Configuring PowerCenter Resilience
Abstract

You can configure PowerCenter components to be resilience to temporary network failures. This article includes information on how to configure resilience properties for PowerCenter and examples of how the resilience configuration impacts PowerCenter during a temporary network loss.

Supported Versions

- PowerCenter 9.x

Table of Contents

Overview ................................................................. 2
PowerCenter Application Service Resilience ...................................................... 3
  Domain Resilience Properties ................................................... 3
  PowerCenter Integration Service Resilience Properties ...................... 3
  PowerCenter Repository Service Resilience Properties ...................... 4
  SAP BW Service Resilience Property ........................................ 4
Command Line Program Resilience .................................................... 5
Database Connection Resilience ...................................................... 5
PowerCenter Client Resilience ....................................................... 6
Examples ..................................................................... 6

Overview

Resilience is the ability of the Informatica domain to tolerate temporary connection failures until either the resilience timeout expires or the failure is fixed.

All clients of PowerCenter components are resilient to service failures. A client of a service can be any PowerCenter Client tool or PowerCenter application service that depends on the service. For example, the PowerCenter Integration Service is a client of the PowerCenter Repository Service. If the PowerCenter Repository Service becomes unavailable, the PowerCenter Integration Service tries to reestablish the connection. If the PowerCenter Repository Service becomes available within the timeout period, the PowerCenter Integration Service is able to connect. If the PowerCenter Repository Service is not available within the timeout period, the request fails.

If you have the high availability or the real-time option, PowerCenter application services may also be resilient to temporary failures of external systems, such as database systems, FTP servers, and message queue sources. For example, if PowerCenter Integration Service connectivity to a database fails during the initial connection to the database, or connectivity fails when the PowerCenter Integration Service reads data from the database, it tries to reconnect for 180 seconds or the duration of the retry period. If it cannot reconnect to the database and you configure the workflow for automatic recovery, the PowerCenter Integration Service recovers the session. Otherwise, the session fails. For this type of resilience to work, the external systems must be highly available.

You can configure the resilience period for PowerCenter application services, command line programs, and database connections. The PowerCenter client resilience period is not configurable.
PowerCenter Application Service Resilience

Informatica uses default values for PowerCenter application service resilience. However, you can configure the resilience period for PowerCenter application services.

You can configure application service resilience at the following levels:

- Domain. You configure application service connection resilience at the domain level in the general properties for the domain. The domain resilience timeout determines how long application services try to connect as clients to other application services or the Service Manager. The domain resilience properties are the default values for all application services that have internal resilience.

- Application service. You can also configure application service connection resilience in the advanced properties for an application service. When you configure connection resilience for an application service, you override the resilience values set at the domain level.

  **Note:** You can configure resilience properties for the following application services: PowerCenter Integration Service, PowerCenter Repository Service, and SAP BW Service.

**Domain Resilience Properties**

You can configure resilience properties for the domain. By default, each PowerCenter application service uses the resilience properties configured for the domain.

In the Administrator tool, click the **Domain** tab. Then, in the Navigator, select a domain and click the **Properties** view in the contents panel.

In the **General Properties** section, edit the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience Timeout (sec)</td>
<td>The amount of time in seconds that a client is allowed to try to connect or reconnect to a service. Valid values are from 0 to 1000000. Default is 30 seconds.</td>
</tr>
<tr>
<td>Limit on Resilience Timeouts (sec)</td>
<td>The amount of time in seconds that a service waits for a client to reconnect to the service. PowerCenter Client tools and the PowerCenter Integration Service are examples of clients. Valid values are from 0 to 1000000. Default is 180 seconds.</td>
</tr>
</tbody>
</table>

**PowerCenter Integration Service Resilience Properties**

You can configure resilience properties for the PowerCenter Integration Service.

In the Administrator tool, select the PowerCenter Integration Service in the Navigator, and then click the **Properties** view. In the **Advanced properties** section, edit the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience Timeout</td>
<td>Number of seconds that the service tries to establish or reestablish a connection to another service. If blank, the value is derived from the domain-level settings. Valid values are between 0 and 2,592,000, inclusive. Default is 180 seconds.</td>
</tr>
<tr>
<td>Limit on Resilience Timeout</td>
<td>Number of seconds that the service holds on to resources for resilience purposes. This property places a restriction on clients</td>
</tr>
</tbody>
</table>
Property Repository Service Resilience Properties

You can configure resilience properties for the PowerCenter Repository Service.

In the Administrator tool, select the PowerCenter Repository Service in the Navigator, and then click the Properties view.

In the Database Properties section, edit the following property:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Connection Timeout</td>
<td>Period of time that the PowerCenter Repository Service tries to establish or reestablish a connection to the database system. Default is 180 seconds.</td>
</tr>
</tbody>
</table>

In the Advanced Properties section, edit the following properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience Timeout</td>
<td>Period of time that the service tries to establish or reestablish a connection to another service. If blank, the service uses the domain resilience timeout. Default is 180 seconds.</td>
</tr>
<tr>
<td>Limit on Resilience Timeout</td>
<td>Maximum amount of time that the service holds on to resources to accommodate resilience timeouts. This property limits the resilience timeouts for client applications connecting to the service. If a resilience timeout exceeds the limit, the limit takes precedence. If blank, the service uses the domain limit on resilience timeouts. Default is 180 seconds. To apply changes, restart the PowerCenter Repository Service.</td>
</tr>
</tbody>
</table>

SAP BW Service Resilience Property

You can configure resilience for the SAP BW service.

In the Administrator tool, select the SAP BW service in the Navigator, and then click the Properties view. In the General Properties section, edit the following property:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retry Period</td>
<td>Number of seconds the SAP BW Service waits before trying to connect to the SAP NetWeaver BI system if a previous connection failed. The SAP BW Service tries to connect five times. Between connection attempts, it waits the number of seconds you specify. After five unsuccessful attempts, the SAP BW Service shuts down. Default is 5.</td>
</tr>
</tbody>
</table>
Command Line Program Resilience

You can configure infacmd, pmcmd, or pmrep command line program resilience. The command line program uses the default resilience timeout of 180 seconds.

To configure the resilience timeout, configure one of the following values:

- Command line option. You can set the resilience timeout for infacmd by using the -ResilienceTimeout command line option each time you run a command. You can set the resilience timeout for pmcmd by using the -timeout command line option each time you run a command. When you use pmrep connect to connect to a repository, you can use the -t command line option to set the resilience timeout for pmrep commands that use the connection.

- Environment variable. If you do not set the timeout option in the infacmd and pmcmd command line syntax, the infacmd and pmcmd command line programs use the value of the environment variable INFA_CLIENT_RESILIENCE_TIMEOUT that is configured on the client machine. If you do not set the timeout option when you use pmrep connect to connect to the repository, pmrep commands use the value of the environment variable INFA_CLIENT_RESILIENCE_TIMEOUT that is configured on the client machine.

If the limit on resilience timeout for the service is smaller than the command line resilience timeout, the command line program uses the limit as the resilience timeout.

Note: PowerCenter does not provide resilience for a repository client when the PowerCenter Repository Service is running in exclusive mode.

Database Connection Resilience

Database connection resilience is the ability of the Integration Service to tolerate temporary network failures when connecting to a relational database or when the database becomes unavailable. The Integration Services is resilient to failures when it initializes the connection to the source or target database and when it reads data from or writes data to a database.

You configure the resilience retry period in the connection object. You can configure the retry period for source, target, SQL, and Lookup transformation database connections. When a network failure occurs or the source or target database becomes unavailable, the Integration Service attempts to reconnect for the amount of time configured for the connection retry period. If the Integration Service cannot reconnect to the database in the amount of time for the retry period, the session fails.

The Integration Service will not attempt to reconnect to a database in the following situations:

- The database connection object is for an ODBC or Informix connection.
- The transformation associated with the connection object is not configured for deterministic and repeatable output.
- The value for the DTM buffer size is less than what the session requires.
- The truncate the target table option is enabled for a target and the connection fails during execution of the truncate query.
- The database connection fails during a commit or rollback.

Use the retry period with the following connection types:

- Relational database connections
- FTP connections
- JMS connections
- WebSphere MQ queue connections
- HTTP application connections
- Web Services Consumer application connections

Note: For a database connection to be resilient, the database must be a highly available database and you must have the high availability option or the real-time option.
PowerCenter Client Resilience

PowerCenter Client resilience timeout determines the amount of time the PowerCenter Client tries to connect or reconnect to the PowerCenter Repository Service or the PowerCenter Integration Service. The PowerCenter Client resilience timeout is 180 seconds and is not configurable. This resilience timeout is bound by the service limit on resilience timeout.

If you perform a PowerCenter Client action that requires connection to the repository while the PowerCenter Client is trying to reestablish the connection, the PowerCenter Client prompts you to try the operation again after the PowerCenter Client reestablishes the connection. If the PowerCenter Client is unable to reestablish the during the resilience timeout period, the PowerCenter Client prompts you to reconnect to the repository manually.

Examples

When you configure PowerCenter resilience, it is important to understand how the resilience properties impact the resilience period and how resilience settings impact PowerCenter during a temporary network loss.

Sample Resilience Configuration

The resilience timeout and the resilience timeout limits determine the resilience period for PowerCenter components and their clients.

The following figure shows some sample connections and resilience configurations in a domain:

The following table describes the resilience timeout and the limits shown in figure above:

<table>
<thead>
<tr>
<th>Connect From</th>
<th>Connect To</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>PowerCenter Integration Service</td>
<td>The PowerCenter Integration Service can spend up to 30 seconds to connect to the PowerCenter Repository Service, based on the domain resilience timeout. It is not bound by the PowerCenter Repository Service limit on resilience timeout of 60 seconds.</td>
</tr>
<tr>
<td>B</td>
<td>pmcmd</td>
<td>pmcmd is bound by the PowerCenter Integration Service limit on resilience timeout of 180 seconds, and it cannot use the 200 second resilience timeout configured in INFA_CLIENT_RESILIENCE_TIMEOUT.</td>
</tr>
<tr>
<td>Connect From</td>
<td>Connect To</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>C PowerCenter Client</td>
<td>PowerCenter Repository Service</td>
<td>The PowerCenter Client is bound by the PowerCenter Repository Service limit on resilience timeout of 60 seconds. It cannot use the default resilience timeout of 180 seconds.</td>
</tr>
<tr>
<td>D Node A</td>
<td>Node B</td>
<td>Node A can spend up to 30 seconds to connect to Node B. The Service Manager on Node A uses the domain configuration for resilience timeout. The Service Manager on Node B uses the domain configuration for limit on resilience timeout.</td>
</tr>
</tbody>
</table>

**Temporary Network Loss between the Workflow Monitor and PowerCenter Repository Service**

A Developer at ABC corporation is monitoring a workflow using Workflow Monitor. The PowerCenter client has a default resilience and the PowerCenter Repository Service has a resilience timeout of 180 seconds.

There is a two minute network connection loss between the Developer’s computer and the PowerCenter Repository Service. The Developer does not notice the loss of connection and he is unaffected by the two minute connection loss. However, the following messages appear in the Notifications tab on the PowerCenter Workflow Monitor:

- Repository Service notifications are enabled.
- DATE TIME-[REP_55101] Connection to the Repository Service [Repository_Service_Name] is broken.
- DATE TIME-[REP_55114] Reconnecting to the Repository Service [Repository_Service_Name]. The resilience time is 180 seconds.
- DATE TIME-Reconnected to Repository Service [Repository_Service_Name] successfully.

If the network connection loss occured between the Developer's computer and the PowerCenter Integration Service, the following message would have appeared in the Notifications tab after the connection was reestablished:

- (Repository_Service_Name DATE TIME) Reconnected to the Integration Service successfully. Workflow runs may need to be re-opened to view the latest status of the child tasks.

**Temporary Network Loss between the PowerCenter Repository Service and the Repository Database**

ABC Corporation has a domain with a PowerCenter Integration Service and a PowerCenter Repository Service. The domain has a resilience timeout of 300 seconds. The PowerCenter Integration Services, PowerCenter Repository Service, and the PowerCenter Repository Service database have a resilience timeout of 300 seconds as well.

There is a two minute network loss and the PowerCenter Repository Service loses its connection to the repository database. The Integration Services continues to run. During this time, a user is running a workflow and is monitoring its progress using Workflow Monitor. The connection between the PowerCenter Repository Service and the repository database is restored within the resilience timeout period and the workflow completes successfully.

The Workflow Monitor connects to the PowerCenter Repository Service and the PowerCenter Integration Service. Since the network loss occured between the PowerCenter Repository Service and its database, the Workflow Monitor does not log any notification. However, the Administrator tool may display the following error message in the PowerCenter Repository Service Log:

- CNX_53111 Error accessing the repository database. Repository Agent retry attempt to connect.

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