaction, which can have an insignificant or measurable impact on the total log space used.  The currently committed semantics feature has the following limitations:   * The target table that is used for a data update or delete operation does not use currently committed semantics. * An uncommitted modification to a row forces the currently committed read operation to access appropriate log records and determine the currently committed version of the row. Although log records that are no longer present in the log buffer can be physically read, currently committed semantics does not support the retrieval of log files from the log archive. * The following scans do not use currently committed semantics:   + Catalog table scans   + Referential integrity constraint enforcement scans   + LONG VARCHAR or LONG VARGRAPHIC column reference scans   + Range-clustered table (RCT) scans   + Spatial or extended index scans |  |

# Using example scripts to create DB2 databases

You can use scripts to create DB2® databases with required parameters on Linux, UNIX, and Windows operating systems.

There are two scripts you can use to create DB2 databases with required parameters on Linux, UNIX, and Windows operating systems:

* Option 1 - Use this script if the database user creating the database and the database user that is going to be used in IBM® Control Center are the same
* Option 2 - Use this script if the database user creating the database and the database user that is going to be used in IBM Control Center are not the same

## **Creating databases with the option 1 script**

To create a database with the option 1 script, complete the following steps:

1. Copy the option 1 script commands to a file named create\_scc\_db\_sql.
2. Edit the create\_scc\_db.sql file to replace @DBNAME@ with your database name.
3. Run the create\_scc\_db.sql script from the bin folder in the DB2 install (or using any other option).

* On Windows, type the following:

C:\db2\BIN\DB2CW.BAT (This sets up the DB2 command line environment.)

C:\db2\BIN> db2 -stvf create\_scc\_db.sql

* On Linux and UNIX, type the following:

. $HOME/sqllib/db2profile (For bash or Korn shell,

this sets up the DB2 command line environment.)

cd $HOME/sqllib/bin

db2 -stvf create\_scc\_db.sql

Repeat this procedure to create all the databases needed by IBM Control Center.

**CAUTION:**

**A database with partitioned IBM Control Center tables is the preferred database setup for performance reasons.**

## **Option 1 script example**

-- Script to create production, reporting and staging databases for

-- IBM Control Center.

-- The db user that creates the database automatically inherits the

-- database administration privilege.

-- Edit this script and replace @DBNAME@ with your database name.

--

CREATE DATABASE @DBNAME@

AUTOMATIC STORAGE YES

USING CODESET UTF-8 TERRITORY DEFAULT

COLLATE USING SYSTEM PAGESIZE 32768;

CONNECT TO @DBNAME@;

CREATE BUFFERPOOL @DBNAME@\_04KBP IMMEDIATE SIZE AUTOMATIC PAGESIZE 4K;

CREATE BUFFERPOOL @DBNAME@\_08KBP IMMEDIATE SIZE AUTOMATIC PAGESIZE 8K;

CREATE BUFFERPOOL @DBNAME@\_16KBP IMMEDIATE SIZE AUTOMATIC PAGESIZE 16K;

CONNECT RESET;

CONNECT TO @DBNAME@;

CREATE USER TEMPORARY TABLESPACE SCCUSERTMP PAGESIZE 32K BUFFERPOOL IBMDEFAULTBP;

CREATE REGULAR TABLESPACE TS\_REG04\_@DBNAME@ PAGESIZE 4K BUFFERPOOL @DBNAME@\_04KBP PREFETCHSIZE AUTOMATIC;

CREATE REGULAR TABLESPACE TS\_REG08\_@DBNAME@ PAGESIZE 8K BUFFERPOOL @DBNAME@\_08KBP PREFETCHSIZE AUTOMATIC;

CREATE REGULAR TABLESPACE TS\_REG16\_@DBNAME@ PAGESIZE 16K BUFFERPOOL @DBNAME@\_16KBP PREFETCHSIZE AUTOMATIC;

CONNECT RESET;

## **Creating databases with the option 2 script**

To create a database with the option 2 script, complete the following steps:

1. Copy the option 2 script commands to a file named create\_scc\_db\_sql.
2. Edit the create\_scc\_db.sql file to replace @DBNAME@ with your database name and replace @USERID@ with your database user ID.
3. Run the create\_scc\_db.sql script from the bin folder in the DB2 install (or using any other option).

* On Windows, type the following:

C:\db2\BIN\DB2CW.BAT (This sets up the DB2 command line environment.)

C:\db2\BIN> db2 -stvf create\_scc\_db.sql

* On Linux and UNIX, type the following:

. $HOME/sqllib/db2profile (For bash or Korn shell,

this sets up the DB2 command line environment.)

cd $HOME/sqllib/bin

db2 -stvf create\_scc\_db.sql

Repeat this procedure to create all the databases needed by IBM Control Center.

## **Option 2 script example**

-- Script to create production and reporting databases for

-- IBM Control Center.

-- The db user that creates the database automatically inherits the

-- database administration privilege.

-- Edit this script and replace @DBNAME@ with your database name.

-- Replace @DBUSERID@ with your DB user ID.

CREATE DATABASE @DBNAME@

AUTOMATIC STORAGE YES

USING CODESET UTF-8 TERRITORY DEFAULT

COLLATE USING SYSTEM PAGESIZE 32768;

CONNECT TO @DBNAME@;

CREATE BUFFERPOOL @DBNAME@\_04KBP IMMEDIATE SIZE AUTOMATIC PAGESIZE 4K;

CREATE BUFFERPOOL @DBNAME@\_08KBP IMMEDIATE SIZE AUTOMATIC PAGESIZE 8K;

CREATE BUFFERPOOL @DBNAME@\_16KBP IMMEDIATE SIZE AUTOMATIC PAGESIZE 16K;

CONNECT RESET;

CONNECT TO @DBNAME@;

CREATE USER TEMPORARY TABLESPACE SCCUSERTMP PAGESIZE 32K BUFFERPOOL IBMDEFAULTBP;

CREATE REGULAR TABLESPACE TS\_REG04\_@DBNAME@ PAGESIZE 4K BUFFERPOOL @DBNAME@\_04KBP PREFECTCHSIZE AUTOMATIC;

CREATE REGULAR TABLESPACE TS\_REG08\_@DBNAME@ PAGESIZE 8K BUFFERPOOL @DBNAME@\_08KBP PREFETCHSIZE AUTOMATIC;

CREATE REGULAR TABLESPACE TS\_REG16\_@DBNAME@ PAGESIZE 16K BUFFERPOOL @DBNAME@\_16KBP PREFETCHSIZE AUTOMATIC;

CONNECT RESET;

CONNECT TO @DBNAME@;

GRANT CREATETAB,BINDADD,CONNECT,IMPLICIT\_SCHEMA ON DATABASE TO USER @DBUSERID@;

GRANT USE OF TABLESPACE SCCUSERTMP TO USER @DBUSERID@;

GRANT USE OF TABLESPACE USERSPACE1 TO USER @DBUSERID@;

GRANT USE OF TABLESPACE TS\_REG04\_@DBNAME@ TO USER @DBUSERID@;

GRANT USE OF TABLESPACE TS\_REG08\_@DBNAME@ TO USER @DBUSERID@;

GRANT USE OF TABLESPACE TS\_REG16\_@DBNAME@ TO USER @DBUSERID@;

CONNECT RESET;

Configure IBM Control Center to use DB2 databases on Linux, UNIX, and Windows operating systems

To configure IBM® Control Center to use DB2® databases on Linux, UNIX, and Windows operating systems, you need to specify database connection details.

Specify database connection details for the two different IBM Control Center databases using one of the following methods:

* On Windows operating systems - Either as part of the installation or later when **configCC** is run, you can specify the database connection details for the two IBM Control Center databases.
* On Linux and UNIX operating systems - After you install IBM Control Center, when you run **configCC**, you can specify the database details for the two IBM Control Center databases.

**Important:** Ensure you have the correct database version and supported JDBC drive files.

Provide the following database connection information when you are configuring IBM Control Center to use DB2 databases:

| **DB connection information** | **Description** | **More information** |
| --- | --- | --- |
| Database Host Name |  |  |
| Database port | The port number on which the database server listens | Ensure that the database server is listening on this database port.  From the server where you are installing IBM Control Center, try establishing a “telnet” connection to the database host and port using the following command:  telnet <<dbhost>> <<dbPort>> |
| Database User ID |  |  |
| Database password for the DB User |  |  |
| Database Name |  |  |
| JDBC Drivers | db2jcc.jar and db2jcc\_license\_cu.jar or db2jcc4.jar and db2jcc\_license\_cu.jar | Copy these drivers to the server where IBM Control Center will be installed.  These files are typically in<<*DB2 installation location*>>/java folder. |

# Determine HTTPS information for the engine and console connection

You need to determine HTTPS information for the engine and console connection before you install IBM® Control Center.

## **About this task**

If the IBM Control Center console will use the HTTPS protocol to communicate with the IBM Control Center engine, gather the following information before installation:

## **Procedure**

1. The host name of any computer where the IBM Control Center engine or console is to be installed. Obtain the host name by doing the following:
   1. Open a command line prompt at the computer.
   2. Type **hostname** from the command line. The system returns a text string. For example, **WIN2000**. This string is the host name.
2. Determine a password to access the keystore (the file that contains certificates which include the identity and private key for an entity) and a password to access the truststore file (the file that contains the entities to be trusted. Each entity includes an identity and its public key).
3. Determine the HTTPS port the IBM Control Center engine will use.
4. Use this information during IBM Control Center installation.

## **What to do next**

After you install IBM Control Center, create a connection between the IBM Control Center engine and an IBM Control Center console or a Sterling Connect:Direct® managed server.

# Setting up KeyStores

Setting up Keystores is important to manage CA-signed or self-signed certificates, and is used by client applications for encryption, authentication, and serving over HTTPS.

See example certificate generation procedures in the following sections for instructions to perform certificate generation in Connect:Direct and Control Center Director.

# Setting up Control Center Director Keystore

Connect:Direct Agent, Control Center Director Web Services, and Engine communicate over TLS using CA-signed certificates.

1. Create a Certificate Authority (CA). Skip this step, if you already have a CA certificate.

To generate Control Center Director and Connect:Direct Agent certificates, you must first have a CA. Execute the command below to generate a CA:

|  |
| --- |
| keytool -genkey -alias <CA\_ALIAS> -keyalg RSA -keysize 4096 -sigalg SHA512withRSA -keypass  <KEYPASS> -validity 3650 -dname <DOMAIN\_NAME> -keystore <CA\_KEYSTORE> -storepass  <KEYSTORE\_PASSWORD>  Example domain, "CN=CA,OU=unit,O=ABC,L=loc,ST=state,C=CC" |

1. Generate a certificate/KeyStore for Control Center Director:

If you've generated a CA in step 1, then execute the following command to get a CA certificate:

|  |
| --- |
| keytool -export -alias <CA\_ALIAS> -file ca.crt -rfc -keystore <CA\_KEYSTORE> -storepass  <KEYSTORE\_PASSWORD> |

1. Create CA-signed certificates
   1. Generate a server certificate

|  |
| --- |
| keytool -genkey -alias <CERT\_ALIAS> -keyalg RSA -keysize 4096 -sigalg SHA512withRSA  -keypass <KEYPASS> -validity 3650 -dname <DOMAIN\_NAME> -keystore <KEYSTORE> -storepass  <KEYSTORE\_PASSWORD> |

* 1. Import the CA certificate as your trustedcacerts into your KeyStore.

|  |
| --- |
| keytool -import -trustcacerts -alias <CA\_ALIAS>> -file ca.crt -keystore <KEYSTORE>  -storepass <KEYSTORE\_PASSWORD> |

* 1. Generate a signing request to get a CA-signed certificate. The following command generates signing request file in format, server\_cert.csr.

|  |
| --- |
| keytool -certreq -alias <CERT\_ALIAS> -ext BC=ca:true -keyalg RSA -keysize 4096  -sigalg SHA512withRSA -validity 3650 -file "server\_cert.csr" -keystore <KEYSTORE>  -storepass <KEYSTORE\_PASSWORD> |

* 1. Secure the CA-signed server certificate. If you are using an external CA, then send the signing request file to your CA to receive your signed server certificate. Alternatively, if you have generated CA, then execute the command below to sign your certificate:
     + Sign the certificate with the generated CA in the CA Keystore using the generated csr file

|  |
| --- |
| keytool -gencert -alias <CA\_ALIAS> -validity 3650 -sigalg SHA512withRSA -infile  "server\_cert.csr" -outfile "server\_signed.crt" -rfc -keystore <CA\_KEYSTORE> -storepass  <KEYSTORE\_PASSWORD> |

* + - Import the signed certificate into your KeyStore

|  |
| --- |
| keytool -importcert -alias <CERT\_ALIAS> -file server\_signed.crt -keystore <KEYSTORE>  -storepass <KEYSTORE\_PASSWORD> |

1. You have successfully set up your KeyStore.

# Configuring Control Center Director

The Control Center Director configuration utility referred to here as the configuration script is a menu driven command-line utility for configuring the Control Center Director.

When you run the configuration script in prompt mode, and are prompted for values, the applicable default value is displayed in brackets at the end of the prompt. If you enter no value, the script uses the default value. The default value also provides an example of the format of the value that is required.

The default location for the configuration setup script is: \ControlCenterDirector\bin.

You must login as a Control Center Director administrator who has permission to administer the Control Center Director server configuration before you run the config.sh script.

**Note:** The following procedure describes steps to configure Control Center Director on a UNIX operating system.

1. Log in to the target system on which the product installation resides
2. Open a command-line shell and go to the \common\bin subdirectory of the product installation directory. For example: cd c:\ControlCenterDirector\bin
3. Invoke the following script and respond to the prompts in each section.

./config.sh

1. Select the **Product** **entitlement** **configuration** based on your preference.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Product entitlement configuration  IBM Sterling Control Center - Not configured...  1. IBM Sterling Control Center Director  2. IBM Sterling Control Center Monitor  3. All Products  Choose Product Option based on your entitlement [0] : 1  Are the values that were entered correct? (Y/N) [Y]  Product entitlement configuration has been done successfully! |

1. The utility displays a list of prerequisites before proceeding with configurations.

|  |
| --- |
| --------------------------------------------------------------------  Config step : \*\*\* Pre-Configuration Steps \*\*\*  --------------------------------------------------------------------  Before proceding with configuration, ensure to have the following:  1. Database connection details  2. JDBC Driver file  3. Keystore and Truststore for secure connection  4. Package folder for Connect:Direct installers(downloaded from IBM site)  5. SMTP(Email) Server connection details  6. External Authentication Server details |

1. The utility starts and prompts you to enter details in the **KeyStore and TrustStore Configuration** section.

**Note:** If you change the TrustStore, you must follow complete configuration procedure again.

|  |
| --- |
| -------------------------------------------------------------------  Config step: Keystore / truststore configuration ...  Warning: Specify a valid keystore.(See the documentation to build one)  Otherwise the secure connectors may not start.  --------------------------------------------------------------------  Keystore and truststore configuration ...  Provide the path to your java keystore file [../conf/security/CCenter.keystore] :  /home/CCD/KEYSTORE  Please provide password to the keystore (at least 6 chars, no blanks) :  Re-enter Password  Enter Alias for Key: [CDRDEV-052] : CERT\_ALIAS  Provide the path to your trust store file  [/usr/lib/jvm/java-1.8.0-openjdk-1.8.0.65-3.b17.el7.x86\_64/jre/lib/security/cacerts] :  /home/CCD/TRUSTSTORE  You provided the following value(s)  Keystore file path: /home/CCD/KEYSTORE  Keystore password: \*\*\*\*\*\*\*\*  Key Alias: CERT\_ALIAS  Truststore file path (optional): /home/CCD/TRUSTSTORE  You are using the default truststore password.  Are the values that were entered correct? (Y/N) [Y] |

Control Center Director uses certificate-based authentication to secure connection with Connect:Direct Server.

1. In the **JDBC Driver File installation** section, enter the database type and JDBC driver details required to connect to your database server.

The following section describes the configuration prompts for a SQL server database type.

For connection parameters for other database types see, [Database connection parameters for Oracle](https://www.ibm.com/docs/en/SS4Q96_6.2.0/com.ibm.help.ccd.doc/ccd_install/ac_oracle_db_settings.html#concept_evr_ckh_m3b) and [Database connection parameters for DB2](https://www.ibm.com/docs/en/SS4Q96_6.2.0/com.ibm.help.ccd.doc/ccd_install/ac_db2_db_settings.html#concept_bnp_lkh_m3b).

|  |
| --- |
| --------------------------------------------------------------------  Config step : JDBC driver files installation ...  For detailed IBM Control Center Director system requirements, go to the following URL:  http://www-01.ibm.com/support/docview.wss?uid=swg27036103  --------------------------------------------------------------------  Provide the following database parameters...  Provide a database type (DB2 or DB2zOS or Oracle or MSSQL)[DB2] : **MSSQL**  Provide the full path to sqljdbc42.jar or mssql-jdbc-<n.n.n>.jre<version> including the file name) : /home/CCD/DATABASE\_DRIVER  JDBC Driver Class Name : org.apache.derby.jdbc.AutoloadedDriver Major Version : 10 Minor Version: 5  JDBC Driver Class Name : org.apache.derby.jdbc.ClientDriver Major Version : 10 Minor Version: 5  JDBC Driver Class Name : com.microsoft.sqlserver.jdbc.SQLServerDriver Major Version : 4 Minor Version: 2  You provided the following parameters:  Database type = **MSSQL**  You provided JDBC driver file(s)  /home/CCD/DATABASE\_DRIVER  Are the values that were entered correct? (Y/N) [Y]  JDBC Driver file(s) installation... Successful |

1. In the **Database Connection Parameters Configuration**section, enter database connection details.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Database connection parameters configuration ...  For detailed IBM Control Center Director system requirements, go to the following URL:  http://www-01.ibm.com/support/docview.wss?uid=swg27036103  --------------------------------------------------------------------  Provide the following database connection parameters...  Do you want to configure a secure connection to your database? (Y/N) [N] : N  Provide the database host name [127.0.0.1]: 172.20.186.38  Provide the database port number [1433]:  Provide the database user name []: ccd  Database Password (no blanks):  Re-enter Database Password:  Provide the database name []: DATABASE\_NAME  Do you want your database to support globalization?  If you select yes, your database size can increase significantly(Y/N). [N] : N  You provided the following database connection parameters:  Database type = **MSSQL**  Secure connection to database = N  Database host name = 172.20.186.38  Database port = 1433  Database user name = ccd  Database password = \*\*\*\*\*\*\*\*  Database name = DATABASE\_NAME  Your database will not support globalization.  Are the values that were entered correct? (Y/N) [Y]Y  No Root pass phrase found in DB and so generating a new one.  Updating application.properties with key store/trust store info...  The SMTP server configuration for IBM Control Center was not completed in this installation location, and no SMTP configuration is in the database.  DB Scripts Directory is '/home/CCD/IBM/bin/db'  Executing scripts....  ….…...  DB initialization - Successful |

**Note:** After successful database configuration, Client Authentication certificate is generated and persisted. It is also imported in Truststore and has a validity of 10 years.

1. Use the **Administration User configuration** section to create a Control Center Director administrator user and to set up its credentials.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Administration User configuration...  --------------------------------------------------------------------  Admin user password must be set.  Enter Admin user password (no blanks):  Re-enter Enter Admin user password :  Enter Admin user email-id address (no blanks): admin@domain.com  Re-enter Enter Admin user email-id address : admin@domain.com  You provided the following values:  Admin user password = \*\*\*\*\*\*\*\*\*\*\*  Admin user email-id address = admin@domain.com  Admin user password and email-id address has been set. |

1. In the **Event Processor (Engine) Name Configuration**section, enter Control Center Director Engine name.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Event processor (engine) name configuration ...  --------------------------------------------------------------------  Provide a 10 character Event Processor (engine) name [Director] :  You provided the following Event Processor (engine) name :  Event Processor (engine) name is 'Director'  Are the values that were entered correct? (Y/N) [Y]  Event Processor (engine) name has been successfully configured ... |

1. In the **Engine Time Zone Configuration**section, enter a time zone value for the Engine. If the source installation and target installation were not in the same time zone, you must specify the time zone.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Engine time zone configuration ...  --------------------------------------------------------------------  Default Time Zone : (UTC+05:30) Calcutta, Chennai, Mumbai, New Delhi  1. (UTC+05:30) Calcutta, Chennai, Mumbai, New Delhi  Choose a time zone number [1] : 1  You chose the following time zone for the IBM Control Center event processor (engine):  1. (UTC+05:30) Calcutta, Chennai, Mumbai, New Delhi  Are the values that were entered correct? (Y/N) [Y]  Engine Time Zone has been successfully configured ... |

1. In the **HTTP connector conﬁguration** section, enter the appropriate details to connect event processor and the console.

|  |
| --- |
| --------------------------------------------------------------------  Config step : HTTP connector configuration (connection between event processor (engine) and the console)...  --------------------------------------------------------------------  HTTP connector configuration ...  Provide a port number. (Enter 0 to disable the HTTP) [58080] :  Provide a listening address for the above port. [0.0.0.0](0.0.0.0- to listen on all addresses):  You provided the following values:  Port number = 58080  Listening address for port = 0.0.0.0  Are the values that were entered correct? (Y/N) [Y]y  Http Connector configuration complete. |

1. In the **Secure HTTP connector conﬁguration** section, enter the appropriate details to establish connection between Engine and console.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Secure HTTP connector configuration (connection between Engine and the console)...  Note: A valid keystore is needed for the secure connection.  --------------------------------------------------------------------  Do you want to configure the secure HTTP connector? (Y/N)y Are you sure about your selection? (Y/N)y  Secure HTTP connector configuration ...  Provide a port number.(Enter 0 to disable the HTTPS) [58081] :  Provide a listening address for the port. [0.0.0.0](0.0.0.0- to listen on all addresses):  You provided the following values:  Port number = 58081  Listening address for port = 0.0.0.0  Are the values that were entered correct? (Y/N) [Y]y  Secure Http Connector configuration has been done successfully! |

1. In the**Web Services Configuration**section, enter appropriate connection details. Control Center Director uses Web Server connection details defined here to connect to Control Center Director's Web Services.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Web Application server ..configuration...  (This step is required for web client.)  Note: A valid keystore is needed for the secure connection.  --------------------------------------------------------------------  Web Application server configuration ...  Provide a secure port number. (Enter 0 to disable) [58083] :  Provide the host name of the event processor (engine). [CDRDEV-052] :  Provide a listening address for the above port. [0.0.0.0](0.0.0.0- to listen on all addresses):  You provided the following values:  Web Application server secure port = 58083  Event processor (engine) host name = CDRDEV-052  Listening address for port = 0.0.0.0  Are the values that were entered correct? (Y/N) [Y] |

1. In the **Package path configuration** section, enter the package directory properties where the Connect:Direct packages are made available.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Package path configuration ...  --------------------------------------------------------------------  Package Configuration ...  Provide the path to your package folder [../packages] : /home/CCD/PACKAGES  Packages location path is : /home/CCD/PACKAGES  Are the values that were entered correct? (Y/N) [Y]  Updating application.properties with package path... |

1. In the**E-mail server (SMTP) Configuration**section, enter the e-mail server connection and SMTP server administrator e-mail details.

|  |
| --- |
| --------------------------------------------------------------------  Config step : Email (SMTP) server configuration ...  --------------------------------------------------------------------  To receive an email notification that is generated by an action in IBM Control Center, you must provide the email server configuration details and the IBM Control Center administrator's email address.  Email host name? [localhost] :  Email port number? [25] :  Email user name? Enter dot (.) for none. [] : .  Enter user password (no blanks). Enter dot (.) for none.  Re-Enter user password (no blanks). Enter dot (.) for none.  Email from address? [noone@anywhere] :  Administrator email address? [noone@anywhere] :  You provided the following email configuration options:  Email host name = localhost  Email port number = 25  Email user name =  Email password = \*\*\*\*\*\*\*\*  Email from address = noone@anywhere  SMTP Administrator email address = noone@anywhere  Are the values that were entered correct? (Y/N) [Y]  Updating application.properties with SMTP info... |

1. In the**External Authentication Server (SEAS) Configuration**section, enter the connection details here.

|  |
| --- |
| --------------------------------------------------------------------  Config step : External Authentication Server configuration ...  --------------------------------------------------------------------  Do you want to configure External Authentication Server connection settings(Y/N)?Y  Are you sure about your selection? (Y/N)Y  Seas configuration ...  Provide Primary Address [] : 172.20.186.38  Provide Primary port [] : 61365  Provide Alternate Address(Blank is valid)[] :  Provide Alternate port(Blank is valid)[] :  Provide Profile Name?[]: ACDEMO  Use Persistent Connection?(Y/N) [Y]:  Use Secure Connection?(Y/N) [Y]: Y  Provide Seas Secure Protocol: (Press Enter for using default) [TLSv1.2]: TLSv1.2  You provided the following External Auth Server connection parameters:  Primary Address -------> 172.20.186.38  Primary Port ----------> 61365  Alternate Address ----->  Alternate Port -------->  Profile Name ----------> ACDEMO  Persistent Connection -> Y  Secure Connection -----> Y  Seas Secure Protocol --> TLSv1.2  Are the values that were entered correct? (Y/N) [Y]  The IBM Control Center Director event processor(engine) configuration is complete.  Run runEngine.sh to start IBM Control Center Director  After starting IBM Control Center Director following URLs can be used to launch Web UI and REST API  1. Web UI URL  https://CDRDEV-052:58083/cc-ui/index.html  2. REST API Documentation(Swagger)  https://CDRDEV-052:58083/swagger-ui.html#  3. OSA URL for Connect:Direct Server  https://CDRDEV-052:58083/osa/events/post  Updating permissions for encryption key files...  Updating permissions for encryption key files...Done! |

1. Configuring IBM Control Center Director is complete.

|  |
| --- |
| The IBM Control Center Director event processor(engine) configuration is complete.  Run runEngine.sh to start IBM Control Center Director  After starting IBM Control Center Director following URLs can be used to launch Web UI and REST API:  1. Web UI URL  https://CDRDEV-052:58083/cc-ui/index.html  2. REST API Documentation(Swagger)  https://CDRDEV-052:58083/swagger-ui.html#  3. OSA URL for Connect:Direct Server  https://CDRDEV-052:58083/osa/events/post  Updating permissions for encryption key files...  Updating permissions for encryption key files...Done! |

# HTTPS worksheet

Enter your HTTPS requirements in the following worksheet and refer to it during IBM® Control Center installation. Complete a worksheet for every computer on which the engine or a console is to be installed. Make additional copies as needed.

| **Field** | **Description** | **Value** |
| --- | --- | --- |
| Host name | The computer where the IBM Control Center engine or console will be installed. |  |
| Keystore file | The default location is installation directory/conf/security/CCenter.keystore. |  |
| Keystore password | There is no default password. The password must be at least six characters. Spaces are not allowed. |  |
| Truststore file | The default location is installation directory/jre/lib/ security/cacerts. |  |
| Truststore password | The default password is **changeit**. If you use the default truststore file, you must use **changeit**as the password. |  |
| HTTPS port | The default port is 58081. |  |
| HTTPS web port | The default port is 58083. |  |

Production database worksheet

Use the following worksheet to record production database setup information. You will need this information during IBM® Control Center installation.

| **Parameter** | **Database Type** | **Value** |
| --- | --- | --- |
| Database type  **Attention:** Production and reports databases must be of the same type and version. | All |  |
| Database name | All |  |
| User name | All |  |
| Password | All |  |
| Database hostname  Can be an IP address or the server name. | All |  |
| Port number to access the database | All |  |
| Location of the sqljdbc4.jar file | Microsoft SQL Server (2012 and 2014) |  |
| Location of the db2jcc.jar file | DB2® (UNIX and Microsoft Windows) |  |
| Location name of the DB2 database | DB2 (z/OS® or OS/390®) |  |
| Location of the db2jcc.jar database driver | DB2 (z/OS or OS/390) |  |
| Location of the DB2 database license file | DB2 (z/OS or OS/390, Microsoft Windows, UNIX) |  |
| Location of the ojdbc7.jar Oracle file | Oracle |  |

Note these points concerning the DB2 JDBC driver file:

* The DB2 JDBC driver files can be found in DB2InstallLocation\IBM\SQLLIB\java.
* DB2 version 10.x, Type 4 driver. This driver comes with two files, dbjcc.jar and db2jcc\_license\_cu.jar (UNIX and Microsoft Windows) or db2jcc\_license\_cisuz.jar (z/OS or OS/390).
* When you use the JDBC driver to configure IBM Control Center with DB2 databases, the JDBC driver files must come from the DB2 database location where IBM Control Center connects.

Reports database worksheet

Use the following worksheet to record reports database setup information. You will need this information during IBM® Control Center installation.

| **Parameter** | **Database Type** | **Value** |
| --- | --- | --- |
| Database type  **Attention:** Production and reports databases must be of the same type and version. | All |  |
| Database name | All |  |
| User name | All |  |
| Password | All |  |
| Database hostname  Can be an IP address or the server name. | All |  |
| Port number to access the database. | All |  |
| Location of the sqljdbc4.jar file | Microsoft SQL Server (2012 and 2014) |  |
| Location of the db2jcc.jar file | DB2® (UNIX and Microsoft Windows) |  |
| Location name of the DB2 database | DB2 (z/OS® or OS/390®) |  |
| Location of the db2jcc.jar database driver | DB2 (z/OS or OS/390) |  |
| Location of the DB2 database license file | DB2 (z/OS or OS/390, Microsoft Windows, UNIX) |  |
| Location of the ojdbc7.jar Oracle file | Oracle |  |

Note these points concerning the DB2 JDBC driver file:

* The DB2 JDBC driver files can be found in DB2InstallLocation\IBM\SQLLIB\java.
* DB2 version 10.x, Type 4 driver. This driver comes with two files, dbjcc.jar and db2jcc\_license\_cu.jar (UNIX and Microsoft Windows) or db2jcc\_license\_cisuz.jar (z/OS or OS/390).
* When you use the JDBC driver to configure IBM Control Center with DB2 databases, the JDBC driver files must come from the DB2 database location where IBM Control Center will connect.

Installing IBM Control Center

You can choose to install and configure IBM® Control Center for either a non-high availability or high availability environment. Installation of IBM Control Center in each environment varies based on your operating system.

Before you install and configure IBM Control Center, you must complete the preinstallation checklist to help you prepare for the installation process.

For a high availability environment, you can install and configure multiple event processors to monitor events from monitored servers. If an event processor is down or fails in a high availability environment, another event processor can start monitoring servers from the failed event processor until it becomes available again. No events are lost when IBM Control Center is installed and configured for a high availability environment. In a high availability environment, you can select which event processor has the Cognos® Business Intelligence server installed. The Cognos Business Intelligence server provides the reporting features for IBM Control Center and can be made high available. The Cognos Business Intelligence server must be installed with at least one event processor in a highly available environment.

**Important:** If you do not enable the globalization parameter for the Microsoft SQL server during an IBM Control Center installation, then you cannot use multi-byte characters. When you use a multi-byte character without enabling this parameter, then IBM Control Center cannot run and you must manually remove the character from your database. If you choose to enable the globalization parameter later, you must reinstall IBM Control Center.

After you complete your preinstallation checklist and choose whether you need to implement a high availability environment, you can begin the process of installing and configuring IBM Control Center on a Microsoft Windows, AIX, Solaris, or UNIX operating system. You can complete the following types of installation based on your operating system:

* GUI installer - you can complete a GUI installation on Microsoft Windows. You can also complete the installation on a Linux or UNIX platform where a GUI environment is configured and available.
* Command line installer - you can complete a command line installation on Microsoft Windows, UNIX, or z/Linux.

**Important:** IBM Control Center only provides 64-bit environment installers. The console and web console can be launched from either a 32-bit or 64-bit environment.

After you complete your installation and configuration of IBM Control Center, you will verify the installation and begin your setup of IBM Control Center to monitor servers.

# Installing and configuring IBM Control Center from the command line on UNIX

You can install the IBM® Control Center engine and the console on a UNIX operating system from a command line.

## **Before you begin**

* InstallAnywhere requires temporary space for some of its operations during installation. If there is insufficient space in the system temp, it attempts to extract the installer into the user's home directory. Ensure that the system temp has sufficient space for the installation.

**Tip:** You can force InstallAnywhere to use a different location for temp space by specifying the IATEMPDIR variable as shown in the following example:

export IATEMPDIR=$HOME

* In some UNIX environments, the installer reports that there is not enough disk space to install IBM Control Center even if there is sufficient disk space. To bypass this situation:
  1. Type the following commands:

export IATEMPDIR=$HOME export CHECK\_DISK\_SPACE=OFF

* 1. Run the IBM Control Center installer.

## **About this task**

Use this procedure to install the IBM Control Center engine and the console on a UNIX operating system from either a console or a command line.

## **Procedure**

1. Navigate to the UNIX directory where you extracted the files.
2. Copy the CCInstall64.bin file to a directory on your computer.
3. Change to the directory where you copied CCInstall64.bin.
4. Type sh CCInstall64.bin -i console in the command line.
5. Run the **configCC.sh** command from the installation directory/bin directory to configure IBM Control Center.
6. Follow the installation prompts.

**Attention:** During the Event Processor Name installation step, you can use only alphanumeric characters to name the event processor. The event processor name must be unique in the database.

If the installation fails, determine the cause by reviewing the installation log, which is in installation directory/IBM\_Control\_Center\_v6.1.\_Install.log. If the configuration settings cause the installation to fail, you can run **configCC.sh** to reconfigure the settings.

The installation program installs the Java™ Runtime Environment (JRE) that is required to run IBM Control Center.

# Removing temporary files

You need to remove the temporary files that are left by the installation program on some UNIX platforms.

Remove these files by typing the following commands at a command prompt:

rm /tmp/ia\_remove.\*

rm /tmp/persistent\_state

rm -R /tmp/install.dir.\* command

# Installing and configuring IBM Control Center by using the GUI installer on Microsoft Windows

You can install and configure the IBM® Control Center engine and console on Microsoft Windows with the GUI installer.

## **Before you begin**

Complete the preinstallation and installation checklists.

## **About this task**

To install and configure the IBM Control Center engine and console on Microsoft Windows with the GUI installer:

## **Procedure**

1. Close all open applications.
2. Navigate to the Microsoft Windows directory where you extracted the files.
3. Double-click the **CCInstall64.exe** file.
4. Follow the installation prompts by using the information from the Production database worksheet, Reports worksheet, and the HTTPS worksheet. The installation program installs the JRE.

**Attention:** During the Event Processor Name installation step, you can use only alphanumeric characters to name the event processor. The event processor name must be unique in the database.

If the installation fails, determine the cause by reviewing the installation log, which is in installation directory/IBM\_Control\_Center\_v6.1\_Install.log. If the installation settings cause the installation to fail, you can run **configCC.bat** to reconfigure the settings.

# Installing and configuring IBM Control Center from the command line for Microsoft Windows

You can install the IBM® Control Center engine and the console on a Microsoft Windows operating system from a command line.

## **Before you begin**

* InstallAnywhere requires temporary space for some of its operations during installation. If there is insufficient space in the system temp, it attempts to extract the installer into the user's home directory. Ensure that the system temp has sufficient space for the installation.

**Tip:** You can force InstallAnywhere to use a different location for temp space by specifying the IATEMPDIR variable as shown in the following example:

set IATEMPDIR=<new\_temp\_dir>

## **About this task**

To install the IBM Control Center engine and the console on a Microsoft Windows operating system from a command line:

## **Procedure**

1. Navigate to the Microsoft Windows directory where you extracted the files.
2. Copy the CCInstall64.exe file to a directory on your computer.
3. Change to the directory where you copied CCInstall64.exe.
4. Type sh CCInstall64.exe -i console in the command line.
5. Run the **configCC.bat** command from the install directory/bin directory to configure IBM Control Center.
6. Follow the installation prompts.

**Attention:** During the Event Processor Name installation step, you can use only alphanumeric characters to name the event processor. The event processor name must be unique in the database.

If the installation fails, determine the cause by reviewing the installation log, which is in installation directory/IBM\_Control\_Center\_v6.1\_InstallLog.log.

**Tip:** If the configuration settings cause the installation to fail, you can run **configCC.bat** to reconfigure the settings.

The installation program installs the Java™ Runtime Environment (JRE) that is required to run IBM Control Center.

# Installing and configuring IBM Control Center using the GUI installer for Linux and UNIX

You can install and configure the IBM® Control Center engine and console on Linux and UNIX with the GUI installer.

## **Before you begin**

Complete the preinstallation and installation checklists.

## **About this task**

To install and configure the IBM Control Center engine and console on Linux and UNIX with the GUI installer:

## **Procedure**

1. Close all open applications.
2. Navigate to the Linux or UNIX directory where you extracted the files.
3. In the window, type **sh CCInstall64.bin -i gui**.
4. Follow the installation prompts by using the information from the Production database worksheet, Reports worksheet, and the HTTPS worksheet. The installation program installs the JRE.

**Attention:** During the Event Processor Name installation step, you can use only alphanumeric characters to name the event processor. The event processor name must be unique in the database.

If the installation fails, determine the cause by reviewing the installation log, which is in installation directory/IBM\_Control\_Center\_v6.1\_Install.log.

If the installation settings cause the installation to fail, you can run **configCC.sh** to reconfigure the settings.

# Taking the first steps after installation

There are tasks you need to complete after you installed IBM® Control Center for a high availability or non-high availability environment.

After you planned, downloaded, installed, and verified the installed of IBM Control Center, you can take next steps to set up your IBM Control Center environment. Tasks you can complete after the installation of IBM Control Center include setting up the IBM Control Center console, configuring IBM Control Center to databases, and changing event processor settings.

# Setting up a console

For computers other than the one IBM® Control Center was installed on, you install the console by using a browser such as Microsoft Internet Explorer or Firefox.

## **Before you begin**

Ensure that the correct level of JRE is installed.

## **About this task**

**Important:** To access many IBM Control Center user features without installing files locally on your computer, you can use the IBM Control Center web console. When you launch the IBM Control Center console from the launch page, you might receive security warnings if Java 1.7 Update 51 or later is installed on your computer.

## **Procedure**

1. Check with the administrator to ensure that the IBM Control Center engine is running.
2. Open the URL associated with the IBM Control Center engine. The URL format is https://hostname:port for a secure connection or http://hostname:port for a non-secure connection. The hostname is the DNS name or IP address where the engine is running and the port is the port number for the WebSphere® Application Server. (The default secure web port is 58083. The default non-secure web port is 58082.)
3. Click the IBM Control Center Console link you want to use.

The IBM Control Center components are downloaded to your local computer. When all components are downloaded, a security warning informs you that IBM Control Center is requesting unrestricted access to your computer.

1. Click **Start** to continue to the IBM Control Center console installation. A security warning informs you that Java Webstart is requesting unrestricted access to your computer. This access is necessary to install IBM Control Center.
2. Click **Install**.

When the IBM Control Center console installation is complete, create a shortcut for running the console from your desktop.

1. Do one of the following steps:
   * To create a shortcut on your desktop, click **Yes**.
   * To finish the installation without creating a shortcut, click **No**.
   * To defer creation of a shortcut, click **Ask Later**.

# Changing event processor settings after installation

You can change IBM® Control Center event processor settings after you install an event processor.

## **About this task**

To change IBM Control Center event processor settings (such as database connection details, the HTTP connector port, or HTTPS settings) you can run a configuration program to reconfigure the IBM Control Center setup.

## **Procedure**

1. From a command line, run **configCC.bat** (Microsoft Windows) or **configCC.sh** (UNIX) in the installation directory/bin subdirectory.

You are prompted for each step of configuration.

**Attention:** During the Event Processor Name configuration step, you can only use alphanumeric characters to name the event processor. The event processor name must be unique in the database.

1. To skip any step in which no change is required, type **n** and press **Enter**, then **y** and press **Enter**.

# Using the IBM Control Center console and web console

The IBM® Control Center console offers full functionality for configuring IBM Control Center and Sterling Connect:Direct® servers, and monitoring/analyzing monitored servers. As a subset of the features provided by the console, the web console enables you to display information gathered from the engine and print reports.

# IBM Control Center console

Use the IBM® Control Center console to monitor process activity. Administrators can perform various tasks, such as creating and maintaining users, rules, actions, service level criteria (SLCs), and email lists, and configuring servers.

## **Node tree**

The node tree displays the listing of managed servers and server groups that were added to IBM Control Center. The servers are displayed on the Server tab alphabetically by server type. The server groups you defined are displayed on the Groups tab along with the system server groups provided in IBM Control Center. When you right-click a server type, individual server, or server group, the menu of options for that selection is displayed.

## **Servers and Groups tabs**

The Servers and Groups tabs show the servers defined in IBM Control Center.

Clicking the **Servers** tab lists IBM Control Center servers by server type. Within each server type, individual servers are listed in alphabetical order.

Clicking the **Groups** tab lists both the system server groups provided in IBM Control Center and the groups you defined.

**Attention:** Dynamically discovered servers, such as IBM Global High Availability Mailbox, do not appear in the **Servers** tab, but they do appear in the **Groups** tab.

## **Selecting menu options using mnemonics and accelerators**

When you right-click a server type, individual server, or server group, a menu for that selection is displayed.

**Tip:** The functions that you can perform depend on the object selected and your IBM Control Center role permissions. Functions that are not available because of role restrictions appear dimmed. A function can also appear dim because it is not relevant and cannot be chosen. For example, the **Pause Monitoring** and **Resume Monitoring** options appear dim and are not available for dynamically discovered servers.

Besides mouse navigation to select a menu option, you can use two keyboard methods, mnemonics or accelerators, depending upon whether an option menu is currently displayed. Mnemonics offer a way to use the keyboard to navigate the menu hierarchy, increasing the accessibility of programs. Alternatively, accelerators offer keyboard shortcuts to bypass navigating the menu hierarchy.

A mnemonic is a key that enables you to choose a menu option that is currently visible. For example, in the previous screen sample, when you press the **Alt** and **A** keys, the Active Alerts viewer is displayed. The Servers menu has options that can be chosen by using mnemonics while the menu is visible, with or without pressing **Alt**. For example, pressing the **A** key (with or without **Alt**) opens the Active Alerts viewer. Generally, a mnemonic for a menu option is indicated with an underline for the first occurrence of the mnemonic character in the text of the menu option.

An accelerator is a key combination that enables you to choose a menu option, whether the pull-down menu listing the option is visible. Accelerators are displayed with the accelerator key to the right of the menu option. For example, the Active Alerts menu option on the Servers right-click menu shows the **Alt-A** accelerator keys. By holding down the **Alt** key while pressing the **A** key, you can select the Active Alerts option even if the right-click menu is not visible. Not all accelerator keys are used with the **Alt** key. Some are used in combination with the **Ctrl** or **Shift** key.

## **Server icons**

The server icons in the node tree have different meanings. The follow list shows a representative sample of these server status icons.

| **Icon** | **Definition** |
| --- | --- |
| Image shows IBM Control Center icon that contains all servers listed in the node tree. | The IBM Control Center system that contains all servers listed in the node tree. You can expand or collapse the tree and perform a variety of actions by right-clicking the icon. |
| Image shows a Sterling Connect:Direct, Sterling Connect:Express, or IBM QuickFile server that has been successfully contacted. | An IBM Sterling Connect:Direct®, IBM Sterling Connect:Express, IBM QuickFile, or dynamically discovered server, such as IBM Global High Availability Mailbox, that IBM Control Center successfully contacted. |
| Image shows a Sterling Connect:Enterprise server that has been successfully contacted. | An IBM Sterling Connect:Enterprise® server that IBM Control Center successfully contacted. |
| Image shows a Sterling B2B Integrator server that has been successfully contacted. | An IBM Sterling B2B Integrator server that IBM Control Center successfully contacted. |
| Image shows a Sterling B2B Integrator cluster node or Sterling Connect:Direct File Agent that has been successfully contacted. | An IBM Sterling B2B Integrator node that is part of a Sterling B2B Integrator server and that IBM Control Center successfully contacted.  An IBM Sterling Connect:Direct File Agent (listed under its associated Sterling Connect:Direct server) that IBM Control Center has successfully contacted. |
| Image shows a managed FTP server that has been successfully contacted. | A managed FTP server successfully contacted by IBM Control Center. |
| Image shows a Sterling Connect:Direct, Sterling Connect:Express, or IBM QuickFile server license alert. | Indicates that there is a problem with the license for the server. |
| Image shows an icon of a server that has a generated alert. | Indicates that an alert was generated on the server. |
| Image shows a Sterling Connect:Enterprise server that has been shunned. | Indicates that IBM Control Center shunned and cannot monitor the server because of one of the following problems:   * IBM Control Center cannot sign on to a server due to a user ID or password problem * A server is at an unsupported level   For an FTP server, can also mean that the log file specified is either invalid or does not exist. |
| Image shows a Sterling Connect:Direct, Sterling Connect:Express, or IBM QuickFile server that has been stopped. | Indicates that the server was previously contacted by IBM Control Center, but is currently offline.  **Important:** A server name in red also indicates that the server was previously contacted by IBM Control Center but is currently offline, regardless of the icon displayed. |
| Image shows a Sterling B2B Integrator cluster node or Sterling Connect:Direct File Agent server that is down. | Indicates that a Sterling B2B Integrator server is down. |
| Image shows a Sterling B2B Integrator cluster that has at least one node but not all down. | Indicates that at least one, but not all, of the Sterling B2B Integrator nodes in the server is down.  Also might indicate Sterling Connect:Direct File Agent server is down. |
| Image shows a Sterling Connect:Direct, Sterling Connect:Express, or IBM QuickFile server that has never been contacted by IBM Control Center. | Indicates that the server was never contacted by IBM Control Center. The server might be offline, or the server IP address or port number might be incorrect in IBM Control Center. |
| Image shows a Sterling Connect:Enterprise server that is down and has active alerts. | Indicates that the server is unavailable, but still has unprocessed alerts. |
| Image shows a Sterling B2B Integrator cluster that has been paused. | Indicates that monitoring of the server is currently paused. |
| Image shows a Sterling Connect:Direct server that has an error and also has subnodes. | A plus sign (+) in Sterling B2B Integrator, Sterling Connect:Direct, and IBM MQ Managed File Transfer icons indicates that the node has subnodes or subagents (depending on the type of server). This status is used only in the web console. |

## **Filtering information**

Most monitors and listing screens have different ways you can filter and display information by using the following buttons:

| **Button** | **Definition** |
| --- | --- |
| Image shows the Export List to PDF icon. | To copy the contents currently displayed to an Adobe PDF file, click the Export List to PDF button. A PDF is created which you can open with Adobe Reader. |
| Image shows the Refresh icon. | To manually refresh the current contents of the screen. |
| Image shows the Clear Filter icon. | To clear the criteria currently being used to filter information, click the Clear Filter button. The screen is refreshed and all information displayed before the filter was applied is displayed. |
| Image shows the Filter icon. | To filter information in a column, click to open the **Filter** pop-window. Select your criteria from the **Key** and **Operator** pull-down lists. Either select an item from the **Value** field or type the value, and click **OK**. For example, to see all Sterling Connect:Direct that have Sterling Connect:Direct Secure Plus enabled, you would select **Secure+ Enabled** for **Key** and **Matches** for **Operator**. Then you would select Yes for **Value** and click **OK**. |
| Image shows the Expand icon. | To expand the contents of the Server List View or Group View, click the Expand button. For example, if the Server Group view is displayed with all folders collapsed and you click the Expand button, all individual servers are displayed. |
| Image shows the Collapse icon. | To collapse the contents of the Server List View or Group View, click the Collapse button. For example, if the Server List View is expanded and you click the Collapse Button, the individual servers are collapsed and the folders representing the different server types are displayed. |

Web console

The functions, look, and behavior of the web console differ from the IBM® Control Center console. Because the web console provides a subset of IBM Control Center functions, the interface has a more simplified look, with fewer items on the main screen.

When you are working with the web console, keep in mind the following things:

* What you see on the web console the first time that you log in depends on the permissions set for your user ID. The following information assumes that you have manage permissions to all functions, servers, and groups.
* If a user attempts to log in multiple times, a warning message displays, which identifies the number of other logins by that user.
* Your web console session times out due to inactivity unless the Auto Refresh option is enabled.

In the IBM Control Center web console, you can select the following options in the menu:

* **Analyze**, to access the dashboard, reports, group workspace, and personal workspace that you have permission to view.
  + **Dashboard**, to access the widgets: Recent file transfer activity widget, Active alerts widget, Transfer scorecard widget, and Environmental health widget. You can see an aggregated, snapshot view of server and file transfer status.
  + **Group Workspace**, to access the workspace for your role that provides access to the following widgets: Size of Files over Time, Volume of Files over Time, Active Alerts by Category, and the Sterling Connect:Direct® FASP-supported nodes widget. The workspace administrator can populate the group workspace with more widgets created in IBM Cognos® Report Studio.
  + **Personal Workspace**, to access your individual workspace. You can personalize and drag the widgets that you want to use onto your personal workspace.
  + **Reports**, to display one or more types of reports.
* **Servers**, to view either **Individual servers**or **Server groups**. In **Individual servers** and **Server groups**, you can click a particular server to open a menu for more information, such as **Server details**, **File transfers**, **Events**, **Active alerts**, **Handled alerts**, **Queued processes**, or **Completed processes** for an individual server. Server Groups lists both the groups that you manually defined and the system server groups that are provided in IBM Control Center.
* **Monitor**, to view the status of the following objects:
  + **Active alerts**
  + **Handled alerts**
  + **Completed processes**
  + **Queued processes**
  + **Completed file transfers**
* **Manage**, to create or edit the following IBM Control Center objects:
  + **Rules**
  + **Simple SLCs**
  + **Actions**
  + **Calendars**
  + **Email lists**
  + **Schedules**
  + **Message categories**, to define message IDs that are included in the active alerts by category widget.
  + **Event processors**, to view event processor details and the servers that it monitors. You can also set server policies and assign servers to a different event processor.
* **User name**, to select one of the following options:
  + **System configuration**, to configure custom views or properties.
  + **Log out**, to log the current user out of the web console
* **Help** icon, to access either **Help** and launch the IBM Knowledge Center for IBM Control Center or **About** to show copyright and version information for the general, engine, and browser components.

Users who have roles that are data visibility-restricted see only the data that is associated with their data visibility group, whereas unrestricted users see all data.

The dates and times that are displayed in the web console widgets are configured by a preferred time zone. To configure a preferred time zone, go to the IBM Control Center console, click **Console Preferences** > **Time Preferences**. The time zone that is configured can be a half-hour or quarter-hour, but it is going to be rounded up to the next hour in the display of the recent file transfer activity widget.

Overview of the dashboard

The IBM® Control Center web console dashboard provides an aggregated, snapshot view of the status of your monitored servers and file transfers. The information available to you in the dashboard depends on your permissions to view alerts, servers, server groups, and processes.

In the dashboard, you can view widgets that display information, which can you use to determine server issues on your monitored servers. From each widget, you can drill down to the supporting data that is displayed. The dashboard includes the following widgets:

* Recent file transfer activity widget, which displays a graph of the volume of file transfers over time for each type of monitored server. From this widget, you can view a list of file transfers by date for each server type.
* Active alerts widget, which displays an aggregated view of total active alerts by severity. From this widget, you can drill down to view a list of all active alerts or active alerts by severity.
* Transfer scorecard widget, which displays the percentage of failed and successful file transfers to the nearest hundredth of a decimal for the servers that you have permission to view. From this widget, you can drill down to view the list of failed or successful file transfers.
* Environmental health widget, which displays an aggregated health status of the servers and related services in your environment. From this widget, you can view a list of servers or related services that have active, warning, or down status.

Active alerts widget

The dashboard Active alerts widget provides an aggregated view of total active alerts. From the widget, you can navigate to a list of active alerts to troubleshoot issues with servers monitored by IBM® Control Center.

The Active alerts widget displays alert information for the servers that you have permission to view. The widget displays a count of active alerts for each of the three severity levels:

* High
* Medium
* Low

You can complete the following actions from the Active alerts widget:

* Access a list of active alerts by clicking the **High**, **Medium**, or **Low** severity chart.
* Access a list of all active alerts for the current aggregated widget view by clicking **View all alerts**.

Recent file transfer activity widget

The Recent file transfer activity widget provides a graph that depicts volume of file transfers over time for each type of monitored server. From the widget, you can access a list of transfers for each server type to troubleshoot server issues.

The Recent file transfer activity widget provides a line graph of information for the servers that you have permission to view. Each line on the graph shows the volume of transfer activity for all servers of a server type over a customizable time range. Transfers are defined as follows:

* Sterling B2B Integrator and Sterling File Gateway (**B2Bi/SFG**) - Every completed protocol-related event in Sterling B2B Integrator is recorded as a file transfer. Additionally, every Sterling File Gateway Arrived File status code is recorded as a successful (FG\_0411 - Arrived File Routed) or a failed (FG\_0455 - Arrived File Failed) file transfer.

The dates and times that are displayed in the web console widgets are configured by a preferred time zone. To configure a preferred time zone, go to the IBM Control Center console, click **Console Preferences** > **Time Preferences**. The time zone that is configured can be a half-hour or quarter-hour, but it is going to be rounded up to the next hour in the display of the recent file transfer activity widget.

You can complete the following actions from the Recent file transfer activity widget:

* Select the server types that you want to view in the graph.
* Hover on a data point on the line graph to see the date and the number of file transfers for that day.
* Access a filtered list of transfers for a server type on a specific day by clicking a data point on the graph.
* Customize the time range that you can view by expanding the dashboard activity caret on the widget and dragging the date markers.

The following scenarios can result in either no graph or a flat graph in the Recent file transfer activity widget:

* You have permission to view servers and servers are configured, but there is no file transfer activity.
* You have permission to view servers and servers are configured, but the servers are not up. Data is captured before servers are down, and after they are up again. No new activity is captured when servers are down.
* You have permission to view servers, but no servers are configured.

Keep in mind the following factors when you are working with the Recent file transfer activity widget:

* If you do not have permission to view processes, the widget is not shown in the dashboard.
* The widget provides statistics for activities that are based on the preferred time zone that is configured by the user.
* The widget begins collecting data the first day that you start the event processor and begin monitoring servers. If you have existing data about file transfer traffic from a previous IBM Control Center installation, that data is not shown in the widget.
* If your environment is set to purge data periodically, the Completed files list might not show matching data when you click a data point on the graph. The actual file transfer data might be purged from the database. When this situation occurs, a warning message displays in the Completed files list.

# Environmental health widget

The Environmental health widget displays an aggregated health status of the servers in your environment, which you can use to begin troubleshooting server issues.

For each server type in your environment that you have permission to view, the Environmental health widget shows a chart. Depending on the server type, the charts include the following objects:

* Engines for Sterling Secure Proxy
* Adapters for Sterling B2B Integrator and Sterling Secure Proxy
* Daemons for Sterling Connect:Enterprise®
* Configuration managers for Sterling Secure Proxy
* Data centers for Global Mailbox
* File agents for Sterling Connect:Direct®

**Important:** Depending on the server IBM® Control Center is monitoring, you can have functionality limitations in IBM Control Center with that server.

Each chart provides a color indicator and a corresponding status indicator of the ratio of health statuses for these objects. Also, each chart shows three types of health status options:

* Down, which indicates either IBM Control Center cannot connect to the server or monitoring for that server is stopped.

**Important:** When you install Sterling B2B Integrator, some of the adapters that are installed are initially displayed as down in the widget. If you want to monitor these adapters, you need to configure them in Sterling B2B Integrator. If you do not plan to use these adapters in your environment, remove them from your monitored adapters in the **Adapter List** on the **Server Properties** - **Settings** tab in the IBM Control Center console. This action prevents the adapters from displaying as down in the Environmental health widget and being tracked in the status change events in the widget. This action also prevents the adapters from being displayed in the **Adapter Status Monitor**.

Global Mailbox data centers display a down status when the management node does not check in within the specified heartbeat interval.

* Warning, which indicates one of the following issues:
  + The event processor failed to connect to the server.
  + Monitoring was paused.
  + The server was paused upon startup.
  + The Global Mailbox management node cannot communicate with its services or the services upon which it depends.

**Important:** Global Mailbox does not immediately detect that the Aspera and IBM WebSphere® MQ services are operational. Until these services are used for the first time, they remain in an unknown state and display a warning or not monitored status. When the first file transfer occurs, Aspera is used and its status is indicated. When the first event is raised for Sterling B2B Integrator, IBM WebSphere MQ is used and its status is indicated.

* Active, which indicates the following activities depending on the server type:
  + The server is running for Sterling Connect:Direct, Sterling Connect:Enterprise, Sterling Connect:Express, QuickFile, MQ MFT, Sterling B2B Integrator/Sterling File Gateway, Sterling Secure Proxy, Global Mailbox data center, and FTP servers.
  + An adapter in enabled or a node status is running for Sterling B2B Integrator, Sterling File Gateway, and Sterling Secure Proxy.
  + A daemon is running for Sterling Connect:Enterprise.

You can complete the following actions from the Environmental Health widget:

* Click one of the colored parts of the server, adapter, daemon, configuration manager, or Global Mailbox data center charts to access a filtered list of servers in a particular a status.
* Click the middle of a chart to access an unfiltered list of nodes, adapters, daemons, configuration managers, or Global Mailbox data centers.

Transfer scorecard widget

The Transfer scorecard widget displays the percentage to the nearest hundredth of a decimal of failed file transfers for the servers that you have permission to view on IBM® Control Center.

The Transfer scorecard widget displays file transfer information for the servers that you have permission to view over time. Expand the dashboard activity caret and drag the date markers to customize the time range. For each server type, transfers are defined as the following events:

* For Sterling Connect:Direct® (**CD**), every send and every receive.
* For QuickFile (**QF**), every processed package.
* For Sterling Connect:Enterprise® (**CE**), every step end event with a file size larger than 0, except for local add and extract operations.
* For Sterling Connect:Express (**CX**), every step end event that is recorded with a file size of 0 or more.
* For **FTP**, every GET or PUT.
* For Sterling B2B Integrator and Sterling File Gateway (**B2Bi/SFG**), every completed protocol-related event in Sterling B2B Integrator, and every Sterling File Gateway Arrived File status code is recorded as either successful (FG\_0411 - Arrived File Routed) or failed (FG\_0455 - Arrived File Failed).
* For IBM MQ Managed File Transfer (**MQ MFT**), every step end event that is recorded with a file size of 0 or more.

From the Transfer scorecard widget, you can complete the following actions:

* Click the **Failed** or **Successful** sections of the chart to access a filtered list of file transfers.
* Click the color key to hide or show the **Failed** or **Successful** sections of the chart.
* Click the middle of the widget chart to access a full list of failed file transfers.

# Overview of the workspace

The IBM® Control Center workspace provides an area where users can interact with content through widgets. The content can be used to analyze data.

You access the workspace from the web console in one of the following ways:

* Click **Analyze** > **Group workspace**, or click **Analyze** > **Personal workspace**.
* Click **Analyze** > **Dashboard**. From the dashboard, click **Group workspace** or **Personal workspace**.

Which workspace you are able to access depends on the permission your administrator assigns to you. The workspace permissions are Group, Personal, Administer, and None.

To configure a workspace in IBM Cognos Connections, select **Tools** > **IBM Cognos Connection** from the IBM Control Center console.

The information available in the workspaces is based on the permissions that are assigned to a user's role: administer, personal, or group. The two types of workspaces available, based on your permissions, are a personal workspace or a group workspace. The following are the descriptions of the workspaces:

A personal workspace is for one IBM Control Center user, and any changes that are made in a personal workspace do not affect another user's workspace. When a user accesses a personal workspace for the first time, instructions display that describe how to use the workspace. Users can customize their personal workspace to meet their needs. For example, they can customize a widget's appearance by changing the widget title, display type, filtering, and sorting. Users can add, remove, or rename tabs in the workspace to meet their personal preferences. Any changes that are made to the workspace remain from session to session.

A group workspace is for one IBM Control Center role. All users in the same role view the same group workspace. Users cannot customize their group workspace. A group workspace has a default pre-populated screen with pre-existing widgets that an administrator imports for the users. Users are allowed to sort, filter, and drill up and down, but the workspace reverts to the default view at the next session. The administrator creates the workspaces and chooses the widgets that are available for the users with a group workspace.

Four widgets are provided with IBM Control Center V6.0 to provide information about your servers. The widgets are accessed from the content pane under **Public Folders** > **IBM Control Center Widgets**. The following widgets are provided in the group and personal workspaces:

* Volume of Files over Time: Displays the volume of file transfers for specific servers that you have permission to view over time. You can filter which servers to view and select a specific time range.
* Size of Files over Time: Displays the size of file transfers for specific servers that you have permission to view over time. You can filter which servers to view and select a specific time range.
* Active Alerts by Category: Provides a graphical representation of active alerts that can be filtered by server type and category.
* Sterling Connect:Direct® FASP usage widget: Provides a graphical representation of how select Sterling Connect:Direct servers are optimizing the use of the FASP protocol with comparisons of throughput averages of transfers and the number of file transfers.

An administrator can create widgets for the workspace that are not provided with IBM Control Center V6.0. An administrator must have knowledge of IBM Cognos Report Studio to create the widgets. In a widget you can click **Actions Menu** > **Export To** to export the widgets to the following file formats: PDF, Excel, CSV, or XML to save the information or email to another user.

The group workspace that is provided with IBM Control Center has two default tabs: Activities and GRC. The **File Activities** tab contains the Size of Files over Time widget and the Volume of Files over Time widget. The **GRC** tab contains the Active Alerts by Category widget. The personal workspace that is provided IBM Control Center has two default tabs: Tab 1 and Activities. **Tab 1** displays instructions to use the workspace. The **File Activities** tab contains the Size of Files over Time widget and Volume of Files over Time widget. An administrator or a user with the personal permission can change the tab labels.

You can complete the following actions from the workspace:

* Click the **Save** icon to save your personal workspace. You cannot save a group workspace that you have permission to view. Only the administrator that created the group workspace can save it.
* Click the **Print** icon to print the entire workspace.
* Click the **Refresh** icon to refresh the workspace to receive current data.

While in the IBM Control Center web console **Personal workspace** or **Group workspace**, go to **Help** > **Display workspace instructions** to access the workspace instructions, or go to **Help** > **Workspace Guide** to learn more about the workspace.

# Size of Files over Time widget

The Size of Files over Time widget provides a snapshot view of the size of file transfers for each monitored server you have permission to view over time.

The Size of Files over Time widget provides file transfer information for the servers that you have permission to view over a customizable time range. Each data point on the chart contains the total size of transfer activity for the selected server on the specific date. A transfer is defined as follows:

* Sterling Connect:Direct® (**CD**) - Every send and receive is recorded as a separate file transfer.
* QuickFile (**QF**) - Every processed package is recorded as a single file transfer.
* Sterling Connect:Enterprise® (**CE**) - Except for local add and extract operations, every step end event that is recorded with a file size of 0 or more is recorded as a single file transfer.
* Sterling Connect:Express (**CX**) - Every step end event that is recorded with a file size of 0 or more is recorded as a single file transfer.
* **FTP** - Every GET or PUT is recorded as a single file transfer.
* Sterling B2B Integrator and Sterling File Gateway (**B2Bi/SFG**) - Every completed protocol-related event in Sterling B2B Integrator is recorded as a file transfer. Additionally, every Sterling File Gateway Arrived File status code is recorded as a successful (FG\_0411 - Arrived File Routed) or a failed (FG\_0455 - Arrived File Failed) file transfer.
* IBM® MQ Managed File Transfer (**MQ MFT**) - Every step end event that is recorded with a file size of 0 or more is recorded as a single file transfer.

**Important:** If there is a line break in your chart of the Volume of Files over Time widget, there is a null value present in the data table. A null value in the data table does not receive a data point in the widget chart. You can change the chart type to represent null values. To change the chart type, click the chart in your widget, and click the **Change Display Type** icon in the widget toolbar.

To add the widget to your personal workspace, drag the widget from **Public Folders** > **IBM Control Center Widgets** > **Size of Files over Time** of the content pane onto your personal workspace. After the widget is in the workspace, you are prompted with a configuration window where you select the servers to view and a date range for file transfers. After the servers and date range are chosen, a summary by day chart opens in the workspace. This chart shows the size of file transfers for the chosen servers on the days you selected.

**Attention:** As a workspace default, the Size of Files over Time widget and the Volume of Files over Time widget are linked together. If you refresh or change the filter of either widget, then the other widget automatically refreshes or updates with the new filter.

You can complete the following actions from the Size of Files over Time widget:

* Select a single server, multiple servers, or all servers. To select multiple servers, press Ctrl and click.
* Use the calendar icon to refine the date range.
* Click **Reset Filters**to refine the filter of the chart. The configuration page opens so that you can choose servers and a date range.
* Click the filter icon to view drill-down information of your server and date range selections.
* Hover your mouse over a data point to view the date, server, and the total size (by bytes) of file transfers.

**Important:** These features are only available if you have a Workspace Administrator or Workspace Personal permission.

The following features are available from the **Actions Menu** in the Size of Files over Time widget:

* **Remove from Workspace** - Removes the widget from your workspace.
* **Cut Widget** - Removes the widget from your current workspace tab so you can paste the widget into a different tab.
* **Copy Widget** - Copies the widget from your current workspace tab so you can paste the widget into a different tab.
* **Print as PDF** - Prints the widget in a PDF format.
* **Export to** - Exports the widget to the following file formats: PDF, XLS, CSV, or XML to save the information or email it to another user.
* **Refresh** - Refreshes the widget to receive the most recent data.
* **Listen for Widget Events** - Disables linking between widgets.
* **Resize to Fit Content** - Resizes the widget to fit your content and not to have widgets overlap.
* **Send to Back** - Sends the widget behind another widget in the current workspace.
* **Properties** - Launches the property options to customize the title and report defaults of the widget.

You cannot save an individual widget in the workspace, but you can complete the following actions from the workspace:

* Click the **Save** icon to save your personal workspace. You cannot save a group workspace that you have permission to view. Only the administrator that created the group workspace can save it.
* Click the **Print** icon to print the entire workspace.

# Volume of Files over Time widget

The Volume of Files over Time widget provides a snapshot view of the volume of file transfers for each monitored server you have permission to view over time.

The Volume of Files over Time widget provides file transfer information for the servers that you have permission to view over a customizable time range. Each data point on the chart contains the total volume of transfer activity for the selected server on the specific date. A transfer is defined as follows:

* Sterling Connect:Direct® (**CD**) - Every send and receive is recorded as a separate file transfer.
* QuickFile (**QF**) - Every processed package is recorded as a single file transfer.
* Sterling Connect:Enterprise® (**CE**) - Except for local add and extract operations, every step end event that is recorded with a file size of 0 or more is recorded as a single file transfer.
* Sterling Connect:Express (**CX**) - Every step end event that is recorded with a file size of 0 or more is recorded as a single file transfer.
* **FTP** - Every GET or PUT is recorded as a single file transfer.
* Sterling B2B Integrator and Sterling File Gateway (**B2Bi/SFG**) - Every completed protocol-related event in Sterling B2B Integrator is recorded as a file transfer. Additionally, every Sterling File Gateway Arrived File status code is recorded as a successful (FG\_0411 - Arrived File Routed) or a failed (FG\_0455 - Arrived File Failed) file transfer.
* IBM® MQ Managed File Transfer (**MQ MFT**) - Every step end event that is recorded with a file size of 0 or more is recorded as a single file transfer.

**Important:** If there is a line break in your chart of the Volume of Files over Time widget, there is a null value present in the data table. A null value in the data table does not receive a data point in the widget chart. You can change the chart type to represent null values. To change the chart type, click the chart in your widget, and click the **Change Display Type** icon in the widget toolbar.

To add the widget to your personal workspace, drag the widget from **Public Folders** > **IBM Control Center Widgets** > **Volume of Files over Time** of the content pane onto your workspace. After the widget is in the workspace, you are prompted with a configuration window where you select the servers to view and a date range for file transfers. After the servers and date range are chosen, a summary by day chart opens in the workspace. This chart shows the volume of file transfers for the chosen servers on the days you selected.

**Attention:** As a workspace default, the Size of Files over Time widget and the Volume of Files over Time widget are linked together. If you refresh or change the filter of either widget, then the other widget automatically refreshes or updates with the new filter.

You can complete the following actions from the Volume of Files over Time widget:

* Select a single server, multiple servers, or all servers. To select multiple servers hold Ctrl and click.
* Use the calendar icon to refine the date range.
* Click **Reset Filters**to refine the filter of the chart. The configuration page opens so that you can choose servers and a date range.
* Click the filter icon to view drill-down information of your servers and date range selections.
* Hover your mouse over a data point to view the date, server, and the total volume (by bytes) of file transfers.

**Important:** These features are only available if you have a Workspace Administrator or Workspace Personal permission.

The following features are available from the **Actions Menu** in the Volume of Files over Time widget:

* **Remove from Workspace** - Removes the widget from your workspace.
* **Cut Widget** - Removes the widget from your current workspace tab so you can paste the widget into a different tab.
* **Copy Widget** - Copies the widget from your current workspace tab so you can paste the widget into a different tab.
* **Print as PDF** - Prints the widget in a PDF format.
* **Export to** - Exports the widget to the following file formats: PDF, XLS, CSV, or XML to save the information or email it to another user.
* **Refresh** - Refreshes the widget to receive the most recent data.
* **Listen for Widget Events...** - Disables linking between widgets.
* **Resize to Fit Content** - Resizes the widget to fit your content and not to have widgets overlap.
* **Send to Back** - Sends the widget behind another widget in the current workspace.
* **Properties** - Launches the property options to customize the title and report defaults of the widget.

You cannot save an individual widget in the workspace, but you can complete the following actions from the workspace:

* Click the **Save** icon to save your personal workspace. You cannot save a group workspace that you have permission to view. Only the administrator that created the group workspace can save it.
* Click the **Print** icon to print the entire workspace.

Active Alerts by Category widget

The Active Alerts by Category widget displays a count of active alerts in different categories for all servers or by a specific server type. The widget helps you to visually analyze active alerts by using categorization.

Alerts can be categorized by assigning a category to the message ID and the message text that are associated with the alert. All the messages that are generated by monitored servers are loaded into the system with default categories. These default categories can be changed and new categories can be created. To help you analyze active alerts with the widget, you can set category thresholds. With thresholds, you can get a visual indicator of the number of alerts in each category that are within the threshold and the number that exceed the threshold. Thresholds that you set apply only to your personal workspace in the IBM® Control Center web console.

To add the Active Alerts by Category widget to your workspace, drag the widget from **Public Folders** > **IBM Control Center Widgets** of the content panel. By default, the Active Alerts by Category widget shows a bar chart of all active alerts for all server types that you have permission to view. You can filter the data to see the alerts for a particular server type, for example, Sterling Connect:Direct® servers. You can view alerts for the following server types in the Active Alerts by Category widget: Sterling Connect:Direct, Sterling Connect:Express, Sterling Secure Proxy, Sterling File Gateway, Sterling B2B Integrator, MQ MFT, Sterling Connect:Enterprise® , IBM QuickFile, and FTP servers. In addition, alerts by category are available for the IBM Control Center engine. You can also filter the alerts by one or more of the following categories:

* Configuration - Changes to configurations or other files on the servers or IBM Control Center
* Critical Activity - Activity that you define as being critical to your business operations.
* Crypto - Activity dealing with cryptography, encryption, and certificates
* Environment - Activity dealing with the status of the environment, such as up or down status of servers
* Security - Access and authentication failures
* Miscellaneous - Alerts that do not belong in one of the other categories

**Important:** In a high availability environment, you cannot set a threshold when you are logged into a web console where the local EP is down. You must log into a web console where the local EP is active.

You have the option of setting a threshold for each of these categories. If you do not set a threshold for a category, a total number of alerts is shown for the category. If you set a threshold for a category, the bar chart shows the number of alerts that are within the threshold and the number of alerts that exceed the threshold.

You can complete the following actions from the Active Alerts by Category widget:

* Access an unfiltered list of all active alerts by clicking the **View All Alerts** link
* Access a filtered list of active alerts for a category by clicking a bar in the chart
* Refresh the widget manually to check the most recent alerts by category status
* Click the **Export** icon to export the widget to the following file formats: PDF, XLS, CSV, or XML to save the information or email it to another user.

**Important:** The features from the **Actions Menu** are only available if you have a Workspace Administrator or Workspace Personal permission.

The following features are available from the **Actions Menu** in the Active Alerts by Category widget:

* **Remove from Workspace** - Removes the widget from your workspace.
* **Cut Widget** - Removes the widget from your current workspace tab so you can paste the widget into a different tab.
* **Copy Widget** - Copies the widget from your current workspace tab so you can paste the widget into a different tab.
* **Print as PDF** - Prints the widget in a PDF format.
* **Export to** - Exports the widget to the following file formats: PDF, XLS, CSV, or XML to save the information or email it to another user.
* **Refresh** - Refreshes the widget to receive the most recent data.
* **Listen for Widget Events...** - Disables linking between widgets.
* **Resize to Fit Content** - Resizes the widget to fit your content and not to have widgets overlap.
* **Send to Back** - Sends the widget behind another widget in the current workspace.
* **Properties** - Launches the property options to customize the title and report defaults of the widget.

You cannot save an individual widget in the workspace, but you can complete the following actions from the workspace:

* Click the **Save** icon to save your personal workspace. You cannot save a group workspace that you have permission to view. Only the administrator that created the group workspace can save it.
* Click the **Print** icon to print the entire workspace.

Workspace features

Features in the personal and group workspaces help you navigate and customize your workspace.

The features available in a workspace are based on your permission of either Group, Personal, or Administrator. Workspaces that are provided with IBM® Control Center contain the following features:

* A **Content** tab that contains your workspace and widgets.
* A **Toolbox** tab that contains other widgets to help plan and analyze your data.
* In a group workspace, a **File Activities** tab with the Size of Files over Time widget and Volume of Files over Time widget, and a **GRC** tab with the Active Alerts by Category widget.
* As a default in the personal workspace, a **Tab 1** with instructions on how to use the workspace, and a **File Activities** tab with the Size of Files over Time widget and Volume of Files over Time widget. When you click **Continue to workspace** in **Tab 1**, you can begin to customize your workspace.
* There are layout and style options for an administrator or user with a Personal permission to help customize their workspace.
* You can drag a widget onto your workspace.
* You can disable linking between widgets so when you update or change a filter on one widget, the other does not update.

# Configuring Sterling B2B Integrator

To use IBM® Control Center with Sterling B2B Integrator servers, including IBM® Sterling File Gateway, set up an IBM Control Center service in Sterling B2B Integrator.

For IBM Control Center to monitor all the steps of Sterling B2B Integrator business processes, set the persistence level on Sterling B2B Integrator to PERSISTENCE\_FULL for the business processes.

IBM Control Center issues Ops commands to Sterling B2B Integrator to get adapter status. To avoid server down alerts, set the Ops command timeout on Sterling B2B Integrator to more than 2 minutes.

Enable Sterling B2B Integrator for Monitoring by Sterling Control Center

You can monitor Sterling B2B Integrator with the Sterling Control Center.

An instance of the Sterling Control Center service is enabled by default when you install Sterling B2B Integrator. You must configure Web services to use this service.

**Note:** If you are running Sterling B2B Integrator in a vertical cluster environment, you can configure only one Web service. However, if you are running Sterling B2B Integrator in a horizontal cluster environment, you can configure one Web service for each available IP address.

**Note:** If you are using a cluster, a new SOA HTTP server adapter is required for each node beyond node 1. Copy the SOA HTTP server adapter assigned to node 1 and update the perimeter server name to match the node number.

To enable monitoring of Sterling B2B Integrator by Sterling Control Center:

1. From the **Administration** menu, select **Deployment** > **Web Services** > **Manager**.
2. In the Web Services Management page, under **Create**, next to **Create a Web Service Configuration**, click **Go!**
3. In the Web Service: Name page that is displayed, enter SCCInteropService as the name and enter a description that will help you identify the version of the Web service.
4. Click **Next**.
5. In the SOAP Transport Binding Settings page that is displayed, click **Next**.
6. In the Request Security Settings page that is displayed, click **Next**.
7. In the Response Security Settings page that is displayed, click **Next**.
8. In the Assign any Business Processes page that is displayed, click **Next**.
9. In the Assign Service Instances page that is displayed, select **Sterling Control Center Service**. Move the service instance to the **Selected** tab by clicking on the right arrow button that is displayed.
10. Click **Next**.
11. In the Assign Consumers page that is displayed, select the users to monitor Sterling B2B Integrator from Sterling Control Center. Move the selected users to the Selected tab by clicking on the right arrow button that is displayed.
12. Click **Next**.
13. In the Reliability Settings page that is displayed, select the required checkbox. (optional)
14. Click **Next**.
15. In the WS-I Basic profile 1.1 Conformance Settings page that is displayed, select the required checkbox. (optional)
16. Click **Next**.
17. In the Attachment Settings that is displayed, select the checkbox next to **Output Attachment**.
18. Click **Next**.
19. In the Confirm page that is displayed, review the settings, and click **Finish**.
20. Remember your Web service base URL, Sterling B2B Integrator user ID, and password. These must be entered into Sterling Control Center during configuration. Additionally, remember the Sterling B2B Integrator port number. You will need to specify it in Sterling Control Center.

Sterling B2B Integrator is now ready for monitoring by Sterling Control Center.

Sterling B2B Integrator considerations

You need to be aware of considerations for Sterling B2B Integrator servers when you are integrating them with IBM® Control Center.

Observe the following considerations when managing Sterling B2B Integrator servers:

* To monitor Sterling B2B Integrator activity, Event Persistence must be enabled on the Sterling B2B Integrator server.
* In Sterling B2B Integrator, set the **Opsserver.commandTimeout**parameter located in centralops.properties file so that it is greater than or equal to the timeout value provided in IBM Control Center. After you adjust this parameter, restart the Sterling B2B Integrator server.

# Monitoring a Sterling B2B Integrator server

You can use IBM® Control Center to monitor various aspects of a Sterling B2B Integrator server.

You can monitor:

* Adaptor status
* Queue depths: Q0 through Q9
* Business process activity
* Sterling File Gateway activity
* File transfers using one or more of the various protocols supported by the Sterling B2B Integrator server
* Data transfer status

When you are defining Sterling B2B Integrator server properties, consider the following when choosing monitoring options:

* To monitor business process activities, set Monitor Business Processes to **Yes**.

After IBM Control Center has connected to the Sterling B2B Integrator server, you can limit the data collected on business processes by IBM Control Center. To limit data, click the BP List button on the Settings tab of the Server Properties window.

On the Business Process Selection dialog, select up to 255 business processes that will not be monitored. In this dialog, you can enter the XPath expression for retrieval of process data for specific business processes.

* To monitor Sterling File Gateway activity, set **Monitor File Gateway** to **Yes**.
* To monitor file transfers directly that are initiated by business processes and Sterling File Gateway, select one or more of the protocols listed on the Settings tab.

If no protocols or business processes are selected for monitoring, IBM Control Center does not monitor the adaptor status for the Sterling B2B Integrator server, regardless of the value set for Adapter Status Monitor Rest Time.

* To monitor queue depths, you can specify which queues to monitor at what limit on the Queue Limits tab.

IBM Control Center watches the specified queues and generates events when the specified limit is exceeded and when the queue depth returns to the limit, as shown in the following example:

CCNS020E Monitored Queue Limit has been exceeded. Server ID: {0} Queue: {1}

Limit: {2} Depth: {3}

CCNS030I Monitored Queue Limit back in compliance. Server ID: {0} Queue: {1}

Limit: {2} Depth: {3}

# Managing servers

# Adding a server

To monitor a server with IBM® Control Center, you begin by adding the server.

## **About this task**

Except for dynamically discovered servers, such as IBM Global High Availability Mailbox, you must add a server before you can monitor it. To add a server to IBM Control Center:

## **Procedure**

1. Select **Manage** > **Add Server**. The **Add Server** wizard displays.
2. Type the server name or alias and an optional description. Click **Next**.
3. Select the server type:
   * Sterling Connect:Direct® with TCP/IP API:
     + Sterling Connect:Direct for HP NonStop
     + Sterling Connect:Direct for UNIX
     + Sterling Connect:Direct for Microsoft Windows
     + Sterling Connect:Direct for z/OS®
   * Sterling Connect:Direct for i5/OS
   * Sterling Connect:Enterprise® for z/OS
   * Sterling Connect:Enterprise for UNIX
   * Sterling B2B Integrator (SI)
   * Sterling Connect:Express for z/OS
   * Sterling Connect:Express for UNIX or Microsoft Windows
   * Sterling Secure Proxy
   * IBM MQ Managed File Transfer
   * IBM QuickFile
   * File Transfer Protocol (FTP) Server – z/OS or WS\_FTP
   * File Transfer Protocol (FTP) Server – xferlog
   * File Transfer Protocol (FTP) Server – IIS
   * File Transfer Protocol (FTP) Server – W3C

**Attention:** You can configure IBM Control Center to monitor a Sterling Connect:Direct File Agent that is associated with Sterling Connect:Direct servers. You do not need to add file agents like you would add a server. You do, however, need to configure IBM Control Center to monitor file agents by specifying the address and port where the file agent nodes send their SNMP traps.

1. Use the information that you collected to complete either the **Connection** page or the **OS Type** and **SNMP Connection** pages of the **Add Server** wizard, depending on the server type.
   * For Sterling Connect:Direct servers, click **Test Connection** to validate the connection information.
   * For FTP servers that use an xferlog or IIS log format, click **Advanced** on the **Connection** page and verify the log file format. After you are finished, click **Update** to continue.
2. Optional: Modify the following information on the **Settings** page:
   * Heartbeat interval (Sterling Connect:Direct for Microsoft Windows, Sterling Connect:Direct for UNIX, Sterling Connect:Express for z/OS, IBM MQ Managed File Transfer, Sterling Secure Proxy, and QuickFile only)
   * Source port numbers (Sterling Connect:Direct with TCP/IP API, FTP Server, QuickFile, and Sterling Connect:Enterprise for UNIX)
   * Monitor rest time
   * Time zone
   * Use the time zone and ignore server-provided UTC offset
3. To specify advanced server settings, click **Advanced** on the **Settings** page and specify values for the following fields:
   * Graphical activity monitor expected maximum processes
   * Metadata rule handling
   * Max completed processes
   * Monitored business processes (Sterling B2B Integrator only)
   * Monitored Sterling File Gateway activity (Sterling B2B Integrator only)
   * Connection timeout
   * Tracing

**Attention:** Do not select **Tracing Enabled** unless instructed by IBM customer support personnel. Tracing significantly impacts performance.

* + Configuration changes (Sterling Connect:Direct with TCP/IP API servers)
  + Minimum number of versions (Sterling Connect:Direct with TCP/IP API servers)
  + Minimum age of versions (Sterling Connect:Direct with TCP/IP API servers)

Then, click **Update** to return to the Settings wizard window

1. Optional: Add the server to a server group by selecting a group name in **Server Groups** and clicking the arrow to move it to **Selected Groups**.
2. Optional: Specify server metadata in any of the 10 **Metadata** fields, then, click **Next**. The metadata fields are unrestricted and can be defined in whatever way makes sense for your operation. You can use the metadata fields in reporting and filtering.
3. Supply contact information for the server:
   * Name
   * Phone
   * Email
   * Comments
4. When you complete the **Add Server** wizard, click **Finish**. The server is added to IBM Control Center. An icon for the server appears in the node tree view of IBM Control Center.

## **Results**

* If the server icon is overlaid with a question mark (?), check for one of the following errors:
  + The server is not available and IBM Control Center does not allow it to be managed.
  + You made a data entry error in the **Add Server** wizard, such as typing an incorrect IP address.
* If the server icon is overlaid with a universal no symbol, check your login information.
* If the server name is printed in red or the server down icon is displayed before the server name, the server is down. Review the CCEngine log to investigate the problem. Use **Server Properties** to correct any errors.

# Viewing or changing server properties

After you define servers, you can view and change server properties.

## **About this task**

With the exception of dynamically discovered servers, such as IBM® Global High Availability Mailbox, you can both view and change server properties.

**Attention:** The server properties of dynamically discovered servers are view-only, so you cannot update them. Dynamically discovered servers do not appear in the **Servers** tab, but they do appear in the **Groups** tab. To view the server properties of a dynamically discovered server, from the Groups tab, double-click the server. Then, the **Server Properties** window displays.

To view or change server properties:

## **Procedure**

1. In the IBM Control Center console node tree, double-click the server that you want to view or change. The **Server Properties** window displays.
2. Click a tab to view server properties under that heading.
3. Change the information as required and click **Update**. The server information is updated.

**Attention:**

* + When you change server information, the server icon can indicate that the server cannot be contacted until IBM Control Center contacts the server again. For IBM QuickFile, IBM MQ Managed File Transfer, and Sterling Secure Proxy servers, **Test Connection** checks if the IBM Control Center event processor can establish a connection to the message queue. Until IBM Control Center receives a message on the message queue from the monitored server, the server icon indicates that it cannot be contacted. Also, if the same user ID and password are used to log on to multiple servers, you can change the passwords for all servers at one time.
  + Property information for dynamically discovered servers, such as IBM Global High Availability Mailbox, is read-only and is not available for modifications.

# Removing a server from IBM Control Center

You cannot remove a server that is referenced by any other IBM® Control Center object including server groups, rules, SLCs, and roles.

## **About this task**

To remove a server from IBM Control Center:

## **Procedure**

1. In the server list, right-click the server you want to remove and select **Remove Server**.
2. Click **OK**to remove the server. The server is removed.

The server is removed from any open monitor windows unless it is the only item displayed in the monitor. In that case, the monitor window closes.

# Administering IBM Control Center

IBM® Control Center system administration tasks include starting and stopping the application, managing passwords and system settings, and managing servers.

# Starting and stopping IBM Control Center

Read these topics to understand tasks related to starting and stopping IBM® Control Center.

# Starting the IBM Control Center engine

The IBM® Control Center engine must be running for users and administrators to have access to the console and manage servers. On Microsoft Windows operating systems, the engine is set at installation to start automatically. This setting can be changed so the engine starts manually. The engine can also be set to start automatically on UNIX operating systems.

**Warning:** On the UNIX, Linux, or AIX® operating system, if you want to start IBM Control Center engine with a PuTTY session, do not enable X11 forwarding for the SSH connection. Otherwise, when the PuTTY session is closed, the engine port stops and disappears.

# Starting the engine manually on the UNIX operating system

You can start IBM® Control Center manually on the UNIX operating system by using **runEngine.sh**.

## **About this task**

**Warning:** On the UNIX, Linux, or AIX® operating system, if you want to start IBM Control Center engine with a PuTTY session, do not enable X11 forwarding for the SSH connection. Otherwise, when the PuTTY session is closed, the engine port stops and disappears.

Use the following procedure to start the engine automatically on UNIX.

## **Procedure**

1. Log in as root, or as the user who installed the engine.
2. Change the current working directory on the computer where the engine is installed to installation directory/bin.
3. Type sh runEngine.sh.

# Starting the engine automatically on the UNIX operating system

You can set the IBM® Control Center engine to start automatically whenever the engine's computer boots up, or to start manually.

## **About this task**

**Warning:** On the UNIX, Linux, or AIX® operating system, if you want to start IBM Control Center engine with a PuTTY session, do not enable X11 forwarding for the SSH connection. Otherwise, when the PuTTY session is closed, the engine port stops and disappears.

Use the following procedure to start the engine automatically on UNIX.

## **Procedure**

Insert a command line into a startup file.

**Note:** Because UNIX configurations vary, consult your UNIX administrator for the exact procedure and command syntax.

# Starting the engine manually in Microsoft Windows

You can start the IBM® Control Center engine manually in Microsoft Windows using startup settings.

## **About this task**

To start IBM Control Center, do one of the following:

## **Procedure**

* To start IBM Control Center as a Microsoft Windows service, click **Start Control Panel** > **Administrative Tools** > **Services** to display the **Services** window, then right-click **IBM Control CenterV6.0 Engine**, and click **Start**.
* From a command window (click **Start** > **All Programs** > **Accessories** > **Command Prompt**), change to the root directory, and type installation directory \IBM\ControlCenter\bin\ runEngine$.exe.
* In Microsoft Windows Explorer, double-click **runEngine$.exe** in the installation directory\IBM\ControlCenter\bin directory.
* In Microsoft Windows Explorer, double-click **runEngine.bat** in the installation directoryIBM\ControlCenter\bin directory.

# Manually starting the engine remotely in Microsoft Windows

You can start the IBM® Control Center engine service manually from a remote computer using the Microsoft Windows command line interface.

## **Procedure**

From a command line interface, type the following: sc “EngineHost start runEngine$” where EngineHost is the DNS name of the computer where the engine is running.

**Attention:** You must have administrative permissions for the IBM Control Center V6.0 engine service to perform this function.

# Changing the engine startup setting on Microsoft Windows

At installation, the engine is set to start automatically on Microsoft Windows. You can change the startup setting to start manually or automatically on Microsoft Windows whenever the engine's computer boots up.

## **Procedure**

1. Click **Start**> **Control Panel** > **Administrative Tools** > **Services**.

The **Services** window is displayed.

1. Right-click **IBM® Control Center V6.0 Engine** and select **Properties**.
2. Choose **Automatic** or **Manual** from the **Startup Type** list box.

# Cold starting IBM Control Center

It is possible to cold start your IBM® Control Center engine in order to avoid issues

## **About this task**

When the engine is restarted, it collects all statistical records from the monitored servers, including statistical records generated while IBM Control Center was inactive. If the engine was inactive for several hours, unnecessary statistics could fill up the IBM Control Center database and unimportant SLC events could be generated. Cold starting the IBM Control Center engine avoids this issue.

## **Procedure**

* On UNIX:
  1. Change the current working directory to the installation directory/bin directory.
  2. Type sh runEngineCold.sh.
* On Microsoft Windows:
  1. Open the IBM Control Center installation directory\bin folder.
  2. Double-click the file **runEngineCold.bat**.

# Stopping the IBM Control Center engine

When you are working from a Console or from a command line, you can stop the engine and disconnect all Consoles.

## **About this task**

IBM® Control Center checks to make sure that you have permission to issue a shutdown request before initiating shutdown. The following procedure gives instructions for stopping the engine and disconnecting Consoles:

## **Procedure**

* To stop the engine and disconnect all Consoles from the Console, click **IBM Control Center** > **Stop Sterling Control Center** and click **OK**.
* To stop only the Console, click **IBM Control Center**> **Exit Console**.
* To stop only the engine on a Microsoft Windows computer, click **Start**> **Control Panel**> **Administrative Tools** > **Services**, then right-click the **IBM Control Center V6.0 Engine** program, and click **Stop**.

**Attention:** You must manually stop WebSphere and Cognos processes. But before you stop the processes, read Cognos Business Intelligence server and WebSphere Application Server considerations in [Release Notes](http://www-01.ibm.com/support/docview.wss?uid=swg27048212) to understand all ramifications.

* To stop the engine and disconnect all Consoles from a command line:

**Important:** IBM Control Center checks to make sure that you have permission to issue a shutdown request before initiating shutdown.

* 1. Run either installation directory\bin\stopEngine.bat (Microsoft Windows) or installation directory/bin/stopEngine.sh (UNIX).
  2. Supply your IBM Control Center user ID and password when prompted.

# Stopping the engine without a user ID or password

A user who has permission to stop the IBM® Control Center engine can issue a command to stop the engine without providing a user ID and password. With this feature, you can script unattended engine stops and restarts to improve automation.

## **About this task**

To stop the engine from the command line without providing a user ID and password:

## **Procedure**

1. Switch to installation directory/bin.
2. Run one of the following commands:

|  |  |
| --- | --- |
| **Microsoft Windows** | **UNIX** |
| **stopEngine.bat -np** | **stopEngine.sh -np**. |

# Logging into IBM Control Center

You can log into IBM® Control Center from a console or a web console.

# Logging in from the computer where the engine is installed

You can start the full-functioned IBM Sterling Control Center Console and log in to IBM® Control Center from the computer where the IBM Control Center engine is installed.

## **Procedure**

1. Ensure that the IBM Control Center engine is running. Contact your system administrator if unsure.
2. Take one of the following actions:
   * Double-click the **Console-IBM Control Center V6.0** icon from the desktop.
   * In Microsoft Windows, click **Start** > **All Programs** > **IBM Control Center V6.0** > **Console - IBM Control Center V6.0**.
3. In the Login screen that displays, enter the following information:
   * Host name of the computer where the IBM Control Center engine is installed. This entry can be either a DNS host name or an IP address.
   * Port number that the IBM Control Center engine is configured to listen on. The default non-secure port is 58080.
   * Select **HTTPS** if you are signing onto the engine with a secure connection. If IBM Control Center was not configured for an HTTPS console-engine connection, this field cannot be selected. (The default port for the HTTPS connection is 58081.)
   * Your IBM Control Center user name and password. The password is case-sensitive. The default user ID and password are admin.

**Important:** After you log in using the default user ID and password, change the password.

1. The IBM Control Center Console is displayed. The next time you log in, you only need to enter your password. The rest of the information on the Login screen is populated from the information you previously entered.

# Setting console preferences

Console preferences determine how time is displayed and how often monitors are automatically refreshed. These settings are associated with your user ID and are employed whenever you log in to IBM® Control Center. You can also enable screen readers for accessibility purposes.

## **About this task**

The Time Preferences settings determine how time is displayed on the console. Time preferences are set for all IBM Control Center functions or information you select to view.

The Auto Refresh setting determines how often open monitors are automatically refreshed. (To access this setting, go to **IBM Control Center** > **System Settings**> **Console** > **Default Console Auto Refresh System Setting in seconds**.)

The Enable Compatibility with Screen Reader setting enables screen readers to more effectively read information that is displayed in console columns. When this feature is enabled, the horizontal scroll bar is enabled for all columns. In addition, the first four or five columns are not locked as in the standard grid display.

The Console Timeout settings determine the number of minutes of inactivity before users are logged out of their console session. When the inactivity timeout is set, you can set the point at which a warning message opens prior to the user session log out.

## **Procedure**

1. Click **IBM Control Center** > **Console Preferences**.
2. Click the **Time Preferences** tab and select a time display:

| **Setting** | **Description** |
| --- | --- |
| UTC | Displays the time in Coordinated Universal Time. (UTC is the accepted international acronym for Universal Time, Coordinated, which uses the same letters as the French acronym for Temps Universel Coordonné, TUC.)  **Important:** Since UTC never changes for daylight saving time (DST), do not use UTC for your rule or SLC schedules. Otherwise, you must manually adjust your schedules to compensate for DST. |
| Local Time | Displays the time from the computer where the IBM Control Center Console is installed. If you use local time display, verify that the Console is displaying the correct time zone. If the time zone is incorrect, you can take one of the following actions:   * + Manually select the correct time zone from the **Specific Time Zone** list box   + Adjust the time zone value of your system, as that is where the Console obtains this information |
| Engine Time | Displays the time on the computer where the IBM Control Center engine is installed. |
| Specific Time Zones | Displays the time that is selected from the list box of standard time zones. |

1. Click **Update**. The new time preferences take effect immediately. For the web console, the setting does not take effect, until the user associated with the change logs out of the full-functioned console.
2. Click **Auto Refresh Settings** and take one of the following actions:
   * To use the default system setting for all users, click **Use System Setting**. The current setting is displayed in seconds.
   * To set your auto refresh setting here (and override System Settings), select **Change Auto Refresh To** and enter a new auto refresh setting in seconds.
3. Click **Update**. The new auto refresh setting takes effect immediately. For the web console, the setting does not take effect until the user associated with the change logs out of the full-functioned console. Your web console session times out unless the **Auto Refresh** option is enabled.

**Note:** The auto refresh feature can be disabled for the web console for all users that belong to a particular role. To disable auto refresh:

* + Click **IBM Control Center** > **Roles**.
  + Double-click the role and select the **Permissions** tab.
  + Select the **None (Manual)** setting. If you select this setting, the web console sessions times out unless users click **Refresh**.

1. To enable a screen reader, click the **Web UI Accessibility Settings** tab and select **Enable Compatibility with Screen Reader**. The new screen reader setting does not take effect until the user associated with the change logs out of the full-functioned console.
2. Click the **Console Timeout** tab and take one of the following actions:
   * To use the default system setting, click **Use System Setting**.
   * To set your own console timeout (and override System Settings), click **Change Console Timeout to** and type a value for the following settings:
     + Time out after n minute(s) of inactivity
     + Display warning message n minute(s) before timing out.

**Attention:** The default setting in the IBM Control Center console is 0, and there is no session timeout. The default setting in the IBM Control Center web console will timeout in 30 minutes when the default value is set to 0.

1. Click **Update**.

# Logging in through Java Webstart

You can start the console and log in to IBM® Control Center from any computer by using the IBM Control Center Launch Page. Starting the Console through Java Web Start from the IBM Control Center Page gives you full Console functionality.

## **Procedure**

1. In the Web address field of your Web browser, enter the host and port number for the IBM Control Center Launch Page. Contact your system administrator for these values.
2. From the Launch Page, click IBM Control Center Console (Small, Medium, Large, or Very Large configuration).
3. In the Login screen that displays, enter the following information:
   * Host name of the computer where the IBM Control Center engine is installed. This entry can be either a DNS host name or an IP address.
   * Port number that the IBM Control Center engine is configured to listen on. The default non-secure port is 58080.
   * Select **HTTPS** if you are signing onto the engine with a secure connection. If IBM Control Center has not been configured for an HTTPS console-engine connection, this field cannot be selected. (The default port for the HTTPS connection is 58081.)
   * Your IBM Control Center user name and password. The password is case-sensitive. The default user ID and password are admin.

**Note:** After you log in using the default user ID and password, change the password.

**Note:** If you experience access-time problems by using Java WebStart in Microsoft Windows, perform the following steps:

* + Click **Start** > **Run**.
  + Type javaws -viewer in the **Open** field and click **OK**.
  + Select the **Direct Connection** option from the Java Control Panel Network Settings.

**Note:** Whenever you upgrade IBM Control Center or install a patch, it is recommended that you empty your Webstart and browser cache.

The IBM Control Center console is displayed. The next time you log in, you only have to enter your password. The rest of the information on the Login screen is populated from the information that you previously entered.

# Logging in through the web console

You can start the web console and log in to IBM® Control Center by using the IBM Control Center Launch Page.

## **About this task**

The IBM Control Center Web Console gives access to many but not all of the console features without installing console-related files on your computer.

## **Procedure**

1. In the web address field of your web browser, enter the host and port number for the IBM Control Center Launch Page. Contact your system administrator for these values. (The default secure port is 58083 while the default non-secure port is 58082.)
2. From the Launch Page, click IBM Control Center Web Console.
3. On the login page that displays, type your user ID and password and click **Log in**. The IBM Control Center web console is displayed.

**Tip:** If a user attempts to log in multiple times, at the end of the log in process, a warning message displays. The message identifies the user ID and number of other logins by that user.

# Setting the auto refresh interval for the IBM Control Center web console

You can set a regular refresh time interval for the web console.

## **About this task**

To perform this task, you need to have the Manage permission for System Settings and Console Auto Refresh. To set the refresh time interval for the IBM® Control Center web console:

## **Procedure**

1. In the IBM Control Center web console, go to your user ID, and then click **System configuration** > **Properties** > **engine.properties**.
2. Edit properties by adding the following parameter: <WEB\_CONSOLE\_REFRESH\_INTERVAL>Auto\_refresh\_intervals\_in\_seconds</WEB\_CONSOLE\_REFRESH\_INTERVAL>. For example, if you want the web console to refresh every 60 seconds, add <WEB\_CONSOLE\_REFRESH\_INTERVAL>60</WEB\_CONSOLE\_REFRESH\_INTERVAL>.

**Attention:** You can specify an integer that is no less than 15. If a value less than 15 is specified, the web console session is automatically refreshed every 15 seconds. If no value is specified, the session is refreshed every 30 seconds.

1. Click **Save**.

# Setting timeout value for the IBM Control Center web console

You can set the amount of time for an IBM Control Center web console session to be unused before the session is not valid.

## **About this task**

To complete this task, you need to have the Manage permission for System Settings and Console Timeout. To set the timeout value for the web console:

## **Procedure**

1. Locate the server.xml file in the Control\_Center\_intall\_directory/web/wlp/usr/servers/defaultServer/ directory.
2. Add invalidationTimeout="value\_in\_seconds" to the following field of the server.xml file : <httpSession cookieSecure="false" cookieHttpOnly="true"/>. For example, if you want the web console session to be timed out after 10 minutes, add invalidationTimeout="600" to the field: <httpSession cookieSecure="false" cookieHttpOnly="true" **invalidationTimeout="600"**/>.

**Attention:** If no value is specified, the user is logged off from the web console session in 30 minutes.

1. Restart the WebSphere® Application Server or the IBM® Control Center event processor.

# Reconnecting to the engine after a service interruption

If the IBM® Control Center console is disconnected from the IBM Control Center engine, the system automatically attempts to reconnect.

## **Procedure**

A Connection Lost message is displayed in the status bar and includes the time when the connection was lost. After the window opens, choose to exit the application. The console attempts to reconnect until either a connection is established or you click **Exit Console**. When the connection is reestablished, the console checks to make sure that your login credentials are still valid. If your login credentials are not valid, a second message window opens, which prompts you to log in again or exit the console.

Sample implementation scenario

This implementation scenario provides a glimpse into the planning process for a fictitious, mid-sized bank in the United States. The scenario helps illustrate how the IBM® Sterling Control Center Monitor building blocks are used to provide the foundation for IBM Sterling Control Center Monitor to meet the business objectives of the bank.



The bank plans to use IBM Sterling Control Center Monitor to gain greater visibility into the condition of their Sterling Connect:Direct® and Sterling B2B Integrator servers. They want to know their data flow status and information about their file transfers.

As part of their planning process, the bank identified objectives such as the following for IBM Sterling Control Center Monitor:

1. Limit user access and permissions to IBM Sterling Control Center Monitor functions and data for the bank file transfer personnel.
2. When servers or adapters are down, generate alerts and send email notifications to personnel.
3. When processes are not successfully completed, generate alerts.
4. Generate alerts if processes do not run at specified times to meet service level agreements with customers.

To accomplish these objectives, they analyzed their monitoring goals to design their IBM Sterling Control Center Monitor implementation. This process helped them design their implementation before they started configuring the building blocks that defined the work IBM Sterling Control Center Monitor would perform.

# Servers and server groups

The bank identified the Sterling Connect:Direct® and Sterling B2B Integrator servers that they need to monitor in their environment.

They also collected information about those servers. They used this information when they defined the following servers in IBM® Sterling Control Center Monitor:

| **Type of Server** | **Server Name** |
| --- | --- |
| Sterling Connect:Direct | mauiCD |
| Sterling Connect:Direct | lagunaCD |
| Sterling Connect:Direct | destinCD |
| Sterling Connect:Direct | kauaiCD |
| Sterling Connect:Direct | lajollaCD |
| Sterling Connect:Direct | navarreCD |
| Sterling Connect:Direct | hawaiiCD |
| Sterling Connect:Direct | sunsetCD |
| Sterling Connect:Direct | daytonaCD |
| Sterling B2B Integrator | capeSI |
| Sterling B2B Integrator | marthaSISFG |

They also decided to group the servers. With server groups, user roles can be associated with particular server groups. This method makes email notifications easier when you are notifying users about events on their assigned servers. They defined the following server groups:

| **Server Group** | **Server Name** |
| --- | --- |
| CD1 | mauiCD kauaiCD hawaiiCD |
| CD2 | lagunaCD lajollaCD sunsetCD |
| CD3 | destinCD navarreCD daytonaCD |
| SI | capeSI marthaSISFG |

# Objective 1: Limit user access

The bank identified roles to control access to IBM® Sterling Control Center Monitor.

The roles that the bank identified and developed are shown in the following list:

**IBM Sterling Control Center Monitor Admin**

A super user who is responsible for installing, configuring, and maintaining IBM Sterling Control Center Monitor, including startup and shutdown of the engine and defining subordinate administrator roles.

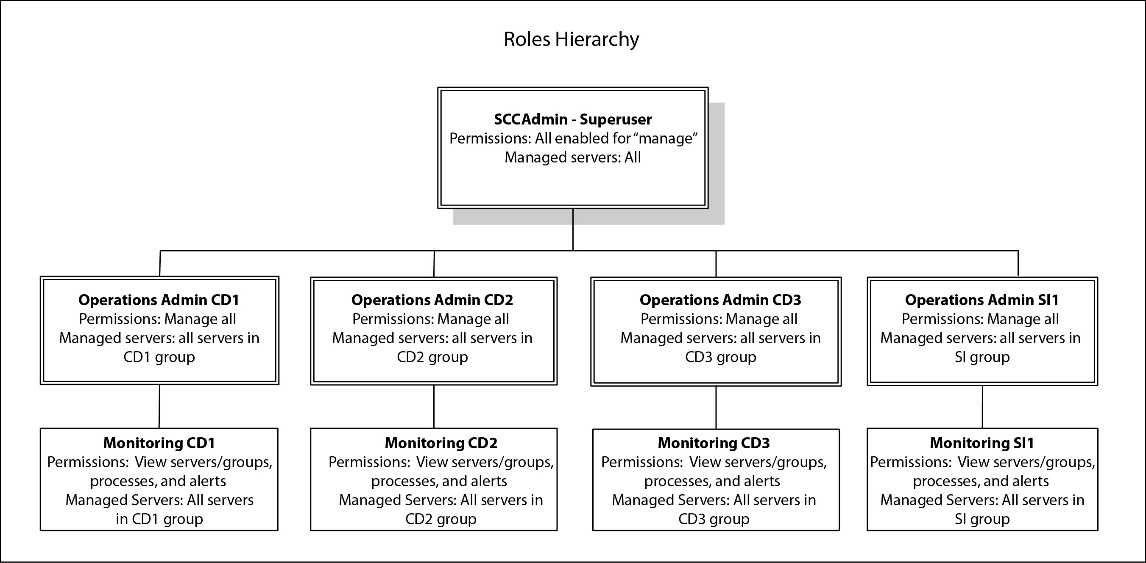
**File Transfer Operations Admin**

A subordinate role that has “manage” access to configure Sterling Connect:Direct® nodes and Sterling B2B Integrator adapters, and can create SLCs, rules, and reports.

**File Transfer Monitoring Staff**

A subordinate role that has “view only” access for monitoring file transfers and cannot edit artifacts or objects. The role can view artifacts or objects. Uses in this role have view only access to objects necessary to their monitoring responsibilities. For example, users in this role do not need to view SLC or rule configuration.

To show the relationships between these roles, the bank developed the following role hierarchy and then defined the roles in IBM Sterling Control Center Monitor:



The SCCAdmin - Superuser role has all permissions that are enabled to "manage" for all servers. The Operations Admin CD1 role has all permissions that are enabled for all servers in the CD1 group. The Monitoring CD1 role has permissions to view servers and groups, processes, and alerts for all servers in the CD1 group. There are similar Operations Admin and Monitoring roles for the CD2 and CD3 groups. The Operations Admin SI1 role has all permissions that are enabled for all servers in the SI group. The Monitoring SI1 role has permissions to view servers and groups, processes, and alerts for all servers in the SI group.

When the IBM Sterling Control Center Monitor admin configured users who are allowed access to the IBM Sterling Control Center Monitor console, an appropriate role was assigned to each user. As a result, when a user logs on to the console, they have access to the servers and functions that are associated with their role.

All of the IBM Sterling Control Center Monitor console users run the console on a Microsoft Windows operating system. The bank does not require IBM Sterling Control Center Monitor to maintain any passwords in its user file and uses the signed on user and the Microsoft Windows domain as the credentials to allow signon to IBM Sterling Control Center Monitor.

# Objective 2: Server down

One of the monitoring objectives that is identified by the bank for IBM® Sterling Control Center Monitor is the notification of personnel when a server down condition occurs.

To accomplish this objective, the bank defined a rule that is triggered when a server is down. When this rule is triggered, an alert is generated in the **Active Alerts Monitor** and an email sent to notify personnel that a server is down.

# Email list

Because the bank wants to send an email to multiple individuals when an alert occurs, they created an email list in IBM® Sterling Control Center Monitor. The list contains the email addresses of all personnel who need to be notified when events occur on the servers IBM Sterling Control Center Monitor is monitoring. This list was selected when the “Server down” action was defined.

**Restriction:** To support email notifications, the bank also had to configure the IBM Sterling Control Center Monitor engine System Setting value for email. This value specifies the location of the SMTP (email) server that IBM Sterling Control Center Monitor uses to send email.

| **Field** | **Value** |
| --- | --- |
| Name | Monitoring staff |
| Description | List of all monitoring staff email addresses |
| To | Ops1@bank.com,Ops2@bank.com, Ops3@bank.com,Ops4@bank.com, Ops5@bank.com,Ops6@bank.com |
| Permissions | SCCAdmin |

# Server down action

When a server is down, the bank wants IBM® Sterling Control Center Monitor to generate an alert and send an email to the “Monitoring staff” email list.

To accomplish this objective, they created the following action. This action was selected when the “Server down” rule was defined.

| **Field** | **Value** |
| --- | --- |
| Name | Server down |
| Description | Action that is taken when a server is down |
| Email | |
| To | Monitoring staff (email list) |
| From | SCCAdmin@bank.com |
| Subject | &nodeName; (node name variable) server is down |
| Message | &nodeName; server is currently down. View this alert in the Active Alerts Monitor and handle as needed. |
| Alert Severity | 1 - High |
| Permissions (Roles that can edit this action) | SCCAdmin |

# Server down rule

The bank created a “Server down” rule for a monitored server.

The rule provides the following instructions for IBM® Sterling Control Center Monitor:

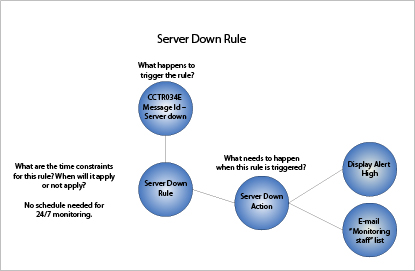
When a server down message ID is detected for a monitored server, a high-severity alert is generated in the **Active Alerts Monitor**. An email notification is sent to the monitoring staff.

When the bank defined the rule, they selected the “Server down” action they defined earlier.

| **Field** | **Value** |
| --- | --- |
| Name | Server down |
| Description | This rule is triggered when a monitored server goes down. |
| Parameters | |
| Key | Message Id |
| Operator | Matches |
| Value | CCTR034E (Server is down - for monitored servers) |
| Action | Server down |

A schedule was not required because the rule needs to be in effect always.

The following graphic shows the building blocks that comprise the “Server down” rule:



When the Message ID indicating that a server is down, CCTR034E, is detected, the "Server down" rule is triggered. Because there are no time constraints for this rule, no schedule is needed. When the rule is triggered, IBM Sterling Control Center Monitor displays an alert and sends an email message to the "Monitoring staff" list.

# Modify the server down rule

Monitoring personnel found that servers were often back up before they handled the alerts. As a result, the rule was modified to add a second condition (with a linked rule). With this change, if the server comes back up within 5 minutes, no action is taken.

If the server does not come back up, the “Server down” action is taken. The bank changed the “Server down” rule to accomplish this objective. After the changes, the following values are set for the fields:

| **Field** | **Value** |
| --- | --- |
| Name | Server down |
| Description | This rule is triggered when a monitored server goes down. |
| Parameters | |
| Key | Message Id |
| Operator | Matches |
| Value | CCTR034E (Server is down - for monitored servers) |
| Action | No operation |
| Linked Rules | |
| Enabled | Yes |
| Parameters | |
| Key | Message Id |
| Operator | Matches |
| Value | CCTR033E (Server is up - for monitored servers) |
| Resolution Action | No operation |
| Non-Resolution Action | Server down |
| Timeout | 5 minutes |

# Objective 3: Process completes in error

Another monitoring objective the bank identified for IBM® Sterling Control Center Monitor is the notification of personnel when a process completes in error on a monitored server.

To accomplish this objective, they defined the rule that is triggered when an error occurs. When this rule is triggered, an alert is generated in the **Active Alerts Monitor**.

# Process error rule

The bank created a “Process error” rule that provides the following instructions for IBM® Sterling Control Center Monitor:

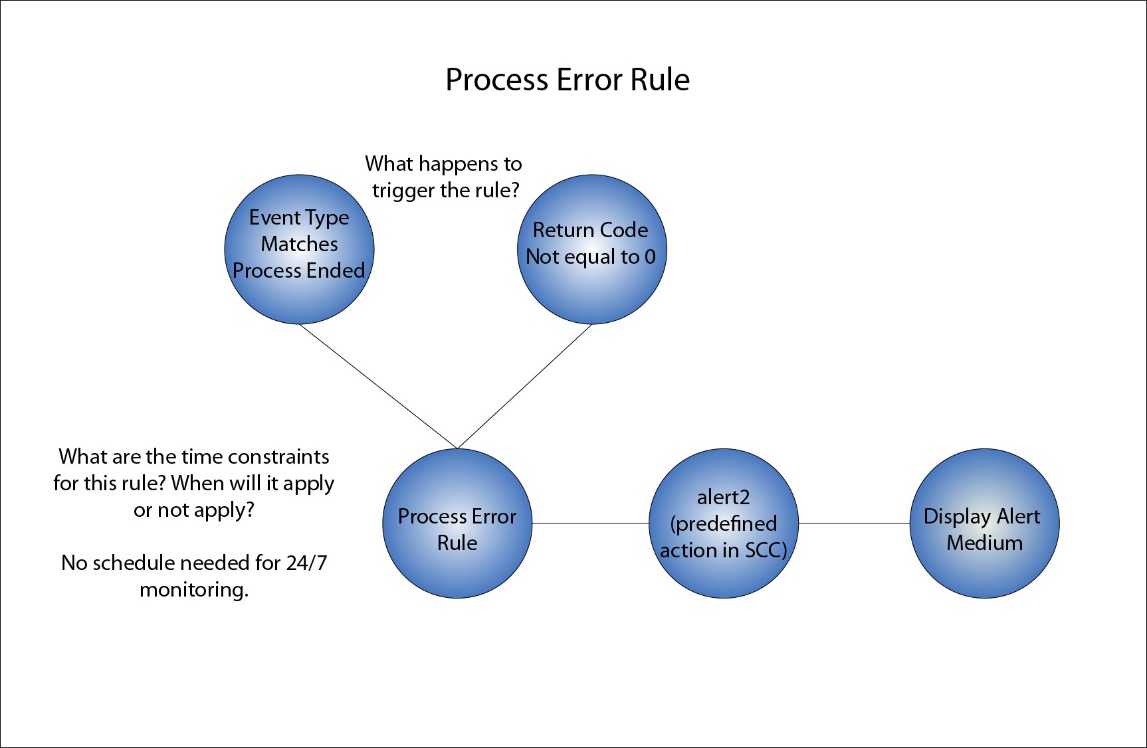
When a process competes with any return code other than 0 on any managed server, a medium-severity alert is generated in the **Active Alerts Monitor**.

They defined the following information for the rule:

| **Field** | **Value** |
| --- | --- |
| Name | Process error |
| Description | This rule is triggered when a process completes in error on any monitored server. |
| Key | Event Type |
| Operator | Matches |
| Value | Process Ended |
| Key | Return Code |
| Operator | Not Equal To |
| Value | 0 |
| Action | alert2 (predefined action that is shipped with IBM Sterling Control Center Monitor) |

A schedule was not required because the rule needs to be monitored always.

The following graphic shows the building blocks that comprise the “Process error” rule:



# Follow-up objective: Specific process completes in error on a specific server

The IBM® Sterling Control Center Monitor administrator for the CD1 server group, needs to know when a specific process (DailyGrind) on a specific server (hawaiiCD) completes in error.

The CD1 administrator wants to generate a high-severity alert and be notified by email when an error occurs. To accomplish this objective, the administrator created the following building blocks:

## **Daily Grind Error action**

When the Daily Grind process encounters an error on the hawaiiCD server, the administrator for the CD1 server group wants IBM Sterling Control Center Monitor to generate an alert and send an email. To accomplish this objective, the administrator created the following action. (This action was later selected when the “Daily Grind” rule was defined.)

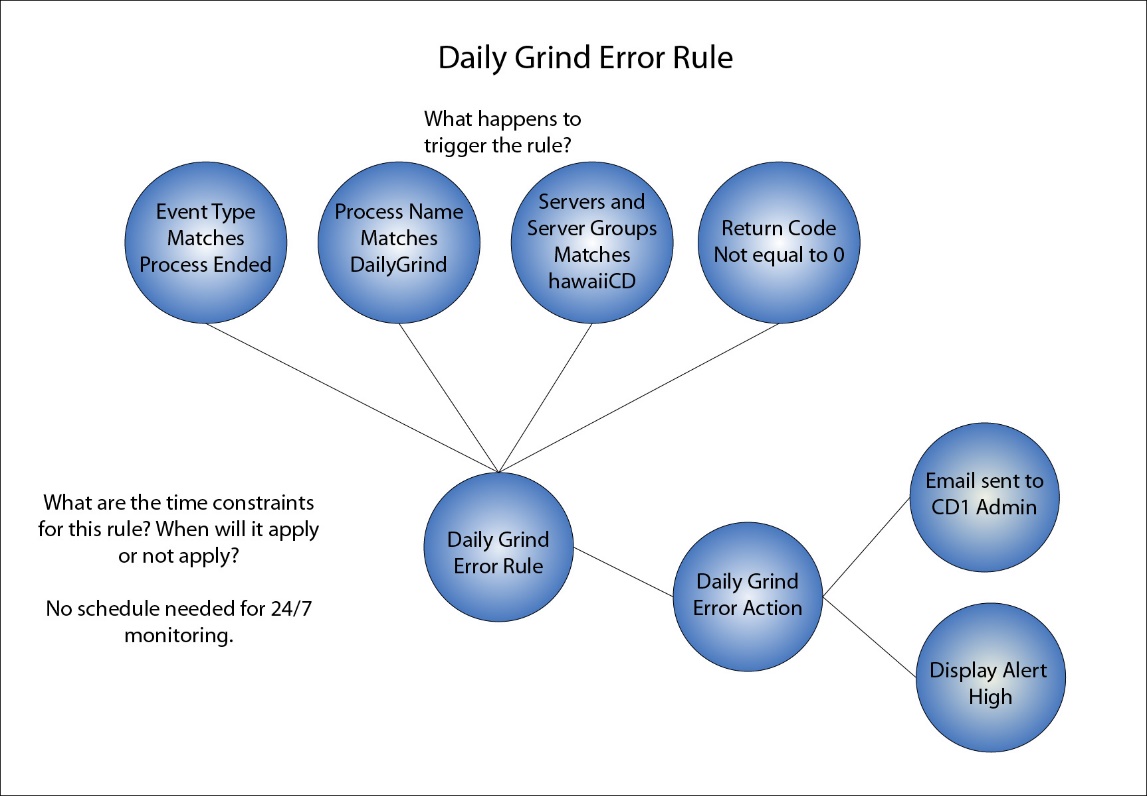
| **Field** | **Value** |
| --- | --- |
| Name | Daily Grind Error |
| Description | Action taken when the DailyGrind process completes in error on hawaiiCD server. |
| Email | |
| To | Ops1@bank.com |
| From | SCCAdmin@bank.com |
| Subject | &processName; error |
| Message | &processName; completed in error on &nodeName; |
| Alert Severity | 1 - High |
| Permissions (Roles that can edit this action) | Operations Admin CD1 |

## **Daily Grind Error rule**

Mike defined the following information for the rule and then placed the Daily Grind Error rule higher in the priority sequence than the Process error rule:

| **Field** | **Value** |
| --- | --- |
| Name | Daily Grind Error |
| Description | This rule is triggered when the DailyGrind process completes in error on any monitored server |
| Parameters | |
| Key | Event Type |
| Operator | Matches |
| Value | Process Ended |
| Key | Process Name |
| Operator | Matches |
| Value | DailyGrind |
| Key | Servers and Server Groups |
| Operator | Matches |
| Value | hawaiiCD |
| Key | Return Code |
| Operator | Not Equal To |
| Value | 0 |
| Action | Daily Grind Error |

The following graphic shows the building blocks that comprise the “Daily Grind Error” rule from the values in the table:



Objective 4: Process did not start at specified time

The bank wants to ensure that the EndOfDay process runs on the CD3 server group at 6:00 p.m. (Central Standard Time), or 18:00, each day. If it does not, they want to be notified.

To accomplish this objective, they first disabled all of the built-in SLC rules. This task eliminates any actions other than the actions they would set up to meet this objective. To specify a period of time in which this process must begin, they created a wildcard SLC. To tie that SLC to an SLC event, they created two rules:

* When the EndOfDay process does not start by 6:00 p.m. (18:00), a rule with an action to generate a high-severity alert and send an email to the administrator of the CD3 server group
* When the EndOfDay process starts late, a rule with an action to clear all alerts associated with the SLC and send an email to notify the CD3 server group administrator that the process started late

To accomplish this objective, they created the following building block:

* End of Day SLC calendar schedule
* End of Day SLC
* End of Day rules

# End of Day SLC calendar schedule

Because the bank wants to monitor the start of the EndOfDay Process, they created an SLC calendar schedule.

The specified the following information in the calendar schedule. (This schedule was later selected when the “End of Day” SLC was defined.)

| **Field** | **Value** |
| --- | --- |
| Name | End of Day |
| Description | Monitor for start failure of EndOfDay process |
| Schedule Type | Calendar Schedule |
| Parameters | |
| Calendar Name | Daily |
| Time Zone | (UTC 5:00) Central Time (US & Canada) |
| Normal Start Range (NSR) | |
| Start Time | 17:55 |
| End Time | 18:00 |
| Permissions (Roles that can edit this action) | Operations Admin CD3 |

# End of Day SLC

To monitor for the start of a specific process on a specific server, the bank created a wildcard SLC.

They specified the following information for the SLC:

| **Field** | **Value** |
| --- | --- |
| Name | End of Day |
| Description | Monitor start failure for EndOfDay process |
| Start Window Tolerance | 1 hour |
| End Window Tolerance | 1 hour |
| Generate notification if event does not occur | Enabled |
| Enabled | Yes |
| Server Groups | CD3 |
| Schedules | End of Day |
| Process Names/Batch IDs | EndOfDay |

# End of Day rules

To monitor whether the EndOfDay process starts by 6:00 p.m. (18:00), the bank disabled all of the built-in SLC rules and created two End of Day rules.

## **End of Day - Not Started rule**

The bank also created an “End of Day - Not Started” rule that provides the following instructions for IBM® Sterling Control Center Monitor:

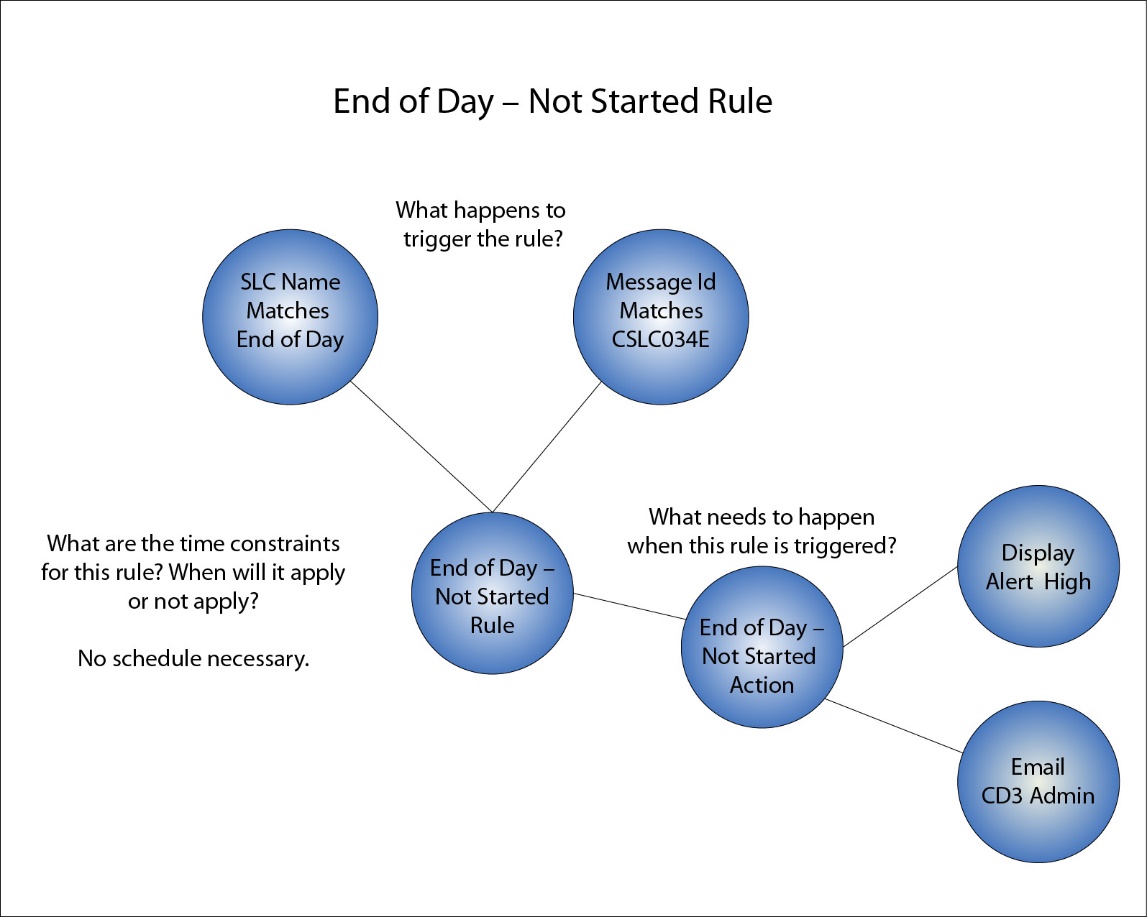
A CSLC034E message means that a Process did not start by NSRe on any of the servers in the CD3 server group. When a CSLC034E message is generated because the EndOfDay process does not start by 18:00:

* A high-severity alert is generated in the Active Alerts Monitor
* An email sent to the administrator responsible for the CD3 server group

They defined the following information for the rule. (They created the action for the rule as they were defining the rule.)

| **Field** | **Value** |
| --- | --- |
| Name | End of Day - Not Started |
| Description | Alerts when the EndOfDay process did not start by 18:00. |
| Parameters | |
| Key | SLC Name |
| Operator | Matches |
| Value | End of Day |
| Key | Message Id |
| Operator | Matches |
| Value | CSLC034E |
| Action | End of Day - Not Started |
| Description | Action that is taken when the EndOfDay process did not start by 18:00 on any server in CD3 server group. |
| Email | |
| To | Ops3@bank.com |
| From | SCCAdmin@bank.com |
| Subject | &processName; not started |
| Message | &processName; did not start on &nodeName; |
| Alert Severity | 1 - High |
| Permissions (Roles that can edit this action) | Operations Admin CD3 |

The following graphic shows the build blocks that comprise the End of Day - Not Started Rule:



## **End of Day - Late Start rule**

They bank also created an “End of Day - Late Start” rule that provides the following instructions for IBM Sterling Control Center Monitor:

A CSLC035E message means that a Process is started after NSRe on any of the servers in the CD3 server group. When a CSLC035E is generated because the EndOfDay process starts late:

* Send an email to the administrator of the CD3 server group
* No alert is generated, and all alerts that are generated for that SLC are deleted.

FCB defined the following information for the rule. (They created the action as they were defining the rule.)

| **Field** | **Value** |
| --- | --- |
| Name | End of Day - Late Start |
| Description | Notifies CD3 server group administrator when EndOfDay process starts late. |
| Parameters | |
| Key | SLC Name |
| Operator | Matches |
| Value | End of Day |
| Key | Message Id |
| Operator | Matches |
| Value | CSLC035E |
| Action | End of Day - Late Start |
| Description | Generates email when the EndOfDay process starts late in CD3 server group. |
| Email | |
| To | Ops3@bank.com |
| From | SCCAdmin@bank.com |
| Subject | &processName; late start |
| Message | &processName; started late on &nodeName; |
| Alert Severity | 0 - In compliance (does not generate an alert and deletes all previously generated alerts for that SLC) |
| Permissions (Roles that can edit this action) | Operations Admin CD3 |

The following graphics show the building blocks that comprise each of these rules:

