HP Connect-It

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User Guide

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The User Guide

The User Guide provides an overview of connectors and detailed configuration information for all types of connectors and out-of-box scenarios.

Chapter 1

Introducing Connect-It

Connect-It is a Hewlett-Packard application, the components of which are detailed in the following diagram.

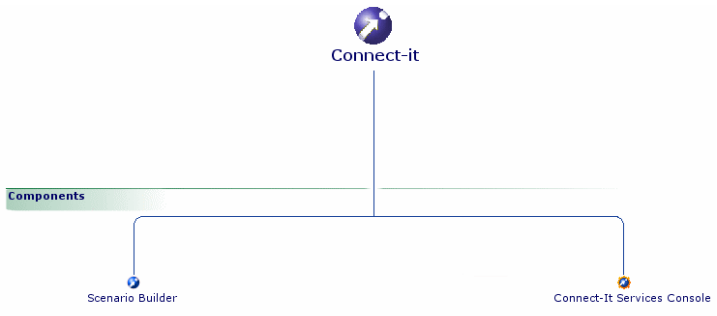


Figure 1-1: Connect-It components

Connect-It is an Enterprise Application Integration (EAI) type integration platform. An EAI solution enables a company to integrate the different applications from which it can obtain or to which it can provide internal data (Internal support, equipment management software, etc.) or external data (ERP, B2B, B2C). Connect-It integrates not only data, but also a company's application processes.

You can use Connect-It to:

- Transfer information from one database to another.
- Duplicate the information from one database to another in real-time.
- Import information from e-mails, delimited text files, XML files or other formats into a database.
- Export information from a database to e-mails, delimited text files, XML files or other formats.
- Import NT Security-based information into a database.

Who is Connect-It intended for?

Connect-It is intended for IT technicians in charge of integrating different applications used by their company with a Hewlett-Packard application. Using Connect-It requires the following expertise:

- Advanced knowledge of the applications being integrated.
- Understanding of Basic language used in the mapping scripts.

Chapter 2

Installation

This chapter explains how to install the Connect-It integration platform.

Installed programs

The following programs are installed in addition to the Connect-It application:

- **Service Console:** a graphical interface that enables you to manage your scenarios and create services to associate to them.
- **Scenario comparison tool:** reveals the differences between two versions of a scenario in a graphical interface.

For a list of the files that are installed with Connect-It, see Contents of the Installation and Installing Connect-It Web.

Supported environments

Connect-It is Windows compatible and can also be installed in Unix (Linux, Solaris, AIX, HP-UX), but *will not function in graphical mode*. Connect-It must be installed on a computer having access to the applications that you want to use with the scenarios. This computer does not require a full client-installation of the applications used in the scenarios.

On the other hand, a full installation can be quite useful, especially in test phase, to verify that the data has been successfully written to the external applications. You can set the amount of memory allocated to the application log by using the Options command in the **Edit** menu of the Scenario Builder. By default, the amount of memory allocated to document tracking is set to **5 MB**.

Installing AutoPass

In order to operate correctly, Connect-It requires that AutoPass 6.0 be installed. AutoPass 6.0 uses the multi-instance model, which eliminates resource sharing between the multiple co-existing instances of another Hewlett-Packard product component. Each Hewlett-Packard product now installs its own private copy of AutoPass. AutoPass is now in the Connect-It package, and you do not need to perform any manual installation.

Installing Connect-It on Windows

Prerequisites

- Make sure you have administration privileges.
- Oracle JRE 6 or higher versions must be installed.

The installation program runs automatically upon inserting the installation CD-ROM. If this does not happen, explore the files on your cd-rom drive, launch the `autorun.exe` program and select the appropriate installation option. The installation program lets you choose from several installation types:

- The standard installation, which installs:
  - All Connect-It applications: Connect-It, Connect-It Web and Connect-It Services Console
  - The documentation in PDF and CHM formats
- The custom installation, which installs Connect-It and the full set of connectors. You can choose to install the following components during the custom installation:
  - The documentation in PDF format
  - Connect-It Web

Note: *Connect-It cannot be installed from the command line.*

Modifying the installation

If Connect-It is already installed, components can be added or removed through the **Add or Remove Programs** utility or the **Uninstall or change a program** utility (for Windows 7 only) in the Control Panel (select the Connect-It line and then click **Change**).

Updating Connect-It

All files from the previous version (scenarios, maptables, monitors, etc.) are deleted when updating Connect-It. Also, all user changes made to the scenarios or other files will be lost.

Removing the program

In Windows, you must use the **Add or Remove Programs** utility or the **Uninstall or change a program** utility (for Windows 7 only) in the Control Panel to correctly uninstall Connect-It (select the Connect-It Integration Pack line, and then click **Remove** or **Uninstall**). Don't forget to make backup copies of your scenarios and customizations.

Installing Connect-It on Unix

The installation of Connect-It in UNIX is always a full installation. This installation contains the following packages:

- Base connectors
- Optional connectors
- Datakit
- Documentation
- Example scenarios

Note: *Certain connectors only function in a Windows environment. For complete details on the compatibility of connectors, please consult the compatibility matrix on the Hewlett-Packard support site at http://www.hp.com/go/hpsoftwaresupport.*

Prerequisites

- The GNU version of 'tar' is required for Unix installations (Solaris and AIX). This version is available at http://www.gnu.org.
- AutoPass must be installed before Connect-It.To install Connect-It in UNIX, you must decompress the .tgz file provided by executing the following command:

```
tar -xzvf cnit-[operating system]_[version].[build]_[language
prefix].tgz
```

Note: *You can add the command line option **v** to the **tar** (tar -xvzf) command line. This option lets you enable the verbose mode.*

The following prefixes are available: **en** for the English language version, **fr** for the French language version.

Dynamic libraries (.so) in SOLARIS, HP-UX and Linux

Connect-It requires dynamic libraries (`.so`) located in the bin folder of the Connect-It installation folder and in the AutoPass installation. The `[Connect-It installation folder]/bin` and `[AutoPass installation folder]` paths must be added to the **LD_LIBRARY_PATH** environment variable.

For a C shell (csh, tcsh) compatible interpreter, you must execute the following command line:

```
setenv LD_LIBRARY_PATH=[Connect-It installation
folder]/bin:/opt/OV/HPOvLIC/lib
```

For Korn shell (ksh) or Bourne shell (ash, ksh, bash, etc.) compatible interpreters, you must execute the following command lines in the `.profile` file:

```
setenv LD_LIBRARY_PATH=[Connect-It installation
folder]/bin:/opt/OV/HPOvLIC/lib
export LD_LIBRARY_PATH
```

Dynamic libraries (.so) in AIX

Connect-It requires dynamic libraries (.so) located in the bin folder of the Connect-It installation folder and in the AutoPass installation. The `[Connect-It installation folder]/bin` and `[AutoPass installation folder]` paths must be added to the **LIBPATH** environment variable.

For a C shell (csh, tcsh) interpreter, you must execute the following command line:

```
setenv LIBPATH=[Connect-It installation
folder]/bin:/opt/OV/HPOvLIC/lib
```

For Korn shell (ksh) or Bourne shell (ash, ksh, bash, etc.) compatible interpreters, you must execute the following command lines in the `.profile`file:

```
LIBPATH=[Connect-It installation folder]/bin:/opt/OV/HPOvLIC/lib
export LIBPATH
```

For Aix 6.1, add following line to the `.profile` file:

```
LIBPATH=$JAVA_HOME/jre/lib/ppc:$LIBPATH
```

Specifying the JVM Library

On HP-UX environments, you must modify to specify version 1.6 of the JVM library. Add the following to the `%APPDATA%/HP/ConnectIt/conf/conit.ini` file:

```
[DLL]
JNI=/opt/java1.6/jre/lib/IA64N/hotspot/libjvm.so
```

Installing Connect-It Web

Prerequisites

Before installing Connect-It Web, you must install and configure the components listed below and do so following the recommendations provided by each of the components' editors.

- Apache Tomcat

Consult the compatibility matrix to find out which Tomcat versions are supported.

- A JDBC driver used to access a database.

Installed components for Connect-It Web

- The following components are provided with the installation (**web** folder of the Connect-It installation folder):
  - `agent` folder:
    - `runAgent.bat`, script to start an agent (Windows)
    - `runAgent`, script to start an agent (Linux and Unix)
    - `shutdownAgent.bat`, script to stop an agent (Windows)
    - `cit-scnmgr-agent-<version>.jar`, agent executable
    - `cit-scnmgr-agent.properties.template`, example configuration file for an agent
    - `log4j.properties.template`, example **log4j** configuration file for an agent. These keys have been added:
      `com.hp.ov.cit.console.firstkey.locations`: location of the file where the first of two key files is stored (see keyRegen.bat below)
      `com.hp.ov.cit.console.secondkey.locations`: location of the file where the second of two key files is stored (see keyRegen.bat below)
      `com.hp.ov.cit.console.agent.password`: location of the file where agent password is stored (see keyRegen.bat below)
    - `log4j-scn.properties.template`, example **log4j** configuration file for started services
  - `ddl folder`: .ddl files used to create the Connect-It Web database for the different database engines that are supported.
  - `webapp` folder:
    - `cit.war`, web application file
    - `cit.xml.template file`, sample Tomcat context file for the Connect-It web application
  - `licenses` folder: Licenses for all third-party components and source code of third-party libraries that are used
  - `install` folder:
    - `install.bat`,Windows installation script for the web application configured with a local service

- `install`, Linux and Unix installation script for the web application configured with a local service
- `installAgent.bat`, configuration script for agents (Windows)
- `installAgent`, configuration script for agents (Linux and Unix)
- `crypt.bat`,Windows script to encrypt passwords for the Connect-It Web authentication module
- `crypt`, Linux and Unix script to encrypt passwords for the Connect-It Web authentication module
- `keyRegen.bat`, a Windows script for regeneration of encryption keys after the web console is installed. The encryption keys for the agent support Federal Information Processing Standards. Running this command will update the following key files (default location):
  - `\agent\7ekqr8chq474932251glo395r7`
  - `\agent\76c5dige5phoo71dn6qaiolm4f`

  and the agent password file (default location):

  - `\agent\agentpassword`
- `keyRegen`, Linux and Unix script for re-generation of encryption key after the web console is installed.

Note: *Consult the compatibility matrix at http://www.hp.com/go/hpsoftwaresupport to find out which versions of the Apache Tomcat and JVM are supported.*

Connect-It Web architecture

The Connect-It web application allows for centrally managed Connect-It implementations using agents installed locally or on remote machines. Multiple agents can be installed on the same machine and can independently manage different implementations.

SSL Authentication

Connect-It Web supports SSL (HTTPS) communication.

For information on configuring Tomcat for SSL, see the following:
http://tomcat.apache.org/tomcat-6.0-doc/ssl-howto.html

Installing Connect-It Web Automatically

To install Connect-It Web automatically:

1. Use the installation script provided by the Connect-It installation depending on the target environment (Windows, Linux or Unix): `install.bat` or `install`. This script both installs the web application and configures a local agent.
2. Select the installation type: Quick installation or custom installation. A custom installation provides further configuration options for the web application and the local agent.

On Windows Vista, using Connect-It Web requires administration rights.

Note: *All default values provided by the installation program are placed between parenthesis on the command line that is displayed. Press **Enter** to validate the default value.*

Quick installation with a local agent

1. Create a database with the assistance of the creation script DDL found in the `<Connect-It installation folder>/web/ddl folder`. (Select the script relevant to your database engine).
2. Run the `install.bat` installation script.
3. Specify the Connect-It installation folder
4. Specify Tomcat's root folder.

Note: *If you use the Oracle JRE version 6, Tomcat must be started with the JVM parameter:* `sun.lang.ClassLoader.allowArraySyntax=true`

5. Specify the Tomcat listener port.
6. Specify the Connect-It Web installation folder.
   This folder must not be Tomcat's `webapps` folder or installation folder (for automatic installation only).
   Note: *This installation constraint is linked to the* `install.bat` *installation script. This installation constraint does not apply during a manual installation.*

   This folder will contain the files required by the Web application. If the specified folder is not empty, a warning message will be displayed.
7. Specify a user name and a password to access Connect-It Web. This data will be saved in the associated authentication file.
8. Fill in the required JDBC database connection parameters.
   Important: *Once the installation is complete, the JDBC driver for java (jar file) needs to be copied into the Connect-It Web installation folder* ***webapp/WEB-INF/lib****.*
9. Enter the local agent's communication port.
10. Specify the paths for encryption key files and the password file. To accept the default paths, just press **Enter**. The file paths will be saved in the agent configuration file (cit-scnmgr-agent.properties).

The following elements were installed for the web application:

- A context file, `cit.xml`, was created and saved under `[Tomcat root directory]/conf/Catalina/localhost/`
- A Connect-It Web folder was created and contains data required by the application (`conf` folder):
  - `log4j.properties`, `log4j` configuration file, standard work environment Java applications. In this file, the `log4j.appender.file.file` section defines where the log file will be created.
  - `jaas.config`, JAAS configuration file (http://java.sun.com/products/jaas/).
    JAAS (Java Authentication and Authorization Specification) is a standard Java authentication API used in Java applications. Connect-It Web provides a default module which uses a password file. If you would like to change the password management policy, please see the JAAS policy section.

- `users`, file in which the user passwords for the Connect-It JAAS module are stored.
- `cit.policy.template`, sample file to facilitate the deployment of Connect-It Web in a secure Java environment.

The following elements have been installed for the local agent and are found in the agent folder of the Connect-It installation:

- `cit-scnmgr-agent.properties`, agent configuration file.
- `log4j.properties`, the agent's `log4j` configuration file. Each agent can use a different log file. The name of a particular agent's log file takes the form `cit-scnmgr-agent@<port>.log`.
- `log4j_scn.properties`, the agent's services log4jconfiguration file. Each service can use a different log file. The name of a particular service's log file takes the form `cit-scnmgr-agent@<port>_<service_name>.log`.
- `cit-scnmgr-agent.policy.template`, example policy file suitable for the using an agent in a secure Java environment.

Post-installation requirements

If you want to use your users file from a version of Connect-It prior to version 9.20, you must update the `\conf\users` file:

1. Run **`Cyrpt.bat`** to update the password cipher.
2. Copy the output to the `\conf\users` file.

Installing Connect-It Web Manually

To install Connect-It Web manually:

1. Create a database using the DDL creation script which is located in the `<Connect-It installation folder>/web/ddl folder`. (Select the script relevant to your database engine).
2. Create a directory named cit in the `<Tomcat>/webapps` directory.
3. Extract the contents of the `<Connect-It installation folder>/web/webapp/cit.war` into the previously created cit directory.
4. Copy the JDBC driver jar into `<Tomcat>/webapps/cit/WEB-INF/lib`.
5. Copy the `<Connect-It installation folder>/web/webapp/cit.xml.template` file into the `<Tomcat>/conf/Catalina/localhost` directory and rename it `cit.xml`.
6. Edit the `cit.xml` file previously created, following the instructions presented in the following sections.

JDBC Configuration types

Configuration changes must be made as required for your database engine. The following are sample configurations.

Oracle

A JDBC driver is provided with your Oracle client installation. This driver is located in the <Oracle installation folder>/client/jdbc folder.

- For Oracle 9 or later, use the `ojdbc14.jar` library.
- The JDBC driver is: `oracle.jdbc.driver.OracleDriver`
- The URL to access the database uses this format: `jdbc:oracle:thin:@<server address>:<port>:<service name>`
- The Connect-It configuration file uses this format:
```
<Environment name="com.hp.ov.cit.console.db.driver" override="false"
type="java.lang.String" value="oracle.jdbc.driver.OracleDriver"/>
<Environment name="com.hp.ov.cit.console.db.url" override="false"
type="java.lang.String"
value="jdbc:oracle:thin:@oraclesrv.hp.com:1521:orcl"/>
<Environment name="com.hp.ov.cit.console.db.username"
override="false" type="java.lang.String" value="CIT39"/>
<Environment name="com.hp.ov.cit.console.db.password"
override="false" type="java.lang.String" value="password"/>
```

MS SQL

The MS SQL driver is available on Microsoft's web site.

- Use the `sqljdbc.jar` library.
- The JDBC driver is: `com.microsoft.sqlserver.jdbc.SQLServerDriver`
- The URL to access the database uses this format:
```
jdbc:sqlserver://se-
rverName;instanceName:portNumber;property=value[;property=value]
```
- The Connect-It configuration file uses this format:
```
<Environment name="com.hp.ov.cit.console.db.driver" override="false"
type="java.lang.String"
value="com.microsoft.sqlserver.jdbc.SQLServerDriver"/>
<Environment name="com.hp.ov.cit.console.db.url" override="false"
type="java.lang.String"
value="jdbc:sqlserver://localhost;databaseName=CIT
Demo37;instanceName=MSDE"/>
<Environment name="com.hp.ov.cit.console.db.username"
override="false" type="java.lang.String" value="CIT39"/>
<Environment name="com.hp.ov.cit.console.db.password"
override="false" type="java.lang.String" value="password"/>
```

MS SQL 2K

The MS SQL driver is available on Microsoft's web site.

- Use the `sqljdbc.jar` library.
- The JDBC driver is: `com.microsoft.sqlserver.jdbc.SQLServerDriver`

- The URL to access the database uses this format:
  `jdbc:microsoft:sqlserver://server1\\instance1;User=test;Password=secret`
- The Connect-It configuration file is the same as that of the MS SQL driver.

MySQL

The driver is available on www.mysql.com.

- Use the `mysql-connector-java-5.0.4-bin.jar` library.
- The JDBC driver is: `com.mysql.jdbc.Driver`
- The URL to access the database uses this format:
  `jdbc:mysql://[host][,failoverhost...][:port]/[database]`
  `[?propertyName1][=propertyValue1][&propertyName2][=propertyValue2]...`
- The configuration file for Connect-It has the following construction:

```
<Environment name="com.hp.ov.cit.console.db.driver" override="false"
type="java.lang.String" value="com.mysql.jdbc.Driver"/>
<Environment name="log.properties" override="false"
type="java.lang.String" value="E:/CITWEB/conf/log4j.properties"/>
<Environment name="com.hp.ov.cit.console.jaas.loginConfig"
override="false" type="java.lang.String"
value="file:E:/CITWEB/conf/jaas.config"/>
<Environment name="com.hp.ov.cit.api.library.path" override="false"
type="java.lang.String" value="E:/Program Files/HP/Connect-It 4.00
en/bin"/>
<Environment name="com.hp.ov.cit.console.db.username"
override="false" type="java.lang.String" value="admin"/>
<Environment name="com.hp.ov.cit.console.db.url" override="false"
type="java.lang.String" value="jdbc:mysql://16.16.63.44/test"/>
<Environment name="com.hp.ov.cit.jmx.scenario.jar.location"
override="false" type="java.lang.String" value="E:/Program
Files/HP/Connect-It 4.00 en/lib"/>
<Environment name="com.hp.ov.cit.console.db.connectionProperties"
override="false" type="java.lang.String" value=""/>
<Environment name="com.hp.ov.cit.console.db.password"
override="false" type="java.lang.String" value=""/>
```

DB2

Use version 8 of the DB2 tools.

- Use the `db2jcc.jar` library. A `b2jcc_license_*.jar` license file is required.
- The JDBC driver is: `com.ibm.db2.jcc.DB2Driver`
- The URL to access the database uses this format:
  `jdbc:db2://<server>[:<port>][/<database>][;<property>=<value>[;...]]`
- The default port is **5000**.
- The Connect-It configuration file uses this format:
  `<Environment name="com.hp.ov.cit.console.db.driver" override="false"`

```
type="java.lang.String" value="com.ibm.db2.jcc.DB2Driver"/>
<Environment name="com.hp.ov.cit.console.db.username"
override="false" type="java.lang.String" value="db2admin"/>
<Environment name="com.hp.ov.cit.console.db.url" override="false"
type="java.lang.String" value="jdbc:db2://localhost:5021/CITWEB"/>
<Environment name="com.hp.ov.cit.console.db.connectionProperties"
override="false" type="java.lang.String" value=""/>
<Environment name="com.hp.ov.cit.console.db.password"
override="false" type="java.lang.String" value="password"/>
```

JAAS module

Authentication in Connect-It Web is based on JAAS. JAAS (Java Authentication and Authorization Specification) is a standard Java authentication API used in Java applications. JAAS is based on contexts that are defined in a configuration file with which one or more authentication modules can be associated. For more information , please visit the JAAS web site at http://java.sun.com/products/jaas/.

JAAS module provided

Connect-It Web provides a JAAS authentication module. This module is configured by default during the quick installation of Connect-It Web.

The JAAS module that is provided uses a password file. This password file contains user name/password combinations.

Passwords in the password file are encrypted using the standard MD5 algorithm. During a default installation, a users file containing passwords is created in the `<Connect-It Web installation folder>\conf` folder. This file contains the user name/password combination that is requested during installation. You can add as many users as you like in this file.

The syntax is as follows:

```
user1:encrypted_password1
user2:encrypted_password2
(...)
```

For example, for a user named 'admin' and a user named 'st':

```
admin:5f4dcc3b5aa765d61d8327deb882cf99
st:627fcdb6cc9a5e16d657ca6cdef0a6bb
```

Use the provided crypt script to encrypt your passwords. The script is located in the Connect-It installation folder under: `<Connect-It installation folder>\web\install`.

For example:

```
crypt.bat password
>5F4DCC3B5AA765D61D8327DEB882CF99
```

Provided JAAS module

You may chose to use one or more other JAAS modules for Connect-It authentication.

Using other JAAS modules

Other JAAS authentication modules can be used with Connect-It Web.

Note: *Defining this authentication requires knowledge on how to configure JAAS.*

In Connect-It Web, the JAAS configuration is defined using the following two files:

- Tomcat context file
- JAAS configuration file

The first step is to create the JAAS configuration file to be used.

A JAAS file has one or more sections. Each section defines an authentication context. Each authentication context has an identifier.

```
default {com.hp.ov.cit.jaas.FileLoginModule required
file="E:/web/conf/users";};
```

The first step is to specify where Connect-It should look to locate the JAAS configuration. This step is accomplished with the '`com.hp.ov.cit.console.jaas.loginConfig`' environment property in the context file.

```
<Environment name="com.hp.ov.cit.console.jaas.loginConfig"
value="/path/to/jaas.config" type="java.lang.String"
override="false"/>
```

Connect-It must know which authentication context is to be used. This step is accomplished via the 'com.hp.ov.cit.console.jaas.loginContextName' environment property in the context file.

```
<Environment name="com.hp.ov.cit.console.jaas.loginContextName"
value="configurationName" type="java.lang.String" override="false"/>
```

In the last step, you must specify the JAAS profile that corresponds to a Connect-It Web administrator.

The default value, which corresponds to the profile generated by Connect-It Web's JAAS authentication module, is CIT_ADMIN. If you choose to use your own JAAS authentication module, you must specify the profile name corresponding to a Connect-It Web administrator that is generated by your authentication module.

This step is accomplished via the 'com.hp.ov.cit.console.admin.role' environment property in the context file.

```
<Environment name="com.hp.ov.cit.console.admin.role"
value="administrators"type="java.lang.String" override="false" />
```

Context file

With Tomcat, a web application is configured using a context file. This file is normally located in the Tomcat installation folder (`<Tomcat installation folder>/conf/Catalina/localhost`).

An example context file is provided with Connect-It Web (`<Connect-It installation folder>/web/webapp/cit.xml`). Comments are provided for all configuration parameters.

- `com.hp.ov.cit.console.jaas.loginConfig`
  JAAS configuration file URL. Quick install creates a configuration file in `<Connect-It Web installation folder>/conf`.
- `com.hp.ov.cit.console.jaas.loginContextName`
  Authentication context to use.
- Name of the JAAS context to use. This context must be defined in the JAAS configuration file. Property that defines the name of the Connect-It Web JAAS context. The default configuration file generated during a quick install defines the context named 'Default'.
- `com.hp.ov.cit.console.admin.role`
  Name of the JAAS profile that corresponds with a Connect-It Web administrator. The default value for the profile generated by the Connect-It Web JAAS authentication module is CIT_ ADMIN. If you choose to use your own JAAS authentication module, you must specify the name of the profile generated by your authentication module that corresponds with a Connect-It Web administrator.
- `com.hp.ov.cit.console.db.driver`
  Name of the JDBC driver class providing access to the Connect-It Web database.
- `com.hp.ov.cit.console.db.url`
  Connect-It Web database URL. The structure of this URL depends on the JDBC driver used.
- `com.hp.ov.cit.console.db.username`
  User name used to connect to the database.
- `com.hp.ov.cit.console.db.password`
  Password used to connect to the database.
- `com.hp.ov.cit.console.db.connectionProperties`
  Additional configuration properties for the JDBC driver. The properties are defined as a list of name=value pairs, separated by semi-colons.
- `log.properties`
  Path to the `log4j` configuration file. The default file generated by the quick install is located in the `<Connect-It Web installation folder>/conf folder`.

Installing an Agent Automatically

1. Use the install script provided by the Connect-It installation that is appropriate for the environment (Windows, Linux or Unix): `installAgent.bat` or `installAgent`.
2. Choose the desired installation: quick install or custom install. Custom install allows further configuration of agent parameters (refer to the manual installation section). For Windows Vista, the installation of Connect-It Web requires administrator rights (Admin).
   Note: *All default values that are proposed by the installation program are displayed within parenthesis on the command line prompt. Selection of the proposed default value is made by pressing Enter.*

Quick install

1. Start the installAgent.bat installation program.
2. Specify the Connect-It installation folder.
3. Specify the machine name and port of the Tomcat server.

4. Enter the default agent listener port.
5. Enter the JDBC parameters needed for the database connection.
6. A summary of the performed operations is shown.
7. The following elements have been installed in the agent folder of the Connect-It installation:
   - `cit-scnmgr-agent.properties`, agent configuration file
   - `log4j.properties`, the agent's log4jconfiguration file. Each agent can use a different log file. The name of a particular agent's log file takes the form **cit-scnmgr-agent@<port>.log**.
   - `log4j_scn.properties`, the agent's services `log4jconfiguration` file. Each service can use a different log file. The name of a particular service's log file takes the form **cit-scnmgr-agent@<port>_<service_name>.log**.
   - `cit-scnmgr-agent.policy.template`, example policy file suitable for the using an agent in a secure Java environment.

Installing an Agent Manually

Connect-It must be installed on the machine. An agent is configured using the following files:

- The configuration file of the agent itself
- The agent's `log4j` configuration file.
- The `log4j` configuration file for the services it manages.
- Two keys files for agent password encryption
- The agent password file

In order for the agents and Connect-It Web to communicate, you need to ensure that network policies (firewall) permit connection to the configured ports. Installation involves the creation of a configuration file based on the provided example (`<Connect-It installation folder>/web/agent/cit-scnmgr-agent.properties.template`).

Comments are provided for all configuration parameters.

- `com.hp.ov.cit.console.host`: Tomcat server host name or IP address.
- `com.hp.ov.cit.console.port`: Tomcat server HTTP port
- `com.hp.ov.cit.console.timeout`: timeout in milliseconds for the Tomcat server connection.
- `com.hp.ov.cit.jmx.scenario.management.preferIPAddress`: set to true if the agent is to register itself using its IP address, set to false to use its host name.
- `com.hp.ov.cit.jmx.scenario.management.port`: the listener port
- `com.hp.ov.cit.jmx.sceanrio.locations`: a semi-colon delimited list of directories containing the scenarios that the agent is to manage.
- `log4j.configuration`, URL of the agent's log4j configuration file. An example file is provided in the <Connect-It installation folder>/web/agent folder.
- `com.hp.ov.cit.jmx.scenario.java.path`: path to the Java executable used by the agent to launch a service. The path must specify the java executable of a version 6 or higher

JRE. The default value, 'java', assumes that the Java executable is locatable using the environment's executable search path. If Java is not in this search path or if this JRE is not version 6 or higher, this value will need to be updated.

- `com.hp.ov.cit.jmx.scenario.jvm.options`: additional options to pass to the JVM when an agent launches a service.
- `com.hp.ov.cit.jmx.log.properties`: path to the services' `log4j` configuration file. An example file is provided by default in the <Connect-It installation folder>/web/agent folder.
- `com.hp.ov.cit.console.db.driver`: name of the JDBC driver class providing access to the database shared with Connect-It Web.
- `com.hp.ov.cit.console.db.url`: Connect-It Web database URL. The structure of this URL depends on the JDBC driver used.
- `com.hp.ov.cit.console.db.username`: user name used to connect to the database.
- `com.hp.ov.cit.console.db.password`: password used to connect to the database.
- `com.hp.ov.cit.console.db.connectionProperties`: additional configuration properties for the JDBC driver. The properties are defined as a list of name=value pairs, separated by semi-colons.
- `com.hp.ov.cit.console.firstkey.locations`: location of the file in which the first key is stored (`\agent\7ekqr8chq474932251glo395r7` by default).
- `com.hp.ov.cit.console.secondkey.locations`: location of the file in which the second key is stored (`\agent\76c5dige5phoo71dn6qaiolm4f` by default).
- `com.hp.ov.cit.console.agent.password`: location of the file where the agent password is stored (`\agent\agentpassword` by default).

Starting an Agent

The agent start and stop scripts are provided in the <Connect-It installation folder>/web/agent folder. By default, the listener port is configured in the cit-scnmgr-agent.properties file.You can start multiple agents on the same machine. To do so, you must specify a different port for each agent. For example: `runAgent.bat port 1024`

To start an agent using the script you need to specify the following environment variable:

- JDBC_DRIVER_CP
- Path to the JDBC driver jar file

Note: *Before starting the agent, you need to ensure that the Connect-It Web Tomcat server is running. The agent needs to contact Connect-It Web in order to determine the IP address or host name to use. Once this has been accomplished, the agent can run without the Tomcat server running.*

Importing the License File

When you finish installing Connect-It, you need to import the License file provided by Hewlett-Packard. The License file is a text file that contains the following:

- The list of connectors that you have the right to use (encrypted)
- The date until the optional connectors are valid (encrypted)

- An optional short description

If no license file is provided, a temporary InstantOn license is generated that permits the usage of Connect-It for 60 days from the first usage. To obtain a definitive license, you will need to specify:

- the Hewlett-Packard order number
- the server's IP address
- information about the company

***Note**: Please note that using Connect-It will consume a single license for every Connect-It user and IP address pair during the time of the Connect-It session. Connect-It will consume a named license if available but will consume a floating license if a named license is unavailable. This license consumption is required for Service Manager to accept the connection and will only be needed for the duration of the Connect-It scenario.*

Using the AutoPass administration user interface

Connect-It licenses can be installed with the AutoPass administration user interface, which is implemented using Java Swing. Note that your **JAVA_HOME** environment variable must be valid.

- For Windows, you can run the AutoPass administration user interface through either of the following:
  - The menu: **Administration > Run AutoPass**.
  - The batch file: `<Connect-It installation folder>/bin/runAutoPassGui.bat`.
- For Unix/Linux:
  a. Run `runAutoPassGui.sh` within `<Connect-It installation folder>\bin`.
  b. Click **Install > Restore License Key from file**.
  c. Choose the path of the folder.
  d. Check the contents of the file.
  e. Click **Install**.

Using the AutoPass command line interface for Unix/Linux

If the Unix/Linux terminal does not support X11, the AutoPass administration GUI can not be used. You need to install the AutoPass License File through the command line.

Execute the following command in the `<Connect-It installation folder>/bin` folder:
`runAutoPass.sh <Path to license file>/<License file>`

License Migration

Migration on Windows

Run `runAutoPassLicenseMigrationUtility.bat`, within `<Connect-It installation folder>/bin`, to migrate from AutoPass 5.0 Licenses to AutoPass 6.0.

Migration on Unix

Run `runAutoPassLicenseMigrationUtility.sh` to migrate from AutoPass 5.0 Licenses to AutoPass 6.0.

Hardware Configuration

The different configurations mentioned below are given for informational purposes only. For compatibility-related information, please consult the compatibility matrix on the HP web site or Hewlett-Packard support site.

The performance levels of Connect-It depend mainly on the CPU speed rather than the read/ write (I/O) capabilities of the computer used.

The recommended hardware requirements for Connect-It are the following:

- Windows configuration
  - CPU: Dual-core 2 GHz
  - RAM: 2 GB
- Unix configuration
  - CPU: Dual-core 2 GHz
  - RAM: 2 GB

Recommended Memory

A scenario can be executed with a less powerful hardware setup; Only performance levels will be affected. The amount of memory used depends on the number of connectors and mapping boxes used in the scenario. If multiple scenarios are running concurrently, or a scenario contains more connectors, the memory size must be increased.

Operating systems

Solaris 9
conitsvc: 7 MB
cntrsrv: 8 MB

HP-UX
conitsvc: 7 MB
cntrsrv: 6 MB

AIX 5.1
conitsvc: 4 MB
cntrsrv: 5 MB

Linux
conitsvc: 6 MB
cntrsrv: 7 MB

Web server

Tomcat: 256 MB

- Memory for conitsvc depends on the size of the documents processed.
- For cntrsrv: the memory used by a Java connector may be greater than indicated because of the Java Virtual Machine.
- Memory for DLL files required by the connector must be added to the given memory size.

Multiple Processors

Connect-It enables target connectors to execute multiple processes in parallel. Performance is improved on both single and multiple-CPU systems.

Using a multiple-CPU computer improves document processing time compared to a single-CPU computer.

Note: *Performance improvements linked to parallelization depend on the difference between the speed of the production and the speed of the consumption of documents. For example, if a scenario produces documents more slowly than it consumes them, parallelizing consumption will be of no benefit. Other factors can influence performance, such as database architecture, network issues, etc.*

Contents of the Installation

This section details the tools and the installed files. The presence of these files on your computer depends on the type of installation you selected: minimum installation, full installation, customized installation.

Files in the installation folder

The following table presents the file organization of the Connect-It installation folder.

Note: *Certain folders only exists in given operating systems.*

Folder name	Contents
`bin`	Executables (`conitgui.exe`, `conitsvc.exe`, `console.exe`, `logview.exe`) Dynamic libraries (`.dll` or `.so` files) Connect-It text editor configuration file (`CodeEdit.cfg`) Various files necessary in order for the provided scenarios and Connect-It to work License file installation scripts (`runAuto- PassGui.sh`, `runAutoPassGui.bat`, `runAuto- Pass.sh`)
`config`	Files associated with connectors in all scenarios: `.mpt` (maptables) `.str` (string files) `.bas` (Basic functions and global variables)
`datakit`	Datakit used by the Connect-It tools
`dbb`	`cit33.db`: Demonstration database `gbbase.xml`: Database description

`doc`	Connect-It documentation in the following formats:
	`.pdf`
	`.chm`
	`.html` (specific to the javadoc documentation)

`lib`	JAR files containing: Java classes developed by Hewlett-Packard

Folder name	Contents
	Third-party Java classes
`Autopass`	`bin`: Tools `conf`: Configuration directory `data`: Directory with Connect-It license file and log directory `demo`: Useful tools `lib`: Autopass libraries `log`: Autopass logs `utilities`: Autopass utilities
`scenario`	`.scn` files containing the Connect-It sample scenarios Files associated with connectors for the sample scenarios
`web`	`ddl` folder: `.dll` files required to create the database used by Connect-It Web. `webapp` folder: `cit.war` file, which is used by the web application and the `cit.xml` file, which is the Tomcat context file. `install` folder: `crypt` and `crypt.bat` files with Password encryption files, and `install` and `install.bat` files with quick installation files with database. `licenses` folder: License files in `.txt`, html and .zip formats.

Connectors

Base connectors
HP AssetCenter/Asset Manager connector
Command-line connector
Discovery and Dependency Mapping Inventory connector
HP Business Service Management Dashboard connector
HP Service Desk connectors
HP Client Automation connectors
Openview Configuration Management connectors
HP Operations Manager for Unix connector
NT Security connector
HP DecisionCenter connector
RESTful(deprecated) client connector
HP SCAuto listening connector
HP Universal CMDB connector
HP ServiceCenter/Service Manager connector
HP ServiceCenter/Service Manager Web Service connector
Delimited-text connector
XML connector

Optional connectors
Action Request System connector
Altiris connector
Aperture VISTA connectors
Database connector
E-mail connectors
XML listening connector
JMS connector

Optional connectors
LANDesk connectors
LDAP connector
Websphere MQ connector
SAP ALE connector
SAP BAPI connector
SAP IDoc connector
SAP Web Service connector
Microsoft SCCM connectors
Tivoli Enterprise Console connectors
Tivoli Inventory (version 4.0) connectors
Tivoli Configuration Manager for Inventory connector
Tivoli Configuration Manager for Distribution connector
TS.Census and 3.0 connectors
Unicenter DSM connector
SOAP connector

Datakit Contents

Folder	Description
ac/ac4 ac/ac5	Contains import scripts that enable you to create categories and features in an Asset Manager application.
ac/common/stdfeat ac/en/stdfeat ac/fr/stdfeat ac/it/stdfeat ac/ja/stdfeat	When you import the script file (sdtfeat.scr), you create records in the Features table of the Asset Manager application. These features appear in the document types published by the Asset Manager connector.
\apv\apv20\AMVisualLinkView.sql \apv\apv20\VISTA Asset Manager Reconciliation.rpt	Find details information from AM doc: AM520-IntegrationWithDCIM-EN.pdf.
doctrans	This folder contains files required for the automatic generation and documentation of the scenarios.
hpovcm	This folder contains the files required by the Asset Manager to HP Configuration Manager scenarios.
hpovsd	This folder contains the files required by the Asset Manager to Service Desk and Service Desk to Asset Manager scenarios.
javasamples	This folder contains the sample servlet used by the XML listening connector and examples showing how to implement the SDK.
mail	This folder contains the .xml file required for the Asset Manager scenarios (scenario/mail folder).
mqseries/acimport	This folder contains the files required for the Websphere MQ scenario for Asset Manager.
merq	This folder contains the .unl files required by the HP to ServiceCenter scenarios.
mqseries/scunload	This folder contains the .unl file required for the Websphere MQ scenario for ServiceCenter.
sap/common/IDOC sap/acsapfeat	This folder contains files required by the SAP IDOC connector and features required by Asset Manager.
sc/sc61 sc/sc62 sc/ovou8xsc6x-nodebank sc/ovou8xsc61-outage sc/ovou8xsc62-outage sc/sc62cm sc/sm70 sc/sm71	This folder contains the .unl files required for the Asset Manager-ServiceCenter replication scenarios.

Folder	Description
`tecevent`	This folder contains a self-extracting file required to use the connector.
`tim`	This folder contains the parameters for the Tivoli Inventory Management connector configuration wizard.

Associated files

Certain files (`.mpt`, `.str`, `.bas`, `.scp`) are associated to a scenario. If the scenario needs to be moved to another folder, these files must be moved at the same time and in the same position. For example: The files common to several example scenarios are located in the shared folder. This folder must be created in the same place as where you want to move your scenario.

Note: *Rather than move a scenario using a file manager, we always recommend that you save a scenario from the Scenario Builder to the desired destination, whenever this is possible. This guarantees that all the files previously associated to the scenario will continue to be correctly referenced.*

AutoPass

The AutoPass installation folder (`<Connect-It installation folder>/autopass`) contains the following:

- `ConnectIt_pdf`: The Product Description File
- `data\LicFile.txt`: The license key file

Information about Connect-It

Connect-It enables you to access all the information relating to the software and its work environment.

To access this information:

1. Select **Help > About**.
2. Click **More**.
   A window will open displaying information relating to the Software, System, and Database engine.

To access information related to the installed Integration Pack (Windows installation):

1. Select the **Add or Remove Programs** tool.
2. Select the **HP Connect-It Integration Pack** program.
3. Select **Click here for support information**. A window will open and display information about the Vendor, Support, and the Version of the installed Integration Pack.

Selecting a Language for Data Migration

This section explains how to select the appropriate language for handling the data in your scenarios. When running or saving a scenario, Connect-It processes the characters that comprise the data. By

default, Connect-It recognizes English. If your source data, script data, or destination scenario data is not in English, you have the option of selecting another language. The following languages are available:

- **Group 1:** French, English, German, Italian, Spanish, Danish, Dutch, Finnish, Swedish, Portuguese, Icelandic
- **Group 2:** Polish, Czech, Hungarian, Romanian, Greek, Hebrew, Russian, Turkish, Thai, Arabic, Japanese, Chinese, Korean

Selecting Group 1 Languages:

- When running a scenario, if the encoding is not specified or if it is specified as automatic, Connect-It will use character encoding ISO-8859-1 for all types of UNIX systems and 1521 for Windows systems.
- Only characters encoded with ISO-8859-1 for all types of UNIX systems and 1521 for Windows systems will appear correctly on the user interface.

Selecting Group 2 Languages:

- When running a scenario, if the encoding is specified as automatic, Connect-It uses the encoding that corresponds to the selected language.
- Only characters that correspond to the selected language will appear correctly on the user interface.

To select a language:

1. From the menu, select **Edit > Options**.
2. Under **Advanced Options > General**, click the language option next to **Current language** and select the appropriate language.

Migrating to a Connect-It Installation on Another Computer

This information applies to Connect-It version 3.90 and later.

To migrate settings and modified scenarios from one Connect-It installation to another installation on a different computer:

1. Save your favorites in the original installation by selecting **Favorites > Export**.
2. Install the latest version of Connect-It on the new computer.
3. Import your favorites in the new installation by selecting **Favorites > Import**.
4. If you want to use the same Connect-It settings on the new installation, overwrite the following files in the same directories (this applies to all supported versions of Windows):
   - %APPDATA%\HP\ConnectIt\conf\conit.ini
   - %APPDATA%\HP\ConnectIt\conf\cntrsrv.ini
   - %ALLUSERSPROFILE%\Application Data\ConnectIt\conf\conitsvc.ini

   Note: *There is no need to overwrite files for scenarios that you did not modify.*
5. Overwrite the scenario files in the {install directory}\config and {install directory}\scenario directories on the new computer with the corresponding files on the first computer.
6. Import the license file.

Upgrading to the Current Version

This information applies to Connect-It version 3.90 and later.

To upgrade Connect-It to the current version on the same computer:

1. Back up only the scenario files that you customized in the `{install directory}\config and {install directory}\scenario` directories.
2. Save your favorites by selecting **Favorites > Export**.
3. **Highly recommended**: Uninstall the old version of Connect-It using the Windows Control Panel program uninstaller.
4. Install the latest version of Connect-It.
5. Import your favorites by selecting **Favorites > Import**.

   There is no need to overwrite files for scenarios that you did not modify.
6. Overwrite the scenario files in the {install directory}\config and {install directory}\scenario directories with your backup files.
7. Import the license file.
8. Save any scenarios that Connect-It prompts you to save. This occurs when Connect-It applies a new format to scenario files that are upgraded from version 3.x to 4.x.

Note: *If you are using Service Manager 9.2 with a customized extension file for the ServiceCenter/Service Manager connector, you must make some modifications in the extension file. For more information, see the Connector Guide:* ***HP ServiceCenter / Service Manager Connector > Additional information > Using Service Manager 9.2****.*

Chapter 3

General Concepts

This section explains the concepts you will need to understand to use Connect-It.

Processing Data

Connect-It interacts with external applications through the use of connectors (also called components). During a data transfer from one database to another:

- A **source connector** produces XML-type documents. Each document corresponds to a data container that is found in the source application.
- A **mapping box** reorganizes the structure of the documents produced by the source connector so that they can be consumed by the destination connector.
- A **destination connector** consumes XML-type documents. Each document corresponds to a data container that is found in the destination application.

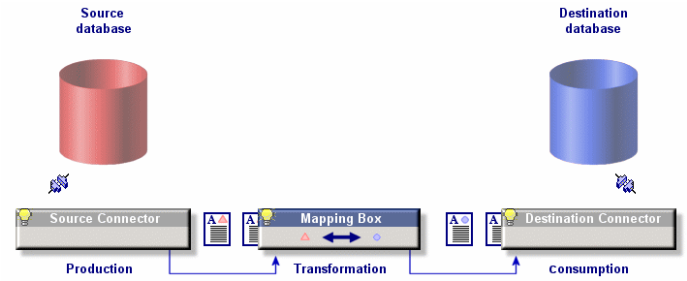


Figure 3-1: How Connect-It processes data

When using database-type connectors, each document corresponds to a record in a table (and possibly to a link to other tables). For example, a document from an Asset Manager database connector might contain information from the Assets table.

For the other connectors, the data containers correspond to e-mail messages, delimited text files, security information, etc.

The connectors you choose, their relationship to each other, and the definition of mappings between source and destination type documents all create an integration scenario. After the test and debugging phase, a scenario is associated to a schedule and then put into production phase.

As with all other integration processes, these documents can either be partially or totally rejected during the operation. By using processing reports and document logs, you can reprocess these rejected documents without having to redefine your entire integration scenario.

Using the Scenario Builder

The Scenario Builder is the graphical interface that enables you to create integration scenarios.

The toolbar

The Scenario Builder toolbars allows you to execute the most common operations without having to use the menus. These are the available toolbars:

- Toolbar (generic)
- Diagram bar (of the scenario)
- Views toolbar
- Favorites sidebar

Icon	Function
	Launches the wizard that helps you create a minimal scenario with a source connector and a destination connector.
	Opens an existing scenario.
	Saves the current scenario.
	Enables you to copy the textual elements of Connect-It, such as the connector names in the Toolbox and a message line in the logs.
	Deletes the selected tool of the scenario.
	Launches the configuration wizard of the selected tool.
	Enables the configuration wizards to display advanced configuration pages, such as the **Parallelize consumption** page.
	Opens all the connectors in a scenario.
	Closes all the connectors in a scenario.
	Launches the scenario in scheduled mode.
	Tests the scenario (non-scheduled mode).
	Launches the scenario in debug mode.
	Stops the current scenario.
	Purges the lines of the Connect-It log and the Document log.
	Goes into offline/with connection mode.
	Enables you to test the scenario without having the destination connectors interact with the external application. For Database type connectors supporting these transactions, error messages are obtained corresponding to those messages that would normally be obtained if this option had not been selected.
	Displays or hides the **Toolbox** pane.

Icon	Function
	Displays or hides the **Scenario diagram** pane.
	Enables you to reconfigure a favorite selected in the **Favorites** tab of the Toolbox.
	Enables you to delete a favorite selected in the **Favorites** tab of the Toolbox.
	Enables you to import the Favorite `.fav` into the folder of your choice.
	Enables you to export the Favorite `.fav` file to the folder of your choice. To use the favorites, other users can import this file in the bin folder of their Connect-It installation folder.
	Prints the scenario diagram. (A print preview window enables you to configure the parameters of the print job.)
	Copies the scenario diagram to the Clipboard.
	The slider next to this icon enables you to zoom in or out of the scenario diagram.
Global	Before creating a mapping, this enables you to select the view in which the source and destination connectors of the mapping appear once the mapping is created.

To display or hide a toolbar:

1. Select the **Display** menu.
2. Select or unselect one of the following toolbars:
   - Toolbar (generic)
   - Diagram bar (of the scenario)
   - Views toolbar

To move a toolbar:

1. Click the toolbar's handle ( ).
2. Move the toolbar to the desired location.

You can move a toolbar in order to:

- Put it in one of the four corners of the Scenario Builder window.
- Make it a floating toolbar, able to rest anywhere on your screen.

To dock a floating toolbar

1. Place the pointer on one of the borders of the floating toolbar.
2. Wait for the pointer to change ( ).
3. Double-click the item.
   The toolbar will automatically dock itself in its original location.

Panes

The main window of the Scenario Builder is comprised of three resizable panes:

- A **Toolbox** that enables you to choose the tools or the favorites for your scenario.
- A pane, called the **Scenario diagram**, in which the tools and links of the current scenario are represented graphically.
- A **Detail** pane showing several tabs:
  - The **Connect-It log** tab
  - The **Document log** tab
  - The tabs relating to the tool selected in the scenario: produced or consumed document-types, mappings, etc.

Displaying or Hiding a Pane

You can display or mask the following panes:

- The **Toolbox** pane
  To display or hide this pane, do one of the following:

1. Select or unselect the menu **Display > Toolbox**.
2. Click .

- The **Scenario diagram** pane
  To display or hide this pane, do one of the following:

1. Select or unselect the menu **Display > Scenario diagram**.
2. Click .

Scenario-diagram views

The **Scenario diagram** pane contains two tabs:

- **Global**: displays all components of the current scenario: source and destination connectors, links and mapping boxes.
- **Exception**: by default does not display any information but it is intended for scenario error handling.

You can create different views in the **Scenario diagram** pane. These views let you display only those tools used by one or more given mappings. For example, in a scenario using several source connectors, you select the mappings and one, single source connector. This way you create a view that just displays that one source connector.

Scenario-diagram views obey the following rules:

- It is not possible to drag a component inside a view other than Global.
- Deleting a mapping in a view does not delete the **<LAYER>** element in the corresponding `.scn` file.
- You can only edit mappings, connectors and links in the Global view.

- Clicking a tool in a view filters the its associated tracking lines in the Document log.
- Views do not have an impact on the other Connect-It functions.

Using the scenario-diagram views

The views created for a scenario appear each time that you open this scenario in the Scenario Builder.

To create or delete a scenario-diagram view:

1. Open your scenario.
2. Select **Scenario > View manager**.
3. To create a view, click in the window that appears.
   To delete a view, click .
4. Name your view. This name must be unique for a scenario.
5. Select the mappings for which you want to have a scenario-diagram view.
6. Click **Create**.

A tab named after your view appears in the Scenario diagram pane after closing the view editor.

To modify a view of a scenario diagram:

1. Open your scenario.
2. Select **Scenario > View manager**.
3. Select your view.
4. Rename your view or select/unselect the mappings of your choice.
5. Click **Modify**.
6. Click **Close**.

Printing the views of a scenario diagram

You can print each view of a scenario diagram. The printout includes the parameters defined for the schedulers.

To print a view of a scenario diagram

1. Select a view.
   Example: **Global**.
2. Click or select the **File > Print** scenario diagram menu.
3. Wait for the print preview window to appear.
4. Click **Print**.

To configure how a view is printed

1. Launch the print of a view.
2. Click **Configure**.

3. Wait for the Window's Configuration panel appears.
4. Change the configuration parameters.

To change the page setup

1. Launch the print of a view.
2. Click **Page setup**.
3. Wait for the **Page setup** dialog box to appear.
4. Modify the page setup parameters (the centimeter is the unit used):
   - Left margin
   - Top margin
   - Right margin
   - Bottom margin
   - Header margin
   - Footer margin
   - Zoom

   Note: *The centimeter is the unit used.*

The **Header margin** and **Footer margin** buttons display new dialog boxes that let you define the information printed in the header and footer of your page. The **A** button enables you to select a character font for the printed information.

Menus

Menu Item	Function
File menu	
New	Launches the 'Configure the scenario' wizard. This wizard enables you to choose and configure a source and a destination connector. It links them and places a mapping box between them thus creating a new scenario.
Open	Opens a scenario file (`.scn` files) that has previously been created.
Save	Saves the current scenario.
Save as	Saves the current scenario under a different name than the one with which it was opened.
Scenario history	Displays a window in which you can enter information about the current scenario.
Print scenario diagram	Displays a window in which you can enter information about how to print your scenario diagram.
Copy scenario diagram	Copies the image of your scenario diagram into the Clipboard. You can then paste this image in a graphical application like Jasc Paint Shop Pro, Adobe Photoshop, etc.
Create scenario documentation	Enables you to create a documentation of the current scenario in a XML, DBK or HTML format.
View HTML scenario documentation	Enables you to display a documentation of the current scenario in an Internet browser.
Scenario-documentation property	Launch the 'Scenario-documentation property' window.
Exit	Enables you to leave the Scenario Builder.
Enumerated List	Presents the most recently built scenarios. By clicking one of the elements in the list, you can directly open a scenario.
Edit menu	
Copy	Copies lines from the Connect-It log or the Document log to the Clipboard.
Delete	Clears a previously selected tool from the current scenario.
Options	Displays the **Options** window in the Scenario Builder.
Display menu	

Menu Item	Function
Toolbox	Displays or hides the pane containing the list of connectors.
Scenario diagram	Displays or hides the **Scenario diagram** pane.
Toolbar	Displays or hides the general toolbar.
Diagram bar	Display or hides the diagram's toolbar.
Favorites sidebar	Displays or hides the favorites sidebar.
Favorites menu	
Configure	Configures the favorite associated with the connector once this connector is defined.
Delete	Deletes the favorite associated with the connector.
Export	Exports the favorites associated with the scenario.
Import	Imports the favorites from the current folder.
Scenario menu	
Open all connectors	Opens all the connectors and mapping boxes in the current scenario.
Close all connectors	Closes all the connectors and mapping boxes in the current scenario.
Synchronize the caches	Synchronizes the cache files of all open connectors in the current scenario.
Delete the caches	Deletes the cache files of all open connectors in the current scenario.
Manage views	Displays the view manager.
Schedulers	Displays the schedulers edit window.
Scheduling	Starts the associated scheduling.
String tables	Displays the string-table edit window.
Maptables	Displays the maptables edit window.
Global functions	Displays the global-functions edit window.
Script constants	Displays the script constants editor
User formats	Enables you to create date-type and numerictype formats that you can use in mapping scripts.

Menu Item	Function
Work offline	Enables you to work offline. This option can be activated by clicking in the toolbar.
Test mode	Enables you to test the current scenario without needing the destination connectors to transmit to the external applications. This option can be activated by clicking in the toolbar. This option can be activated by clicking in the toolbar.
Start all schedulers	Starts all schedulers associated to the document types produced by the current scenario's source connectors.
Stop	Stops the scenario.
Tools menu	
Configure	Launches the configuration wizard of the selected tool.
Advanced configuration	Enables you to display the advanced configuration pages in the configuration wizards (F2). This option can be activated by clicking in the toolbar.
Modify the relational model	Enables you to define the structure of the document types produced by the connector.
Open	Opens the selected connector.
Close	Closes the selected connector.
Favorites/Add to the favorites without association	Creates a favorite that is not associated with a connector. The favorite will appear in the Favorites tab of the Toolbox.
Favorites/Add to the favorites with association	Creates a favorite associated with a connector. The favorite will appear in the Favorites tab of the Toolbox.
Favorites/Break association with the favorite	Removes the association between a favorite and a connector.
Cache/Synchronize the cache	Synchronizes the selected connector's cache file.
Cache/Delete the cache	Deletes the selected connector's cache file.
Wizard/Manage processing report	Enables you to create a feedback loop for a given connector.
Edit document type	Launches the **Select document type** wizard that enables you to choose a document type produced or consumed by the selected tool.
Edit mapping	Launches the **Select mapping** wizard that enables you to choose one of the mappings from the selected mapping box.
Produce now	Enables the selected tool to produce documents for which

Menu Item	Function
	a document type has been created.
Produce in debug mode	Enables the selected tool to produce documents in debug mode for Connect-It script.
Edit plugins	Launches the Plugin editor wizard to display and edit installed plug-ins.
Monitors menu	
Configure monitors	Displays the window that enables you to configure the document log (Document log, Database, Files, E-mail)
Refresh tracking lines (F9)	Enables you to refresh the contents of the document log.
Clear displayed tracking lines	Clears the displayed tracking lines from the **Document log** tab.
Manage saved sessions	Displays the window showing all the saved sessions for the active scenario.
Import saved sessions	Imports saved sessions into the current scenario.
Administration menu	
Display license file	Displays the window showing detailed information of installed license files.
Run AutoPass GUI	Displays the License Management window where you can retrieve/install, install/restore, request, report, backup and recover license keys.
Administer the monitors database	Displays the window enabling you to administer the database used by monitors.
Java menu	
Configure JVM	Displays a window in which you can specify the path of your Java classes.
Generate an SDK activation key	Displays a window to generate an activation key for a connector that is developed by Connect-It SDK.
Help menu	
Online help	Displays Connect-It's online help.
Tip of the day	Displays the Tip of the Day window shown at startup of Connect-It. The **Show at startup** option can be cleared.
About	Displays the **About** window that contains general information about your version of Connect-It.
Shortcut menus	

Menu Item	Function
In the main window of the Scenario Builder, shortcut menus are available in the following situations: • Right-click a tool in the pane of the Scenario diagram. • Right-click a tracking line in the Connect-It log tab. • Right-click a tracking line in the Document log tab. The following is a list of commands in the shortcut menu that appears when you place your pointer in the Scenario diagram pane.	
Configure connector	Launches the **Configure the connector** wizard that enables you to configure the selected tool.
Open connector	Opens the selected connector.
Close connector	Closes the selected connector.
Favorites/Add to the favorites without association	Adds the connector configuration to the favorites without associating it.
Favorites/Add to the favorites with association	Adds the configuration of the connector to the favorites and associates it. Reconfiguring the favorite will reconfigure the associated connector in all scenarios.
Favorites/Break association with the favorite	Removes the association between a favorite and a connector.
Cache/ Synchronize the cache	Synchronizes the selected connector's cache file.
Cache/ Delete the cache	Deletes the selected connector's cache file.
Edit a document type	Launches the **Select document type** wizard that enables you to choose a document type produced or consumed by the selected tool.
Edit a mapping...	Launches the **Select mapping** wizard that enables you to choose one of the mappings from the selected mapping box.
Produce now	Enables the selected tool to produce documents for which a document type has been created. This function is only available if at least one of the connectors is capable of producing data. If several connectors are capable of producing data, an error message is displayed.
Delete	Deletes the selected tool.
Show tracking lines	Displays the tracking lines relating to the selected tool in the Document log.
Show toolbox	Shows or hides the Toolbox.

Menu Item	Function
Show scenario diagram	Shows or hides the Scenario diagram.
Connect-It log tab	
Unfold one level	Unfolds the selected level of the tracking lines.
Unfold all levels	Unfolds all the levels of the tracking lines.
Collapse all levels	Refolds, or collapses, all levels of the tracking lines.
Copy	Copy contents of tracking lines.
Show toolbox	Shows or hides the Toolbox.
Show scenario diagram	Shows or hides the Scenario diagram.
Document log tab Three shortcut menus are available in the Document log tab: • Right-click a tracking line. • Right-click an element in the detail of a source document. • Right-click a message in the Message pane	
When you place your mouse pointer over a tracking line	
Copy this XML document	Copies the XML document that corresponds to the tracking line on your computer's Clipboard.
Copy this XML DTD	Copies the XML DTD of the document corresponding to the tracking line on your computer's Clipboard.
Open this XML document	Opens the document with the application designated to open XML files, which is specified on your operating system (for example: Internet Explorer).
Change the column sort order	Sorts by the ID, date, document type, connector or the contents of the document.
Show toolbox	Shows or hides the Toolbox.
Show scenario diagram	Shows or hides the Scenario diagram.
When you place your pointer on an element in the detail of a source document	
Copy this XML document	Copies the XML document on your computer's clipboard.
Copy this XML DTD	Copies the document's XML DTD on your computer's clipboard.
Open this XML document	Opens the document with the application designated to open XML files, which is specified on your operating system (for example: Internet Explorer).

Menu Item	Function
Copy path	Copies the path of the selected element to your Clipboard.
Find	Enables you to find elements in a document detail in the document log.
Find next / previous	Finds the next or previous element
Show toolbox	Shows or hides the Toolbox.
Show scenario diagram	Shows or hides the Scenario diagram.
When you place your pointer on a message	
Switch to list/tree view	Select to view message in a list or tree structure.
Unfold one level	Unfolds the selected level of the tracking lines.
Unfold all levels	Unfolds all the levels of the tracking lines.
Collapse all levels	Refolds, or collapses, all levels of the tracking lines.
Show toolbox	Shows or hides the Toolbox.
Show scenario diagram	Shows or hides the Scenario diagram.

Configuring Logs

You can consult two GUI logs in the detail pane of the Scenario Builder - The Connect-It log and the Document Log.

- **Connect-It log**
  - Shows general information of actions performed by Connect-It.
  - Produces a summary of statistics of documents produced and consumed.
  - Can be configured via **Edit** > **Options** > **Accessory** > **Logs**. See Configuring Connect-It log for more information.
- **Document log**
  - Shows tracking lines of each document being consumed and produced with the detail of the data values.
  - Requires the selection of a connector to view its specific document log data, which means the data would change depending on the connector you choose.
  - Supports data filtering.
  - Can be stored in memory (document log monitor), flat files (file monitor), or a database (database monitor). See Configuring Document log for more information.

  See the table below for a comparison overview between the two types of GUI logs.

Log Characteristic	Connect-It Log	Document Log
can be stored in a database		X
stored in conitgui.log	X	
configured in the Monitors menu		X
can apply filter to log data		X
length of time session values	X	X
displays tracking lines		X
displays detail of document		X

- **Java log**
  - **Configuring Java log**
    If a scenario contains a Java connector, you may need to configure Java log via **Edit** > **Options** > **Accessory** > **Java**. Java logs are displayed in both the Connect-It log and Document log. See the configuration details in Configuring Connect-It log. To view the list of Java connectors, see "Configuring the JVM" in the *Connector Guide*.
  - **Debug mode**
    You may choose to activate or deactivate the Debug mode for Java connectors via **Java** > **Configure JVM**. This option enables you to display the debug messages. If you select the **Enable Debug mode** check box, you must also activate the verbose mode, because debug messages can only be displayed in the verbose mode.
    Note: By default the verbose mode is activated in the Scenario Builder, but is not activated in non-graphic mode.

You can view log files through the following non-graphical modes:

- **In Service Console** You can consult the Log file associated with your documents when launching Connect-It Service. By default, this file is named after your service (For example: test.log). The information concerning the configuration of the service are saved in the`conitsvc.ini` file (**SvcLogFile** settings).To specify a new log file name,select the service corresponding to your scenario, and then click **Log file**.
- **In Command Line** For information about specifying a log file using command line, see Command Options for conitsvc and conitgui.

Log file name and file location may vary depending on the way you visit log. See the table below for the default log file names and the file locations.

Execution mode	Log file name	Location
Scenario Builder	conitgui.log	`<Connect-It Installation folder>\bin\conitgui.log`
Service console	<service name>.log	`<Connect-It Installation folder>\bin\<service name>.log`
Command line	<Scenario name>.log	In the same folder as the corresponding scenario.

Using the Connect-It Log

This log informs the user of actions performed by Connect-It. For example: A message is issued when a connector is opened. To access the Connect-It log, select the Connect-It Log tab in the Scenario Builder.

In the log, each action is represented by an icon . An action's message can be composed of several sub-messages that detail the action. These sub-messages can, themselves, be composed of other sub-messages.

Note: *Double-click on a tracking-line to display the complex element (field, structure, or collection) that triggered the message (right window).*

Each message is dated according to when the action was launched. You can unfold or collapse messages by right-clicking and then selecting the appropriate command from the shortcut menu.

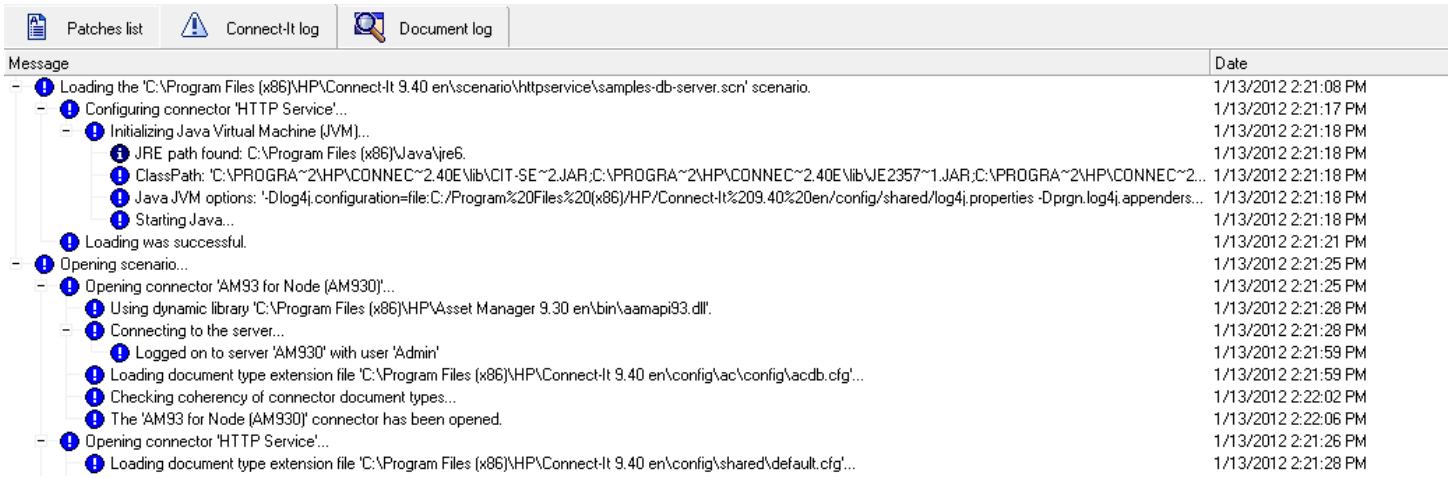


Figure 3-2: The Connect-It log

For an example of the messages appearing in the Connect-It log, refer to the Connectors guide.

 Information, such as the opening of a connector.

 Details of an action,such as Indication that a particular index is used in the reconciliation process.

 Warning, such as the field chosen as a reconciliation key does not have a uniqueness contrataint.

 Major problem, such as the configuration of the connector is not valid.

To clear all messages from the log, select the option **Clear displayed tracking lines** in the **Monitor** menu, or click . Purging the Connect-It log also purges the Document log.

Configuring Connect-It log

You can configure Connect-It log through the menu **Edit** > **Options** > **Accessory** > **Logs**.

- **Java**: select from the following options:
  - **Log4j configuration file**: set the Log4j configuration file default path.
    The path of this file can be relative to the Connect-It `config/shared` directory.

  - **Write a Java log file**: (enable option) write a log file containing all messages generated by the Java connectors to the log file of the application. This log file has the same name as the application log file with the suffix `_java`.
  - **Write a Java log file**: select this option to generate a log file containing all messages generated by the Java connectors. The path of this file can be relative to the directory in which the Connect-It executable file is located.

- **Log file size (MB)**: specify the maximum size of the log files.When this size is reached, new data overwrites the oldest data.
- **Log file**: enter the name you want to use for the log file.
- **Maximum number of lines displayed in the Connect-It log**: enter the number of tracking-lines that will appear in the Connect-It log.
- **New log mechanism**: enable this option to improve the performance of the logging process. If you enable this option, use only one instance of Connect-It to avoid logging issues.
- **Show queries in tracking lines**: enable this option to display your queries in the document log (messages pane), which is useful when testing/debugging your scenario.
- **Status Report**: enter the Maximum number of status report logs up to 5000.
- **Verbose**: enable this option to activate verbose mode.
  Note: *This option is not taken into account if the application is launched with the '-verbose' option. To output debug level log for java connectors , the verbose mode must be activated.*

Using the Document Log

The Document log lets you check the details of documents after they have been:

- Produced or consumed by a tool
- Routed by a link

The Document log is displayed when you select the **Document log** tab in the Scenario Builder.

This tab is organized into three panes:

- A first showing the tracking lines corresponding to documents.
- A second showing the details of the selected document.
- A third showing messages detailing the tracking lines left by elements in the document.

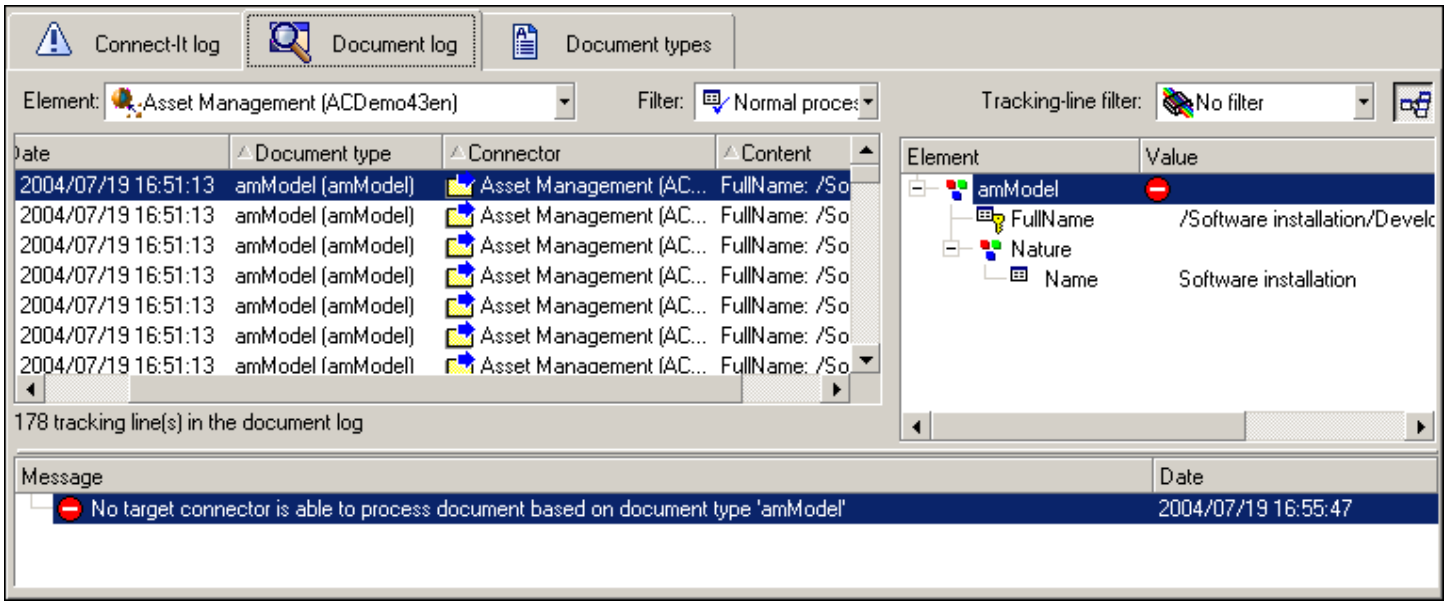


Figure 3-3: Scenario Builder - Document log tab

Icons used in the Document log

Icons representing information about an action, details of an action, warning, and major problems can appear in the log. Each icon represents information of increasing importance. For example: If certain fields only receive warnings and others are completely rejected, only the warning icon appears in the document log. The full rejection of a document is considered more important than a warning.

When an icon appears on a component, if you right-click the tool and then choose Show tracking lines from the shortcut menu, the icon disappears, meaning that you have noticed the problem.

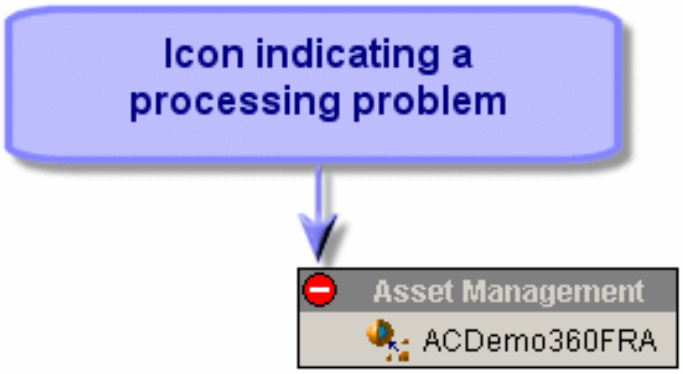


Figure 3-4: Document log: the processing-problem icon

Configuring the Document Log

To configure the document log, select **Monitors > Configure monitors > Display sessions**.

This menu enables you to save your documents, their tracking lines and any tracking lines left by scenario elements. Some options of the document log are accessible from the **Edition > Options** menu:

- **Display** category
- **Connector** category
- **Logs** category

Clearing memory

A purge command is available in the Monitors menu: **Clear displayed tracking lines**. This enables you to clear the log entries in the Scenario Builder, but does not empty the files that permanently store the tracking lines.

Tracking Lines

The Document log contains tracking lines. Each one corresponds to a document processed by a scenario element and includes:

- An identifier.
- An icon symbolizing how the document was processed.
- The data and time of processing.
- The document type that was processed.
- The name of the element that produced or consumed the document.
- The contents of the document.

The identifier corresponds to the order in which the documents were processed; number **1** being the first. This unique identifier allows you to find documents when they have been kept in memory.

You can click on the header of each column in the Document log to apply an ascending or descending sort. A blue triangle pointing upwards means that the sort is ascending; a blue triangle pointing downwards means that the sort is descending.When no sort is applied, the triangle is grayed out.

If an element is cut off in the display, you can hold the mouse pointer over the element; it is displayed in full as a ToolTip.

Using Tracking Lines

This section explains how to use tracking lines.

Refreshing tracking lines

The **Refresh tracking lines** item in the **Monitors** menu enables you to display all tracking lines in the **Document log** tab. This command is particularly useful if you have restricted the number of tracking lines displayed in the **Document** log. In this case, this command enables you to view all the problems encountered while processing your documents. A refresh is performed automatically and also be performed manually by pressing `F9`.

Filtering tracking lines

You can filter the tracking lines shown in the document log according to:

- The element that processed the document.
- How the document was processed.

If no elements are selected in the Scenario diagram pane, all available tracking lines are displayed in the Document log. To only show tracking lines for documents processed by a given element:

- Select this element in the Scenario diagram.
- Or select an entry in the **Element** field.

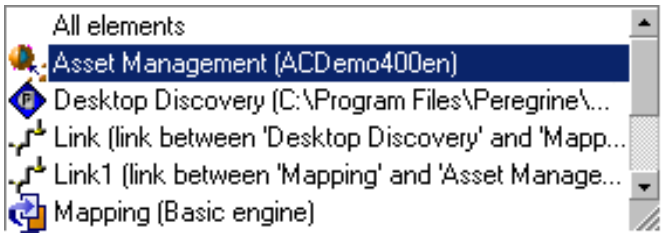


Figure 3-5: Filtering tracking lines in the Document log

To show tracking lines by processing type, select an entry in the **Filter** field. Only the selected processing type and higher level messages are displayed. For example: When you select **Field reject**, fully rejected documents are also displayed.

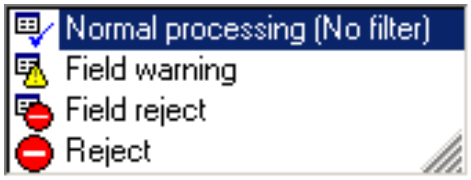


Figure 3-6: Filtering tracking lines

Gray tracking lines

In the document detail, some tracking lines may be shown in gray. A gray tracking line simply means that at least one of its sub-nodes has a tracking line. When there is more than one tracking line in the sub-nodes, only the highest level tracking line is shown in gray next to the node.

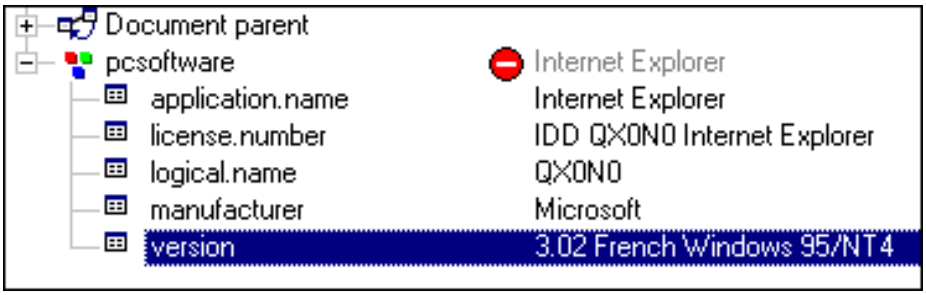


Figure 3-7: Grayed-out tracking line indicating a tracking line under the node.

Filtering by tracking-line type

It is possible to filter the document detail by tracking-line type. This allows you to see only those elements that have this tracking line (or tracking lines that are more important).

If you are only interested in the rejected nodes, select the entry in the **Filter tracking lines** field, found on the top of your document detail pane. When you select an entry in this drop-down list, all the nodes with tracking lines below this entry are displayed. The order of information in this list depends on the importance of the information: from detailed information about a field to failure of processing.

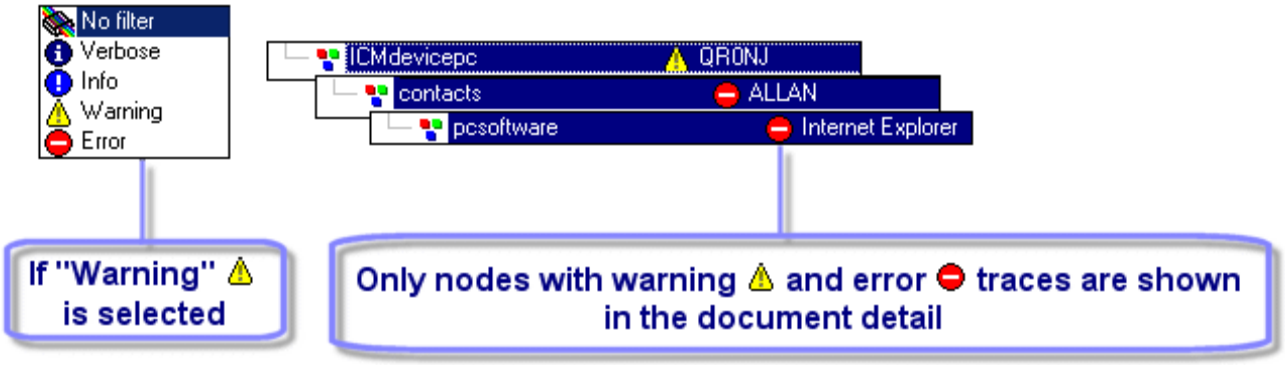


Figure 3-8: Filtering tracking lines in the document detail

Explanatory messages

All tracking lines shown in the detail of a document have an accompanying message. Simply select a tracking line in the document detail; the message is displayed in the pane below the document log.

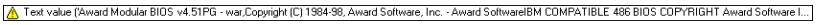
For example: An error is accompanied by a message explaining that the field has been rejected by the Asset Manager connector because its value violates the data model of the connected database.

Display the sub-messages

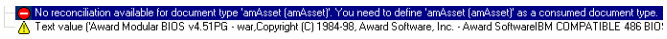
To display the ensemble of messages contained in the child nodes of your document's parent node, click the sub-message icon .

For example:

If this option is not selected, only the message of the selected node is displayed:



If the option is selected, all the messages in the child nodes are displayed:



Details of a Document

The detail of a document gives you information about the value of the fields in the document and the way in which the document was processed by a tool or a link.

When you select a tracking line in the Document log, the detail of the document concerned is displayed in the right-hand pane of the Document log. The document is represented as a tree.

Each tree node shows:

- The name of the corresponding element.
- The value of this node in the document.
- One or more possible tracking lines left by the tool or the link that processed the document.

All the tracking lines in the document detail have messages that explain, for example, why the document was rejected.

Differences between the document detail and the document type detail

The document type detail is displayed when you edit the produced or consumed document-types. Just like documents, document types are represented as a tree. However, there are several differences.

In a document detail, each node has a value. For structures or collections, this value is a description string resuming the contents of the fields in the structure or the collection. Thus, for example, the root node of a document corresponding to an asset in Asset Manager is described by its Asset tag, which is shown in gray. For collections, the number of members is indicated, etc. In the detail of a document type, only the name of the node is shown.

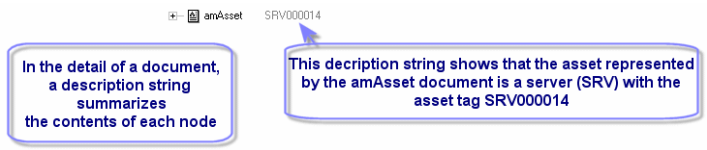


Figure 3-9: A description string of the document

In the detail of a document, each member of a collection is represented as a child structure of the collection. Each child node bears the name of the collection followed by a number in square brackets. In a three-member collection, the first member is numbered 0; the second, number 1; and the third, number 2.

In the detail of a document type, only the collection is shown, along with the expected value-types (text, integer, date).

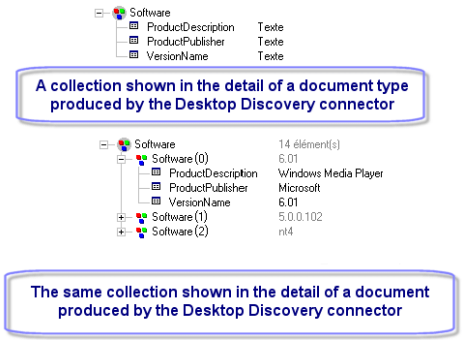


Figure 3-10: A collection shown in a document type detail and in a document detail

Parent document

The detail of a document can contain a parent document. This parent document contains the data used to create the child document. Thus, the detail of a document produced by the mapping box also includes the detail of the source document from which it was created.

For example, in the `pdiac.scn` scenario, the detail of the documents produced by the mapping box includes the detail of the documents produced by the Desktop Discovery connector. These documents come from the source document-type shown in the mapping. If a document field is rejected by the mapping box, you can check the value of this field in the parent document for details as to why the document field was rejected.

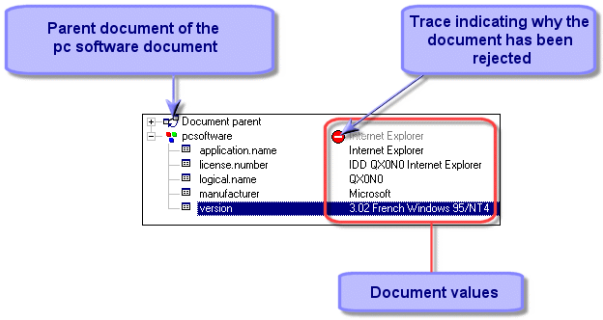


Figure 3-11: Detail of the pcsoftware document consumed by the ServiceCenter connector

Manipulating the XML Document

The detail of a document produced in Connect-It is an XML document.You can:

- Copy this XML document.
  a. Place the pointer on the document detail.
  b. Right-click.
  c. Choose **Copy this XML document** from the shortcut menu that appears.
- Copy this document's DTD.
  a. Place the pointer on the document detail.
  b. Right-click.
  c. Choose **Copy this XML DTD** from the shortcut menu that appears.
- Open this XML document.
  a. Place the pointer on the document detail.
  b. Right-click.
  c. Choose **Open this XML document** from the shortcut menu that appears.

Note: *The XML document is opened by the application that is associated with files having an* `.xml` *extension on the computer on which Connect-It is installed. For example: Internet Explorer, etc.*

Finding an Element in the Detail of a Document

A searching function enables you to find elements in the detail of a Document log document.

To search for an element in the detail of a document:

1. Select an element from the detail of a document.
2. Right-click.
3. Select **Find** from the shortcut menu.

4. Wait for the dialog box to appear.
5. Enter the name of the element that you want to find in the Find what field and select the options of your choice:
   - Case sensitive
   - Select the direction of your search: up or down.
6. Click **Find**.

To search through previous elements or following elements:

Perform one of the following actions:

- Right-click and select **Find next** (**F3**) from the shortcut menu.
- Right-click and select **Find prev.** (**Shift + F3**) from the shortcut menu.

Note: *The search is limited to the elements displayed in the document detail. If you want your search to apply to the sub-nodes of a given node, you must unfold the node before the search.*

Configuring Document log

To deal with processing problems, it is recommended to configure the Document log so that only the problem documents are displayed. To configure Monitor Window for Document log, go to **Monitors** > **Configure monitors**. You can find detailed information about configuration in the section Configuring Monitors.

Chapter 4

Implementing Integration Scenarios

This section explains how to implement an scenario.

Implementing an Integration Scenario with the Wizard

The **Scenario implementation** wizard enables you to:

- Choose the source and destination connectors for your scenario.
- Perform the configuration of these connectors.

After the configuration of your destination connector is finished, the two connectors are linked to a mapping box. The connectors and the mapping box appear in the Scenario diagram pane of the Scenario Builder.

To launch the Scenario implementation wizard:

1. Click **Open** in the Scenario Builder toolbar.
2. Choose **New** from the **File** menu.

Saving a scenario

To save a scenario, select **File > Save** from the menu or click .

To save a scenario under a different name, select **File > Save as** from the menu.

Backup copy

When you save a scenario, a backup copy of it is automatically created in the scenario folder. This copy has the file extension `.bak`.

To deactivate this option:

1. Select **Edit > Options**.
2. Unfold the **Accessory > Scenario** node.
3. Select **No** for the **Keep a backup copy of the scenario** option.
4. Click **OK**.

Moving a scenario

When you move a scenario to another folder do not forget to either move the files associated with folder or change the relative paths contained in the scenario scripts. Verify the paths of the files: `.bas`, `.str`, `.usr`, `.scp` and `.mpt`.

Implementing an Integration Scenario Manually

To manually implement a scenario:

1. Place your scenario's tools (connectors and mapping box) in the Scenario diagram
2. Link the tools.

Placing the tools in the Scenario diagram

Placing the tools in the Scenario diagram automatically launches the **Configure the connector** wizard.

To place a tool in the Scenario diagram:

1. Drag it from the Toolbox into the Scenario diagram or selection it and double-click on it.
2. Configure it by entering values in the **Configure the connector** wizard that appears.

To reconfigure a tool already in the scenario diagram:

1. Select it in the Scenario diagram.
2. Perform one of the following actions:
   - Select **Tools > Configure** from the menu.
   - Right-click and choose **Configure connector** from the shortcut menu that appears.

Linking the tools

The way in which you link the tools enables you to define which one(s) will become source connector(s) and which one(s) will become destination connector(s).

- A link leaving the connector indicates that it is a source connector.
- A link entering the connector indicates that it is a destination connector.

Note: *A source connector is almost never linked directly to a destination connector. It almost always goes through a mapping box, which, itself, is linked to the destination connector.*

In the following example, the Network Discovery connector is the source connector, and the ServiceCenter connector is the destination connector. When the Network Discovery connector produces documents, these documents are consumed by the ServiceCenter only after having been transformed by the mapping box.

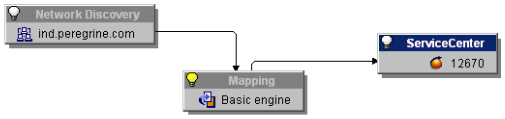


Figure 4-1: Linking tools in a scenario

To link a tool to another tool:

1. Click on the lower part of the tool.
2. Wait for the tool's specification to appear in white.
3. Keep the left mouse key held down.

4. Drag the link that appears as a line to the other tool.
   Note: *If you click outside of the tool's specification, you will move the tool itself inside of your scenario.*

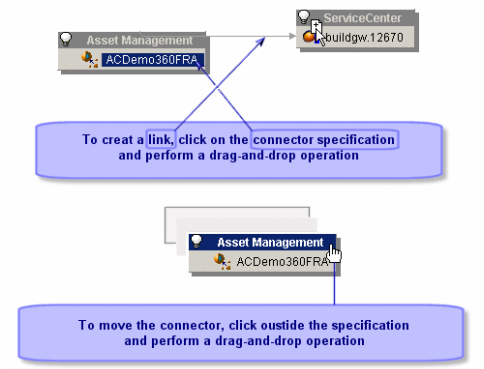


Table 4-1: Creating a link or moving a connector

To link two connectors without going through a mapping box

When you link the two connectors, Connect-It automatically creates a mapping box between these two connectors. If you don't want this mapping box to be created, link the two connectors while holding down the **Shift** key.

The direct link between two connectors applies to certain connectors (such as the Delimited-text connector and the XML connector). This link enables you to directly export data from the source connector using the structure of the document produced by the source connector.

Deleting a tool

To delete a connector, a link or a mapping box in the Scenario diagram:

1. Select the tool.
2. Perform one of the following actions:
   - Select the **Edit > Delete** menu.
   - Press **Del** on the keyboard.
   - Right-click and select **Delete** from the shortcut menu that appears.

Note: *If you have selected the Show ToolTips option (see **Edit > Options > Advanced options > Display**), you can view the following tooltip help as mouse-over text in the Scenario diagram:*
Connector *- the connector name shown in the toolbox*
Configuration *- important information extracted from the connector configuration wizard*
Statistics *- the overall statistics of running a scenario, such as run time, consumed or produced document number, etc.*
Description *- the description (a limit of 1000 characters) provided in the connector configuration wizard*

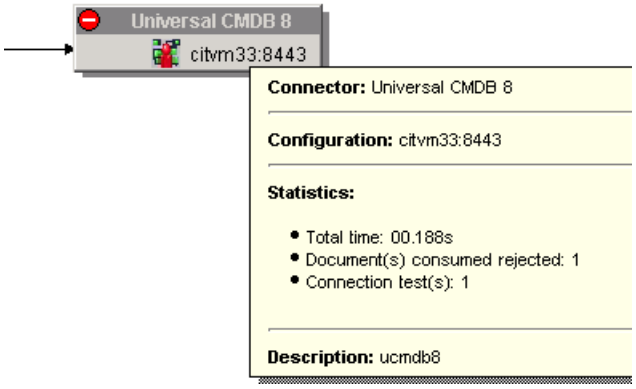


Figure 4-2: Tooltip help text

Configuring the JVM

1. Launch the Scenario Builder.
2. Select **Java > Configure JVM** from the menu.
3. Enter the path of your Java classes in the **Classpath** field (jar or zip files) or the folder containing your .class files.
   - To select a Java library (.jar), click the **File** icon
   - To select a class folder, click the **Folder** icon
   - To add a Classpath element, click the **Plus** button.
     Note: *The order is significant in the Classpath definition.*
4. Enter your JVM options in the **Options** field.
   Example: **-DmyDefine=value**.
5. Activate or deactivate the **Debug mode**.
   This option enables you to display the debug messages (**PrgnLog.debug**) and the stack traces (stacktrace) of the exceptions.
6. Activate or deactivate the **Specify the JRE to use** option. This option modifies the conit.ini file and the values are taken into account the next time the virtual machine is started.
   By default, the JRE used by Connect-It is the default JRE specified in the Windows Registry and the **Specify the JRE to use** option is not selected.
7. The following fields are activated by this option:

- **JRE saved in the Registry**: select this field to validate the version number of the JRE defined in the local machine's Registry.
- **Path for the JNI dynamic library of the JRE**: populate this field if you want to use a JRE that is not registered in the Registry. In this case, you are required to locate **JNI dynamic library of the JRE** that is usually called `jvm.dll`. It is advised to also specify the JRE root folder (JAVA_HOME).

In some cases, the JRE specification includes additional constraints:

- No JRE is recorded in the Registry. In this case, the user must specify the JRE to be used by indicating the path for the JNI dynamic library to be used. The **Specify the JRE to use** option is then selected and is read-only, as is the **Path for the JNI dynamic library of the JRE** option.

- No default JRE is specified in the Registry: in this case, Connect-It cannot determine the default JRE to use. Therefore the user must specify it. The **Specify the JRE to use** option is then selected and is read-only.

Additional information

- The Oracle JREs are recorded in the Registry with the following key: `HKEY_LOCAL_MCHINE/SOFTWARE/JavaSoft/Java Runtime Environment`

Editing Scenario Options

To access the options window in the Scenario Builder, choose **Edit > Options** from the menu. The options for all categories are explained below.

Note: *When you modify one of the default values, the title of this option will appear in red. This enables you to quickly locate the options for which you have changed the value.*

Accessory

License

- **Display licensed connectors only**: select this option to display the connectors that your authorization certificate grants you permission to use in the Toolbox of the Scenario Builder.
- **Warn when the authorization certificate is approaching expiration**: select this option to see warning messages when your authorization certificate is approaching expiration. You can specify the delay before the warning is issued. If this delay is set to zero, a warning will be issued constantly.

Logs

See related information in Configuring Connect-It log.

Scenario

- **Ask for confirmation before saving**: select this option to display a prompt before saving.
- **At startup, automatically load last document used**: select this option to automatically load the last document used in the last session of the application.
- **Default path of scenarios**: specify a default path for loading and saving scenarios.
- **Keep the backup copy of the scenario**: select this option to save the backup copy (named `<scenario_name>.bak`) that is created in the scenario folder.
- **Maximum number of recently opened documents to store in File menu**: set the maximum number of documents kept in memory by the application. These documents can be rapidly accessed from certain areas of the application.
- **Update the application file lists automatically while loading scenario**: select this option to automatically update the application file lists (including string tables, map tables, global functions, script constants and user formats under the **Scenario** menu). These lists include files from the configuration folders of connectors that are used while loading a scenario.

***Note**: If you select **Yes** for this option, the application files in the connector configuration folders cannot be removed from the scenario.*
*If you encounter any errors while loading a scenario, you might need to select **No** for this option so certain files in configuration folders can be removed.*

Trace

- **Asset Manager**: enable the function to call trace for Asset Manager.
  - Input parameters trace
  - Output parameters trace
- **Lotus Notes**: enable the function to call trace for Lotus Notes.
  - Input parameters trace
  - Output parameters trace
- **Mail**
  - Trace for extended MAPI module
  - Trace for IMAP module
  - Trace for MAPI module
  - Trace for POP3/SMTP module

Advanced options

This category explains options related to the user interface and the user interface.

Combo

- **Maximum number of commands**: set the maximum number of items displayed in a list of commands.
- **Maximum text length in a command**: set the maximum number of characters that are displayed in each command.

Display

- **Calculator for numeric fields**: choose whether to show the calculator icon next to numeric fields.
- **Disable the 'Esc' key in fields**: enable this option to be able to use the **Esc** key to cancel all modifications made at the record level, not only the values in a current field or link.
- **Maximum number of child elements displayed at one time**: set the maximum number of child elements shown under a parent element in documents and document types.
- **Maximum number of child elements of an element to be unfolded automatically**: set the maximum number child element to be automatically unfolded under a parent element in the documents and document types.
- **Maximum number of levels (recursive) to map automatically**: set the maximum number of element levels (structure or collection) that can be automatically mapped in a table-to-table or element-to-element mapping.

- **Multi-document interface representation style**: set the number of documents recovered on initialization or when you click '+'.
- **Number of documents recovered in a block during the preview**: set the maximum number of items displayed in a list of commands.
- **Show ToolTips**: choose whether or not to display tooltip help.
- **Windows graphics**: choose flat or standard graphics.

General

- **Current language**: select the appropriate language to handle characters while running a scenario.
- **IPV6**: choose whether or not your network is using IP version 6.

Java

- **Display this message each time the JVM parameters are modified**: choose this option to be notified that Connect-It must be restarted before any new JVM parameters can be taken into account.

List

- **Arrow keys used to open and close nodes in tree structures**: this options allows you to use the arrow keys to open and close nodes.To navigate from one column to another using the keyboard, hold down the SHIFT key.
- **Auto-close delay after selection (milliseconds)**: set the amount of time in milliseconds that a drop-down list will delay before closing when you use the keyboard to change the selection. '0' disables this option.
- **Refresh delay after keyboard selection (milliseconds)**: set the amount of time in milliseconds that a screen will delay before refreshing when you use the keyboard to change the selection.

Tab

- **Display image**: select this option to display an icon alongside the text of a tab.
- **Display text**: select this option to display the label of tab.
- **Display ToolTip**: select this option to display ToolTips for tabs. In general, these ToolTips display the names of the tabs.
- **Tab representation style**: choose the style for tabs in the produced document-type window.

Component

This category explains options related to various product components, such as mapping, reconciliation, and scripts.

Configuration

- **Validate by default the option to use a configuration wizard cache**: choose this option to allow document types that were published or consumed by a connector to be saved in cache memory.

General

- **Use a dialog box to select the document or the mapping to edit**: select this option to display a dialog box to select a document type or mapping when you double-click an open connector or mapping box.

Mapping

- **Display a warning whenever a 'collection-to-collection' mapping is needed**: select this option to display a warning every time a collection-to-collection mapping is necessary. For example, if the fields of a source collection are mapped to the fields of a destination collection without the two collections being mapped to each other, a message would appear reminding the user that these collections must be mapped.

Reconciliation

- **Display reconciliation properties by document type**: this option enables you to see the reconciliation properties by elementary document type.
- **Force execution of reconciliation key sets**: select this option to force execution of reconciliation key sets if several documents have reached a weight greater than or equal to 100 until a unique one has been found.
- **Maximum number of documents in the reconciliation cache**: select this option to empty the reconciliation cache as soon as the maximum number of documents is reached.

Script

- **Do not authorize the validation of a script that includes compilation errors**: select this option to prevent validating or saving scripts with errors.

Wizard

- **Change the color of wizard descriptions**: select this option to enable you to change the color of the descriptions in the basic configuration wizards of connectors.
- **Disable the new scenario wizard**: select this option to disable the new scenario wizard.

Connector

This category represents the confirmations that are asked of the user after having performed certain operations. The confirmations function by using dialog boxes.

Delimited text & XML

- **Backup the existing file before starting in mode 'Append to the same file'**: This option enables you to backup the existing file before starting in mode 'Append to the same file'. This enables you to keep a copy of the file before restarting the service.
- **Copy locally the files to read from FTP server**: select this option to copy the files to be read from an FTP server to a local drive, and then read the data from those files. Select this option if a connection to the FTP server cannot be maintained open long enough to process the files due to the network configuration.
- **Display the URL being processed in the Connect-It log**: select this option to display the URL being processed in the Connect-It log.

General

- **Adjust dates in relation to the time difference with the server**: select this option to use the server time when there is a time difference with the server. This option can only be applied on AssetCenter/Asset Manager, ServiceCenter/Service Manager and Action Request System connectors.
- **Calculate number of documents to be processed**: select this option to display the number of documents processed against those that will be processed.
- **Favorites file**: specify the favorites file to use. If no file is used, the default favorites file will be used.
- **Number of documents to produce in a test production of documents**: set the number of documents produced during a document production test.
- **Open all connectors of current scenario when starting a connector**: select this option to automatically open all connectors of a scenario when a connector is started.

LDAP

- **Certificate folder**: specify the folder containing the certificates enabling secure access to the LDAP servers.
- **Certificate**: specify the certificate associated with the server.
  HP Connect-It does not read a certificate from the Microsoft certificate store. Instead Connect-It obtains a certificate file through the menu **Edit** > **Options** > **Connector** > **LDAP** > **Certificate**.
  The following requirements of the certificate must be met:
  - It must be a CA root certificate of the LDAP server.
  - It must be a certificate without a private key.
  - It must be exported as a **Base-64 encoded.x509** certificate file.
- **Describe AUXILIARY classes at the root**: select this option to describe AUXILIARY classes at the root.
- **Display attributes defined at the DSE root**: select this option to display attributes defined at the DSE root. This helps determine if the LDAP server is exposing an attribute that will enable you to recover the current date of the server.

- **LDAP integer length**: select this option to change the length of integer for the LDAP document type.
- **Read LDAP server schema from file**: select this option to allow you to read the LDAP server schema from file.
- **Save the LDAP server schema to file**: select this option to allow you to save the LDAP server schema to file.

Mail

- **Embed original HTML/RTF email as an attachment (MailAsAttachment)**: select this option to embed the original email as a .msg file attachment. This option works with XMAPI only.
- **Parse e-mail strictly following the MIME standard during fetching**: This option is applicable for email fetching connector where Messaging type is POP3. To ensure data accuracy, select **Yes**. Connect-It will strictly parse email messages following the MIME standard and will not process non-standard email messages. To process non-standard messages and ignore any errors that occur during the processing of these messages, select No. Connect-It will attempt to process these email messages, but the correctness of the email content cannot be guaranteed.
- **Supports a missing CRLF MIME boundary**: select this option to allow an illegal MIME boundary with a missing CRLF.

ServiceCenter

- **Check data type in filter**: select this option to check whether the ServiceCenter field types match the type specified by the author of the query.
- **Display a warning for events used in asynchronous mode**: select this option to warning messages when the events configured in asynchronous mode are used to insert data into ServiceCenter.
- **Display progress information while connector publishes document types**: select this option to save the names of the document types published by the connector in the Connect-It log.

Editing the configuration file

Some connectors include an extension file for extending or modifying the documents displayed by the connector. In the case of a Database connector, the extension file allows for example to define the database's relational model and to define schedule pointers.

The connector configuration-file editor enables you to create or customize a relational database model.

The configuration-file editor applies to:

- the Database connector
- inventory connectors

You can access the configuration-file editor using the shortcut menu (right-click the connector then select **Modify the relational model**). This menu is available once the connector has been configured.

Note: *If you modify the relational model of a connector that is already used in one or more scenarios, the scenarios will be impacted and will need to be modified.*

The file generated by the configuration-file editor has the file extension `.cfg`.

Limitations of the configuration-file editor

This editor does not enable you to edit the complex `amo.cfg` and `tscdb.cfg` files.

The editor window

There are two parts to the editor:

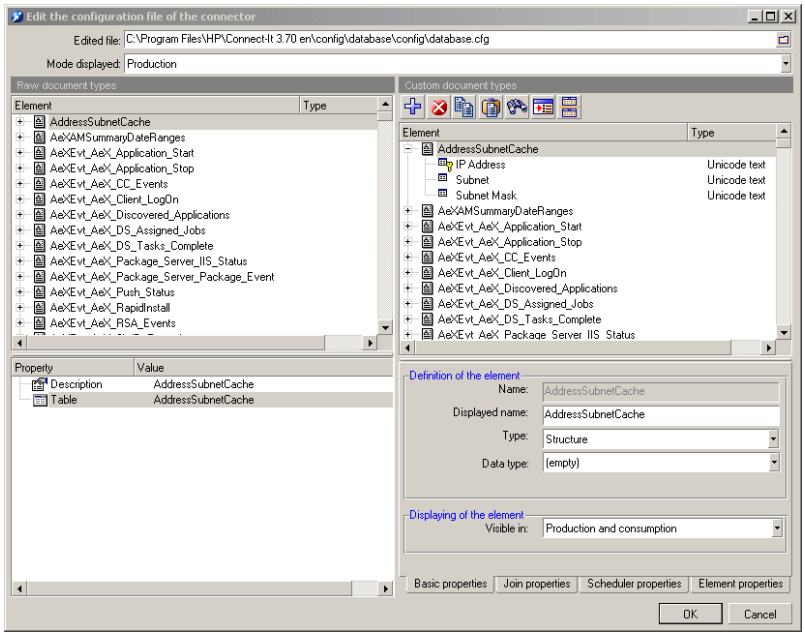


Figure 4-3: The configuration file editor

- Left part: The relational database model
- Right part: Customized document types from the database, produced by the connector

The properties of the selected element are defined in the following tabs:

- Basic properties
  This tab enables you to define the displayed name of the complex element, its type, its data type (binary, text, etc.) and the display conditions.
- Join properties
  This tab enables you to define the join and filter the element.
- Scheduler properties
  This tab enables you to define the scheduling conditions of the element.
- Element properties
  This tab lists all the properties of the selected element.

Creating a new document type

When opening the configuration-file editor, the source database structure is displayed in the left side of the window. This structure is automatically duplicated in the right side, which shows the document type that will be published by the connector.

The document type resulting from the source database is called a raw document. The document type modified and published by the connector is called a customized document.

To create a new customized document type, edit the elements shown in the right pane:

- To delete an element in a customized document type, select it and then click ⊗ or press Del.
- To insert an element from a raw document type to the root position of a customized document type, drag the element while holding the CTRL key down.
- To create joins between items, drag an element from a raw document type to the desired element in the customized document type (from the left side to the right side of the window) or drag an element in the customized document to another element in the customized document type (action performed on the right side only).

Note: *All modifications can be reversed using the* ***Restore the element*** *command from the shortcut menu (right-click the root element in the customized document type).*

All the modifications are validated when:

- a new name is given to the configuration file (**Edited file** field)
- the configuration-file editor is closed (**OK** button)

Customizing a document type

Customizing a document type consists of defining properties for each of the complex elements making it up. A customized element is symbolized with the icon.

Note: *Use the button to split the window in two and view the source and target elements at the same time.*

All modifications made to an element can be reversed using the **Restore the element** command from the shortcut menu (right-click the root element in the customized document type).

Basic properties of a customized document type

- **Name:** System name of the element (field, structure or collection). This field may not be edited.
- **Displayed name:** This field enables you to change the displayed name of the element (field, structure or collection) and to define its place in the list. The system name is unaffected.
- **Type:** This field enables you to define the type of a complex element (field, structure or collection). When a structure or a collection is defined, make sure you check the associated join.
- **Data type:** This field lets you define the data type of the element. The following data types are available: Binary field, long text field (memo), Long Unicode text field, date, date and time, time, double-precision number, 8-bit integer, 16-bit integer, 32-bit integer, floating point number, text (size limited to 255 characters) and Unicode text.
  This field enables you to specify the data type if the database engine does not recognize it.

- **Visible in**: This field enables you to define the display conditions of the element, i.e. if it is visible in production, consumption, or consumption and production. The displaying of the element depends on the value defined in the configuration field (**Mode displayed** field visible below the **Edited file** field).

Join properties of a customized document type

The icon designates elements for which a join can be used. These elements are listed in the produced document-types edit window and the document-type customization window.

The join is the linking of two document-type elements with a hierarchy being created. In order for the join to be possible, a child element must exist in the two document types. For example, to recover a portfolio item user from Asset Manager, the **IUserID** field of the **amPortfolio** document type is common to the **amEmplDept** document type.

Note: *This join is given as an example only. You should not use the Database connector to connect to an Asset Manager database.*

To perform a join:

1. Drag a document type onto another.
2. Select the structure that is shown.
3. Change the structure to a collection, if required.
4. On the **Join properties** tab, click **Suggest**.
5. Modify, if required, the join condition expressed (button).
6. Validate the join condition (button).

Join syntax

The join syntax is as follows:
`<expression><operator><expression>`

For example:
`{..Device_ID}*={Object_ID}`

This example shows the syntax used for a join between the Device table and the Enterprise Discovery NMID table.

An expression may be:

- a relative field ({<relative path of a field>})
- a constant
  Constants must be between single quotes (' '), be they strings, numbers, or dates. Only the keyword 'null' must not be between single quotes.
  `{DeviceId}=null`

The operator may be a comparison operator (=, *=, >, >=, <, <=)

Tip: *To avoid making errors when entering the relative paths, you can drag the fields from the right in order to write the join condition.*

Note: *Certain *= queries may fail if the operator is not supported by the database engine, or simply reduce processing performance.*

Sample queries

- This query returns all the unique IDs that start with 'demo'
  `{DeviceId} like "demo%"`
- This query returns all the unique IDs that do not start with 'demo'
  `not({DeviceIdd} like "demo%")`

Join sub-query

The **Perform a sub-query** option enables you to force a sub-query to be executed.

This option is particularly useful if the query becomes too large for the database engine because of too many 1-1 joins. In this case, you may force sub-queries in order to break down the main query. Select this option if the database engine does not support outer joins.

Sort expression

Use this control to specify the order in which the query will return the data.

Data can be sorted by:

- Ascending order (default behavior)
- Descending order (**DESC** instruction)

The syntax is as follows:

```
{<relative path1>} [desc][, {<relative path2>} [desc]...]
```

If no instructions are provided after the relative path, an ascending sort is performed. For a descending sort, use the **desc** instruction. In the following example, a date type field named DateSold is used. The records are sorted by ascending order using the DateSold field (from the oldest to the most recent date).

```
{DateSold}
```

In the following example, a text type field named Name is used. The records are sorted by descending order using the Name field (from Z to A).

```
{Name} desc
```

Scheduler properties

A pointer is associated with a scheduler property. This property is visible when a date and time type field is defined as a scheduling pointer.

Scheduling pointers

Defining a scheduling pointer means defining the reference element for schedulers in Connect-It.

To define a scheduling pointer:

1. Select the field to be used as the scheduling pointer.
   This field must be at the root of the document type and not included in one of its complex elements (structure or collection).

2. Right-click and the select **Pointers > Define** from the shortcut menu.
   The icon is shown next to the field, symbolizing the scheduling pointer and the **Scheduling properties** tab is enabled.
3. In the Pointer expression frame, define the scheduling query (a WHERE clause) that will allow a filter to applied on the field.
   The syntax used for the scheduling query is similar to the one used to define a join:
   `{CreationDate} >= "[SWLastScanDate]"`
   In this example, the value of the CreationDate field (defined between braces) is compared with the value (defined between quotation marks) of the schedule pointer (defined between brackets and containing the name of the document type followed by the name of the field).

   You can use the **Suggest** button to view a sample of the syntax (SQL scripts) that depends on the type of schedule pointer.

- For Date/Time/Long types: `Select [fields list] from [Table x] WHERE (schedule_pointer_field >= last_schedule_pointer) and (schedule_pointer_field < Now())`
- For other types: `Select [fields list] from [Table x] WHERE ("pointer expression")`

Defining the produced or consumed document types

A produced or consumed document-type is the template that a connector uses to produce or consume documents when a scenario is running. A produced or consumed document-type contains a selection of fields from a document type published by the connector.

For example:
The **amPortfolio** document-type consumed by the `ed\ed25\ed25ac50\edac.scn` scenario's Asset Manager connector only contains a small number of fields that are found in the **amPortfolio** document-type published by the same Asset Management connector.

Creating a document type produced or consumed by a connector consists of:

- Selecting a document type from among the document types published by the connector.
- Selecting fields among those of the chosen document type.

For example:
You select **amProduct** from among the document types published by the Asset Manager connector. Next, you select fields that interest you: the product barcode, its brand, price, and catalog reference, etc.

Description of a document type

XML and DTD files

The documents used in Connect-It correspond to XML (eXtensive Markup Language) files, and the document types that these files use as templates correspond to DTDs (Document Type Definition).

The Connect-It Scenario Builder enables you to transform all documents into XML files and all document types into DTDs.

Document type elements

Each document type is in the form of a tree structure composed of simple, self-contained elements (fields) and complex, unfolding elements like root nodes, structures and collections, which contain other simple and complex elements.

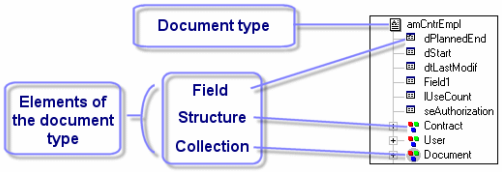


Figure 4-4: Example of document type elements

The simple elements are:

- Fields ( )
  Fields contain a particular type of data: numbers, long integers, fixed length text, dates, etc.
- Blob-type fields ( )
  Blob-type fields contain binary objects whose contents must be stored (binary large objects): images, sound files, video, etc.
- Memo-type fields ( )
  Memo-type fields contain variable-length text.

The complex elements are:

- Structures composed of simple or complex elements ( ).
  Example 1: In a document corresponding to a table in a database, each structure within corresponds to another table. A structure indicates that the link between the two tables is 1:1. A link of this type means that a record in the first table can only be linked to one record in the other table.
  Example 2: In a document type corresponding to a received e-mail message, a structure corresponds to the information about the author of the message.
  (A message can only have one author.)
- Collections composed of simple or complex elements ( ).
  - Example 1: When a document type corresponding to a database table has a collection, this collection corresponds to another table in the database. A collection means that the link between the two tables is 1:N or N:N. This type of link means that a record in the first table can be linked to one or more tables in the second table, and visa versa.
  - Example 2: In a document type corresponding to a sent e-mail message, a collection corresponds to the message's recipients. (A message can have any number of recipients.)

  Note: *Collections of attributes are collections with only one field. This field is the attribute. Each member of this collection is composed of one element repeated* ***n*** *times.*

Before processing, each collection in the document contains an undetermined number of members. It is impossible to know the number of members ahead of time since a collection is composed of **n** members.

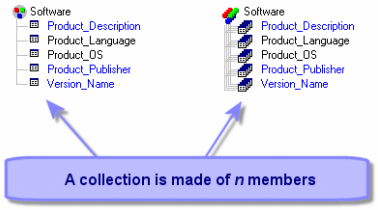


Figure 4-5: Document type collection

For example: In the **Machine** document type published by the Desktop Discovery connector, which describes a company's computers, the software installed on the computers is represented by a collection. Since you don't know how many software products can be installed on all computers at all times, this data must be represented by a collection with **n** members. Each member of this collection describes the software: name, developer, version, etc.

Parent and child nodes in a document type

In a tree structure, each unfolding element has a child element. In the document-type description, we say that a parent node contains a child node.

Note: *During document processing, the concept of parent and child nodes is important. For example, a child node that contains a rejected field can lead to the rejection of the parent node to which it belongs.*

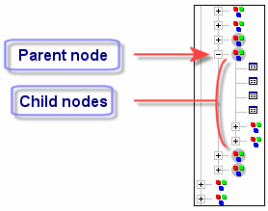
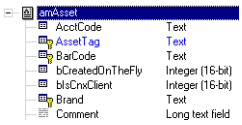
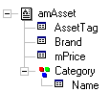


Figure 4-6: The tree structure of a document type

Processing a document type

The following table shows the relationship between the different types of documents processed in Connect-It.

Published document-type	Produced or consumed document-type	Produced document
Configuration The connector publishes document types from which you will select one to use in the integration scenario.	**Creating a document type** Certain elements from a published document-type are selected to create a produced or consumed document-type.	**Running the scenario** The connector produces or consumes document instances.
		

Accessing the edit window of the document types

The edit window of produced or consumed document-types is divided into two zones:

- A work area on the right in which you created the produced or consumed document-type. Under this area are tabs corresponding to directives. Some connectors do not have directives.

- A zone on the left showing the document types published by the connector.
  This zone is split into two panes:
  - A pane where the root nodes of published document-types appear (). In this pane you can unfold the nodes (root nodes, structures, collections) of your document types to see everything under them. Each node and each field (terminal fields) are described by their names and their types (text, integer, date, etc.). When you select a node in a document type, this node becomes the current selection.
  - A pane showing the properties and values of the current selection. These properties are bits of technical information that can help in understanding the current selection.

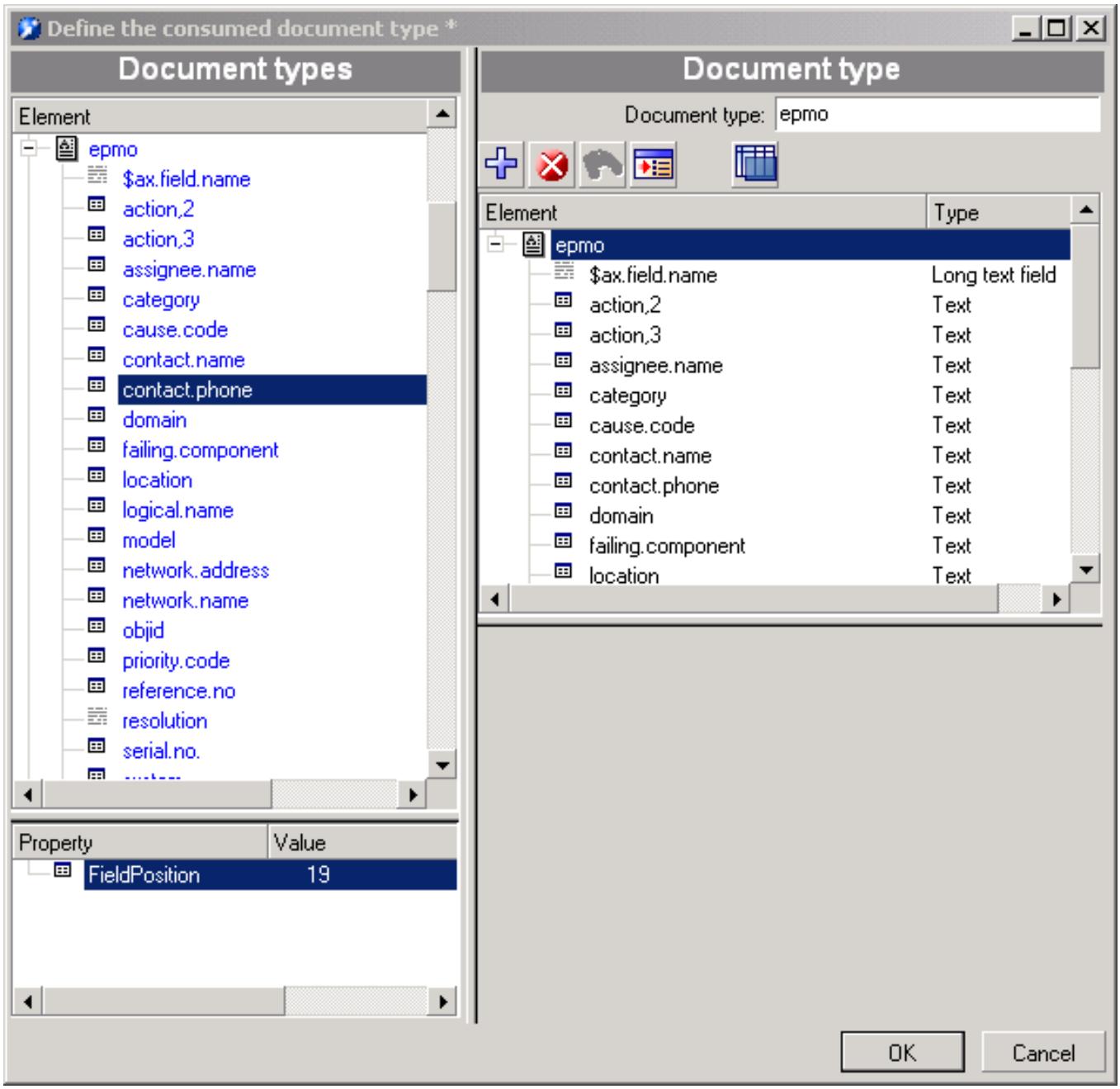


Figure 4-7: Editing document types consumed by the ServiceCenter connector

Note: *For certain connectors, for example, the Asset Manager or SAP BAPI connector, a description of the selected field is displayed (**Description** property).*

For example: In the following screen, the **contact.name** field in the **ICMdevice** document type is a **text**-type field.

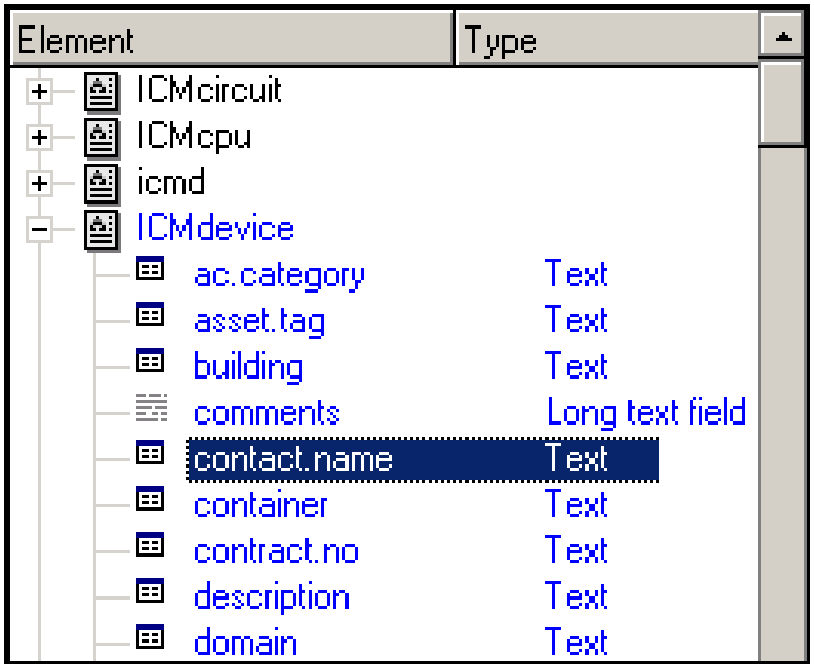


Figure 4-8: Detail of the zone showing the published document-types

Producing null elements

A null element indicates a field type element with value absence, which may be caused by the missing element from a database or an element not populated with a value. Connect-It provides you with the option whether to produce elements with empty values. For Data generator and certain connectors, you can select whether to produce null elements in the **Define the consumed/produced document type** window. Note this option only applies to elements of field type. The check box text differs depending on connectors. See the table and image below for more information:

Check box text	Connector/Tool	Default selection
Do not produce null elements	Data generator	Unselected
Produce null elements	Aperture VISTA Web Service LANDesk for Software Distribution Network Node Manager i-series Web Service Project and Portfolio Management Center SAP Web Service SOAP	Selected
Produce null elements	ServiceCenter/Service Manager Web Service	Unselected

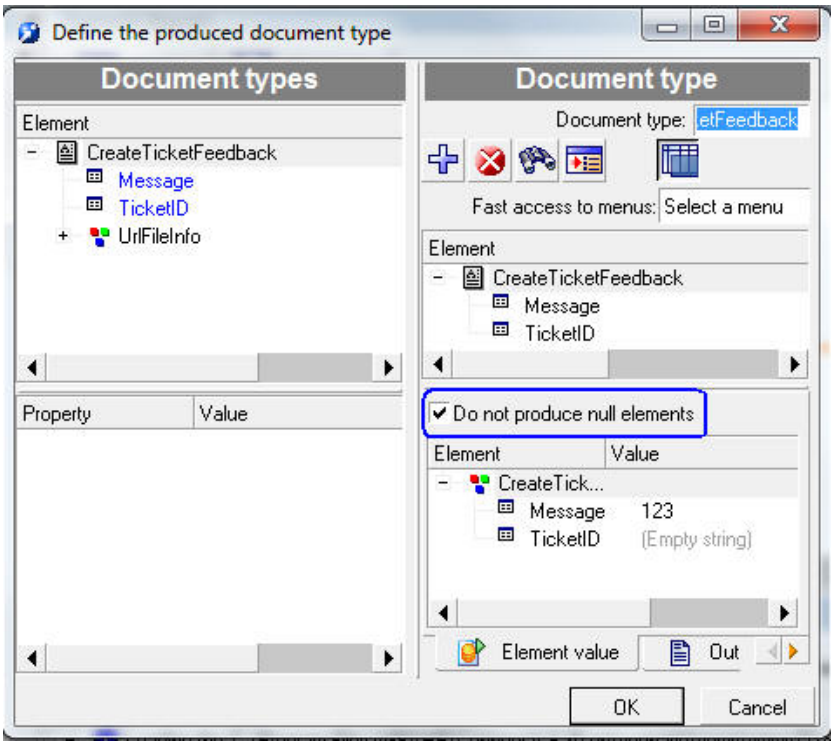


Figure 4-9: Selecting the Do not produce null elements check box

To access the edit window of produced or consumed document-types

1. Select the connector in the Scenario diagram.
2. Select the **Document types** tab or double-click the connector.
3. Select the produced document-types or consumed document-types pane.
4. Click to create a new document type or to edit an existing document type.

Types of documents

There are several types of documents produced:

- Those specific to each connector
- The processing reports
- The feedback documents

Self-produced document

A self-produced document is a document produced by a connector on consuming another document.

This self-produced document is denoted by the icon . The following connectors use the self-produced document:

- SOAP
- SAP BAPI

- Command line
- Websphere MQ

If your mapping covers multiple document types, you can choose the document which when consumed will give rise to the self-produced document. Select it from the drop-down list in **Produce this document type on consuming**.

Note: *A connector using a self-produced document type cannot be started directly because it can only be started as the result of a consumption.*

Creating a document type

Creating a new produced or consumed document-type involves moving the root node or one or more elements (collection, structure, field) onto the workspace of the document-types' edit window.

To create a produced or consumed document-type:

Move the root node or one or more document-type elements onto the workspace by doing the following:

1. Drag and drop it onto the workspace.
2. Select it and click ✚.
3. Double-click this element or this root node.

Note: *If you want to use a large number of fields relating to a node (root node, structure, collection), simply drag that particular node onto the work area. This moves all of the related fields onto the work area at once. From there, you can remove the unwanted fields.*

When your selection is made, name your document type (by default, it inherits the name of the published document-type whose node you have dropped on the work area) and then click **OK**.

Note: *When you perform a mapping in a mapping box, all the elements of the document published by the source connector, and used in the mapping, are automatically added to the produced document type. It is often useful to edit the document type in order to:*
Delete the elements that are no longer used in the mapping.
Add elements that are not used in the mapping, but are indispensable anyway.

To modify a produced or consumed document-type:

Double-click the document-type.

Caution: *Modifying an existing document type, and in particular modifying one of its complex elements (collection, structure, field), means modifying the mappings linked to this document type. As a consequence, you must adapt the different mappings.*

Modifying a document type involves:

- Deleting one of its complex elements
  Deleting an element of a produced or consumed document type is useful to improve performance in processing documents, especially when this element is not longer used in a mapping.
- Adding a complex element
  Adding a complex element to an element of a produced or consumed document type is useful

when (on scenario execution) these elements have values that must be recovered in the source to update the schedule pointer of the HP Network Discovery connector.

To delete an element from the work area

1. Select it and click ⊗ or press **Delete**.
2. Or drag it back to the window of published document-types.

Copying the DTD of a document type

Each document type in Connect-It corresponds to an XML document type. Connect-It enables you to copy the DTD linked to this document.

To copy the DTD:

1. Create or edit a produced document-type.
2. Position your pointer on the work area.
3. Right-click.
4. Choose **Copy this XML DTD** from the shortcut menu that appears.

When you are in the edit window of a document type, you can display a shortcut menu by right-clicking, which lets you copy the DTD to your clipboard.

Using the data generator

The data generator allows to send statically-defined data to a connector.

This internal tool is especially useful for supplying starting parameters to the documents produced on consumption,for example, the Command-line connector. You can associate scheduling with this tool.

Specific features of the data generator

The data generator can be compared to a connector that only works in production mode, and that does not consume data, unlike this tool which does not expose any of its own document types.

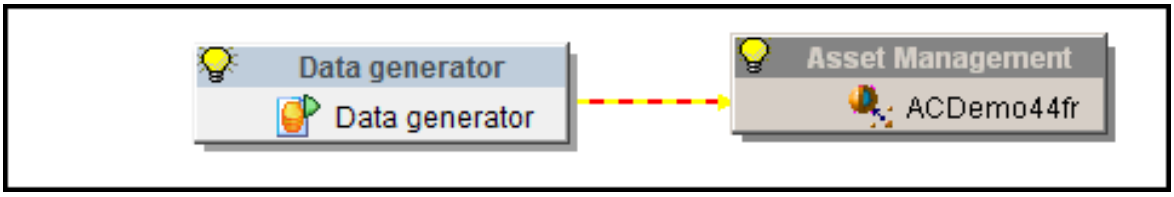


Figure 4-10: The Data generator with the Asset Manager connector

To be able to expose a document type, the data generator must be linked to an open connector.

Behavior of a data generator with a connector

- When you create a link between the data generator and a connector, no mapping box is created.
- A data generator cannot be linked to a mapping box

- A data generator cannot create a produced document type unless it is connected to at least one destination connector
- When editing a document type produced by a data generator, the destination connector must be open

Document type produced by the data generator

When editing a document type produced by the data generator, the left-hand panel exposes the consumed document types of the destination connector. The directives panel exposes the fields specific to the data generator, as well as the consumption directives of the destination connector (for example, the **Reconciliation** tab).

The data generator exposes a production directive (**Value** column) for each element that accepts a value. The value of this directive is the value that will be assigned to the element when the document is produced by the data generator.

You can edit the value of the production directive **Value** via typed editing controls: a number editor for numeric types, a date/time editor for date/time types, a simple text editor for character strings, a multi-line editor for long text fields, and a file selector for blobs (the value of the produced blob will be the contents of the file).

When you delete a document type consumed by a connector, and it is produced by a data generator, a dialog box indicates that the document produced by the data generator will also be deleted.

Duplicate collection

Collections are 1-N type links.When a collection is used in the data generator, it is possible to duplicate it as many times as required in order to populate the same element several times with different values. For example, it is possible to generate information related to the Departments and Employees table in order to test an Asset Manager database. This is done by changing the employee name each time so that each collection uses a different name.

Each duplicated collection is identified as a structure with the name of the collection followed by the duplication number (0, 1, 2, 3, etc.).

To duplicate a collection, right click the collection and select **Add collection element** from the shortcut menu. Each element contained in the collection is assigned a NULL value by default. Each collection or sub-element that is added can be deleted using the **Delete / Cancel an element** command from the shortcut menu.

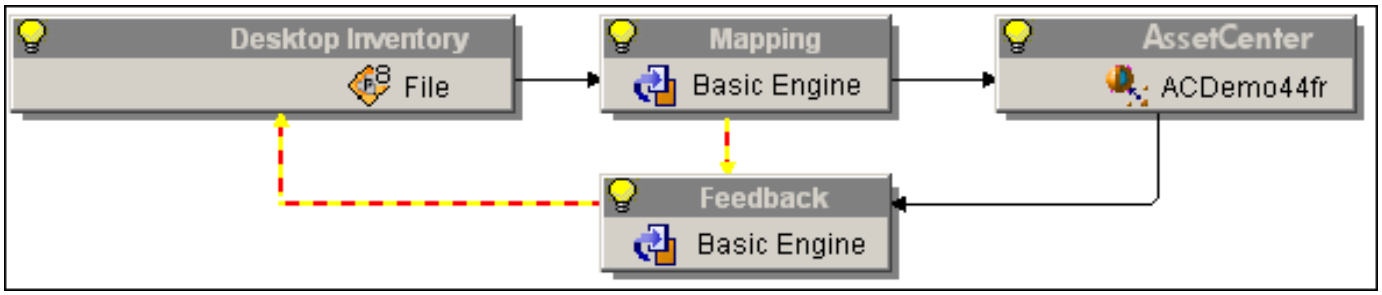


Figure 4-11: Duplicate collection example

When documents are produced, you can choose not to produce elements with null values via the Do not produce null elements command.

Viewing the data of a produced document type

Connect-It enables you to view the data that corresponds to the elements in a produced document-type. This is the same data that is recorded in the external application linked to your connector.

The data displayed depends on both the document type and connector type:

- For all produced document types and for all source connectors, the data comes from the source database
- For all consumed document types and for all destination connectors, the data comes from the document type available for the destination connector, that is to say the data available in destination database. This functionality is not available for certain connectors.

Note: *If it takes too long to load the data for viewing purposes, a window will appear asking if you want to stop the current action. If you stop loading the data, you will only be able to view the data that has already been loaded. You can continue the action, though, by clicking the plus icon.*

For example, the data in a document type produced by a database connector corresponds to the records of one of the Database tables.

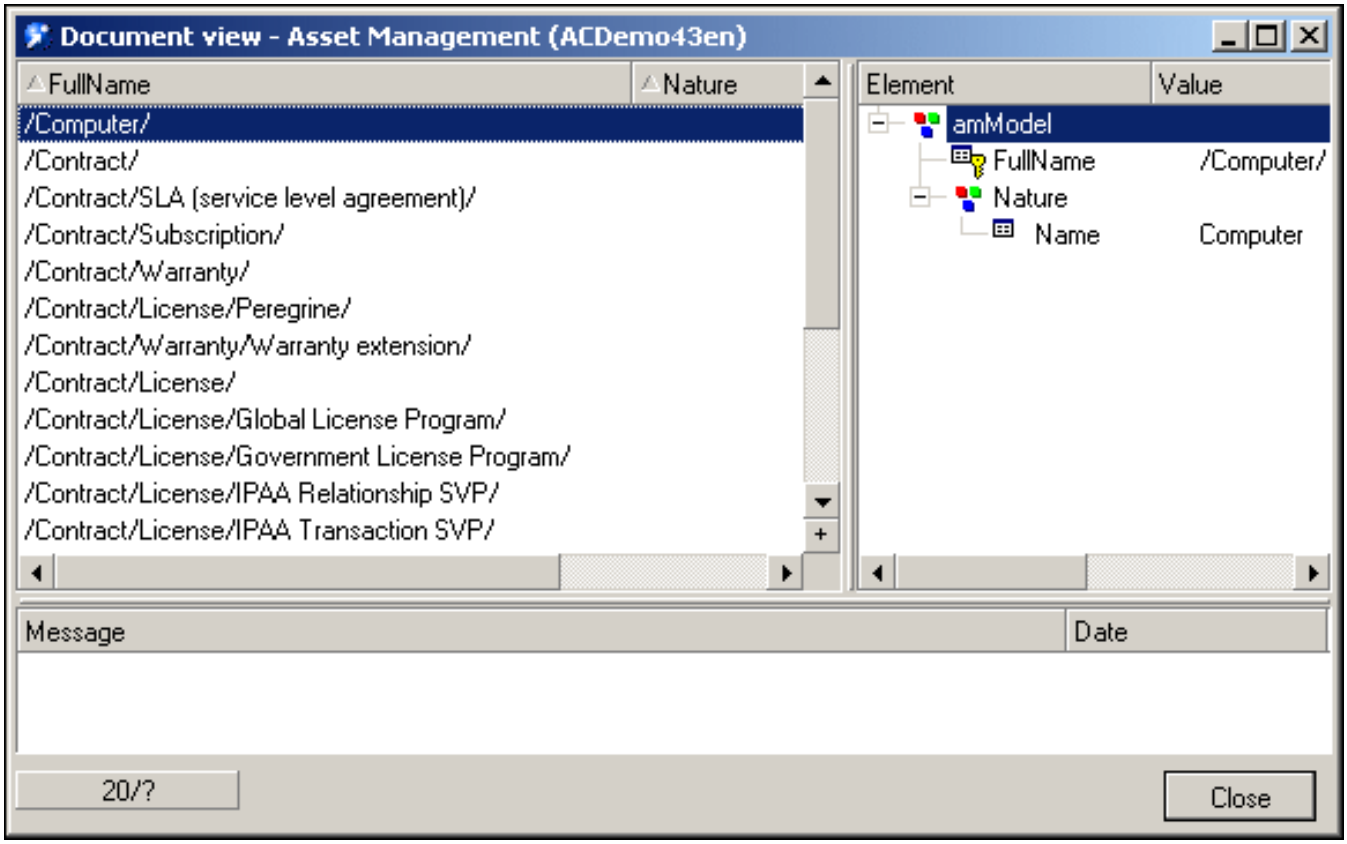


Figure 4-12: The produced-document-type data viewing window

The number of documents loaded in the view window can be set by **the Number of documents recovered in the block during the preview** option (**Display** section), accessible from the **Edit**

> Options menu. By default, the first 20 documents are recovered. Click the button to reload a new series of documents.When all the documents are visible, this button is grayed out and deactivated.

Note: *The button is not available for all connectors.*

Viewing the data in produced document-type

1. Create or edit a produced document-type.
2. Position your pointer on the work area, right-click and select **View data** from the shortcut menu that appears.

A document-type data viewing window is composed of two panes:

- The left pane in which appears all the records of the external application that correspond to elements in the document type.
  Each of this pane's columns corresponds to one of the document type's elements.
- The right pane representing the produced document-type, accompanied by the values of the records selected in the left pane.

Note: *The number of documents displayed depends on the display parameters.*

Pausing the collection of data

Perform one of the following actions:

- Wait for a dialog box to appear. It will ask if you want to interrupt the current query. Click **OK**.
- Press the escape button on your keyboard (**Esc**).

Finding an element in the document type

There is a search function that enables you to find elements in a document type without having to unfold all the nodes of this document type.

To find an element in a document type:

1. Select a document-type element in the workspace or in the zone of published document-types.
2. Right-click and select Find (**Ctrl + F**) from the shortcut menu.
3. Enter the name of the element that you want to find in the **Find what** field and select the options of your choice:
   - Case sensitive
   - Select the direction of your search: up or down.
4. Click **Find**.

To search through previous elements or following elements:

- Right-click and select **Find next** (**F3**) from the shortcut menu.
- Right-click and select **Find prev**. (**Ctrl** + **F3**) from the shortcut menu.

Note: *The search is limited to the elements displayed in the windows of the published document types. If you want your search to apply to the sub-nodes of a given node, you must unfold the node before the search.*

Shortcut menus of the document type edit window

In the document-type edit window, two shortcut menus are available:

- When you place your pointer in the published document-types zone, the following items are available:
  - **Find**: Enables you to display the dialog box for finding a character string.
  - **Find next**: Enables you to relaunch the search of the last character string indicated near the bottom of the window.
  - **Find prev.**: Enables you to relaunch the search of the last character string indicated near the top of the window.
  - **Copy this XML DTD**: Copies the document's XML DTD on your computer's clipboard.
  - **Copy path**: Copies the path of the selected element to your Clipboard.
  - **Add this element**: Adds the selected element to the produced or consumed document-type that you create.
  - **Filter unused document types**: Displays only the produced or consumed document types that are edited in the work area.
- When you place your cursor in the work area, the following additional items are available:
  - **Remove this element**: Removes the selected element from the produced or consumed document-type that you create.
  - **View data**: Enables you to view the data corresponding to the elements of a produced document-type.
    ***Note: Add this element** is not available.*

Defining the mapping of document types

Mapping document types enables a destination connector to consume documents produced by a source connector. In the Scenario Builder, a mapping box positioned between two connectors enables you to edit the mappings between a produced source document-type and a consumed destination document-type.

Creating a mapping involves associating elements of a source document-type to those of a destination document-type.

In order to simplify this chapter, we use the concepts **source element** and **destination element** as well as the source and destination of the field, structure and collection. When no source document-type elements can be directly associated to a destination document-type element, you must write mapping scripts.

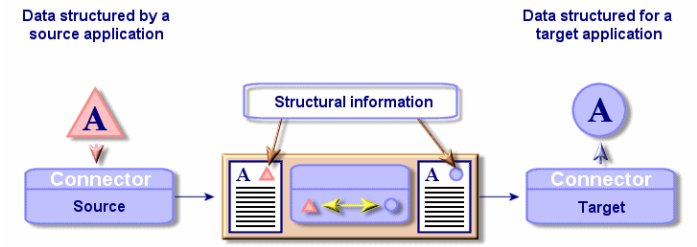


Figure 4-13: How mapping works

Configuring the Mapping Box

Configuring a mapping box in Connect-It is performed with the help of a wizard.

To launch a mapping box's configuration wizard, you can use any of the following methods:

- The mapping box is not in the Scenario diagram pane.

1. Double-click the mapping box in the Toolbox.
2. Drag and drop the mapping box from the Toolbox into the Scenario diagram.

- The mapping box is already in the Scenario diagram pane.

1. Select the mapping box and choose the **Tools > Configure** menu.
2. Select the mapping box and press **F2** on the keyboard.
3. Select the mapping box, right-click and choose **Configure connector** from the shortcut menu.
4. Click .

There are two pages in the mapping-box configuration wizard, which are documented in the following sections.

Note: *The second page only appears if you clicked in the Scenario Builder toolbar.*

Naming and describing the mapping box

The first page of the configuration wizard enables you to specify:

- The name of the mapping box. By default, the value of this field is **Mapping**. No two tools can share the same name in a single scenario; all names must be unique.
- The description of the mapping box. Enter text to describe the connector.

Advanced configuration

This page enables you to:

- Specify the behavior of the **[..]** operator in the mapping scripts (**Verify the existence of the element under which the [..] operator applies**).
  When this option is:
  - selected: for each document type node in square brackets **[..]**, if this node is empty then the document is rejected.
  - not selected (default option): the existence of a document type element is not verified.
- Force the explicit declaration of variables in Basic scripts. All declared variables must be preceded by the **Dim** instruction.
  This option is selected by default.

Example of using the [..]

The scripts from the following table test the existence and the values of two fields **FamilyName** and **DeptId**. If a field has a value, the return value differs based on the field type.

Depending on whether you select the **Check the existence of the element to which the [..] operator applies** or not and depending on the type of operator used in the script, the value sent in the consumed document is different.

The notion of an empty value differs depending on the type of field concerned:

- For a text-type field, the empty value is equal to "".
- For a numeric-type field, the empty value is equal to 0.

Option unselected

Field	Field type	Script	Field = ""	Field does not exist.	Field = "value"

Family Name	string	`RetVal = "Doe"`
		`If [FamilyName] = "" Then RetVal = [FamilyName]`
		`End If`
			Empty value	Empty value	**Doe**

DeptId	integer	`RetVal = 1`
		`If [DeptId] = Empty Then`
		`RetVal = [DeptId]`
		`End If`
			0	0	**1**

Option selected

Field	Field type	Script	Field = ""	Field does not exist.	Field = "value"

Family Name	string	`RetVal = "Doe"`
		`If [FamilyName] = "" Then`
		`RetVal = [FamilyName]`
		`End If`
			Empty value	The node concerned by the script is rejected by the Scenario Builder. The message "Element 'FamilyName' is not in the source document. " appears in the Document log.	**Doe**

DeptId	integer	`RetVal = 1`
		`If [DeptId] = Empty Then`
		`RetVal = [DeptId]`
		`End If`
			0	The node concerned by the script is rejected by the Scenario Builder. The message "Element 'DeptId' is not in the source document. " appears in the Document log.	**1**

Editing mappings

This section presents the different procedures enabling you to edit the mappings of your integration scenarios.

The mapping edit window

The mapping edit window is divided into three distinct zones:

- A zone showing the document types published by the selected source tool.
  If you selected an existing produced document-type in the **Select source and destination** dialog box, the unfolded root node of this document type is shown in this zone.
- A zone showing the document types published by the selected destination tool.
- A mapping zone containing:
  - A work area in which source and destination elements are mapped together.
  - A pane showing the directives tabs of the destination tool and a tab in which to describe each mapping node.

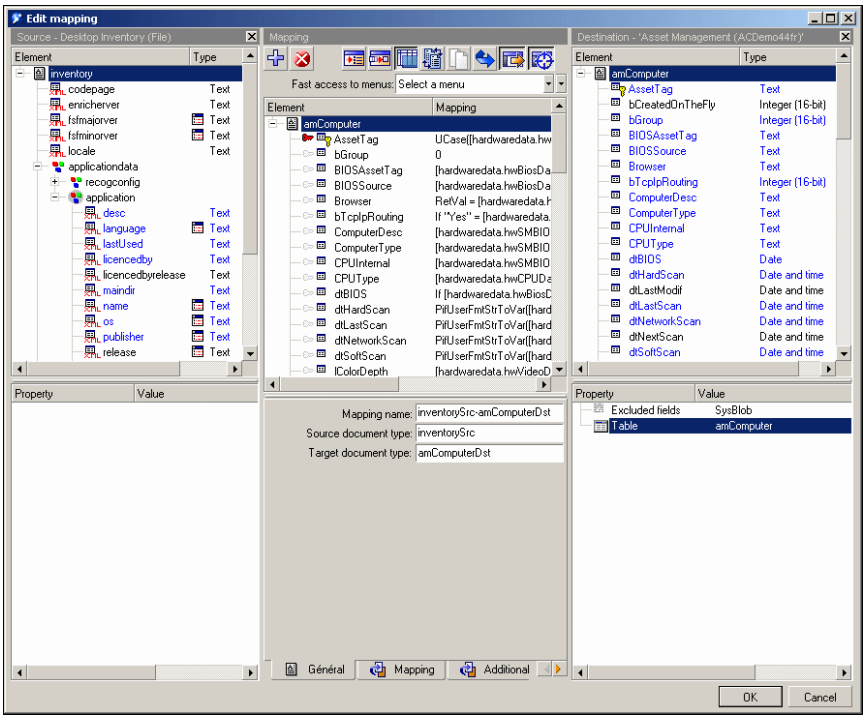


Figure 4-14: Mapping edit window

The mapping-box toolbar allows you to perform the most frequent mapping actions.

Icon	Function
	Places a destination element on the work area.
	Deletes the current selection from the work area.

Icon	Function
	Associates a destination element with a source element.
	Filters the unused source and destination document-types in the mapping.
	Duplicates a destination element in the work area.
	Finds the mapped destination element.
	Displays or hides the document types published by the source connector.
	Displays or hides the document types published by the destination connector.
	Enables you to display a find box in the zone where an element is selected.
	Enables you to display a find and replace box in the mapping's workspace.

The mapping window shows the detail of the mapping between destination and source elements.When a script is used, it appears in summarized form next to the destination element with which it is associated.

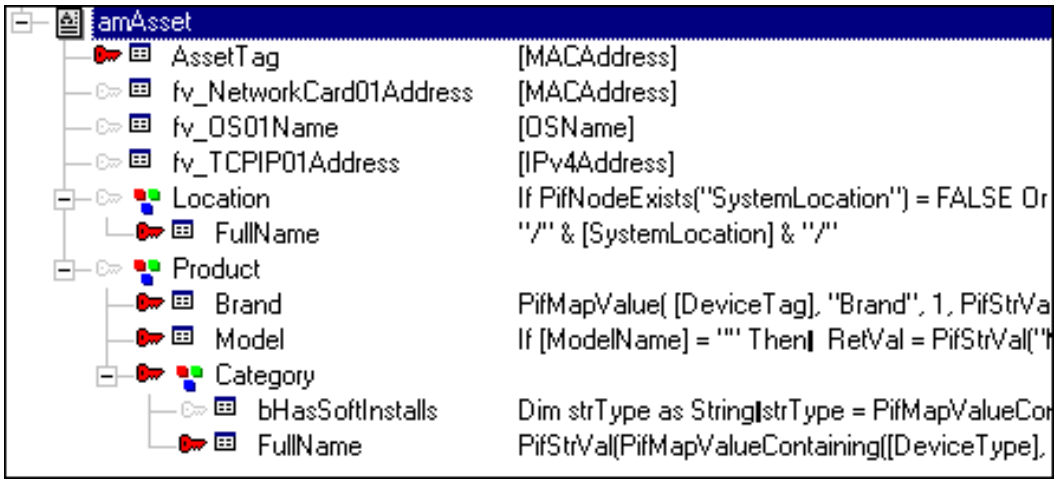


Figure 4-15: Summary of the mapping scripts in the work area

By exposing all the document types published by a source and destination connector, the edit window of a mapping enables you to simultaneously create the document type produced by the source connector and the document type consumed by the destination connector.

Note: *In the same mapping, it is not possible to map elements from more than one source document-type or to more than one destination document-type. If you change one of the document types while editing a mapping, you are effectively starting a new mapping, and you lose all prior mappings. To map a source element to more than one destination document-type, you must create several mappings using the same source document-type.*
On the other hand, when you use different mappings, using the same source document enables you to minimize the number of requests to perform on the source connector.

You can also select a destination document and drag one of its nodes onto your work area without having to associate it with a source document: The fields located under this node will appear in the work area.

Note: *You can view the source data, and sometimes the destination data, by using the* ***View data*** *shortcut menu on a source or destination element.*

To mask or display the source zone:

Click or right-click in the mapping edit window and select or unselect **Show source**.

To mask or display the destination zone:

Click or right-click in the mapping edit window and select or unselect **Show destination**.

To move a zone of the mapping edit window:

1. Place the pointer on the upper border of the zone.
2. Click on this dark gray border and wait for a black rectangle in the shape of the zone appears.
3. Move the black rectangle where you want it and right-click.
4. Release the mouse button after you move the black rectangle to the desired location.

To create a mapping:

1. Select a mapping box in a Scenario diagram.
2. Perform the following actions:
   - Select the **Mappings** tab.
   - Double-click to display a dialog box containing the same information as found in the **Mappings** tab.
3. Create a new mapping icon .

When you create a mapping, the **Select source and destination** dialog box is displayed in which you select the:

- Source tool
- Source document-type
- Destination tool

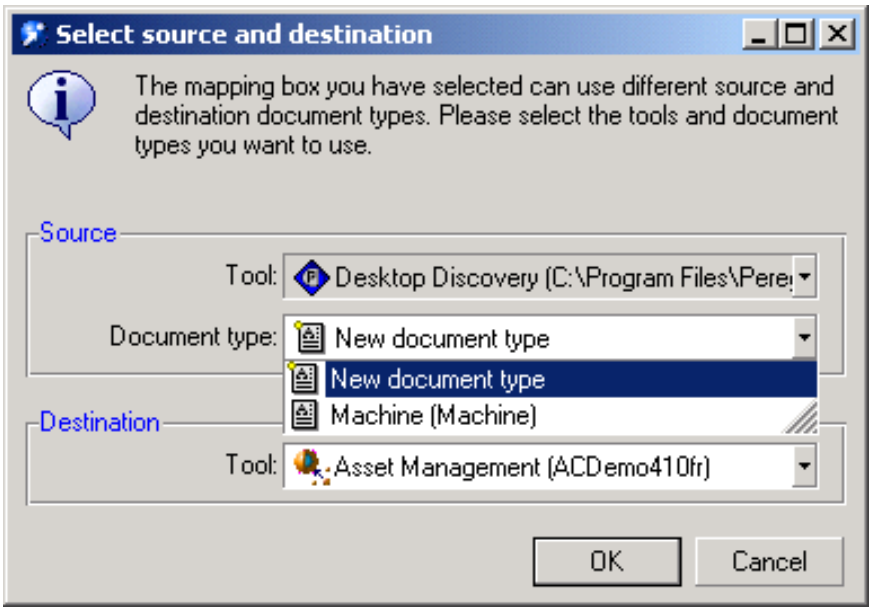


Figure 4-16: Updating the collection in AssetCenter

Note: *This dialog box is not displayed when:*

The mapping box already has a single source tool and a single destination tool.

No produced document-type has been created for the source tool.

To edit an existing mapping:

1. Select a mapping box in a Scenario diagram.
2. Perform the following actions:
   - Select the **Mappings** tab.
   - Double-click.
     Double-clicking displays a dialog box that contains the same information as found in the Mappings tab.
3. Double-click the mapping that you want to edit.

Partial reconciliation of one part of a mapping

Connect-It's mode of operation is based on the production and consumption of document types. The documents contain a set of given information. This approach has advantages: a single document contains a set of information that is imported during a single transaction; as well as disadvantages: processing times can take longer when certain information is being reconciled. During a production test phase, or depending on a specific situation, you may only want to reconcile one part of a mapping to avoid adding irrelevant data to the destination database.

This approach will improve the time is takes to process the information in the mapping. To only reconcile one part of a mapping, select one of the mapping's complex elements whose type is structure or collection, and then select the ad hoc option (**Reconciliation** tab). When this option is selected, the element for which this option has been enabled is produced for the document type that is consumed. No reconciliation is done for this node or its child nodes. For example, for an Enterprise Discovery scenario used to migrate computer type elements in an Asset Manager application, it may not be necessary to migrate installed software. In this case, activating this option for the **AddOn** collection results in the production of the **amPortfolio** document type without

doing any reconciliation for this structure. No software installation type record is created in the computers table of Connect-It.

Using this option is useful when separating a mapping sequentially.

Caution: *This option must not be used if the node structure is used as a reconciliation key, or in specific Asset Manager cases where the node's* ***follow link*** *property is enabled.*

Deactivating a mapping

Deactivating a mapping prohibits the connector from producing the documents necessary for the mapping. For example:With a mapping, you can delete the records in a destination application corresponding to assets no longer existing in the source application. If you only want this deletion to occur once, you need to deactivate the mapping after it has finished.

To deactivate a mapping, clear the box corresponding to this mapping in the **Mappings** tab.

Deleting a Mapping

To delete a mapping:

1. Select a mapping box in a Scenario diagram.
2. Perform the following actions:
   - Select the **Mappings** tab.
   - Double-click.
     Double-clicking displays a dialog box that contains the same information as found in the **Mappings** tab.
3. Click .

Identification of complex elements and automatic mapping

When you create a mapping between two document types, the application identifies similar fields, i.e. those with the same name. These fields are mapped automatically. For example, when you map the **location** document type of the **ServiceCenter** connector to the **amLocation** document type of the Asset Manager connector, the Address fields are automatically mapped.

Path of document-type elements

To locate a document-type element, in particular in the **Source for the collection mapping** field, you must indicate the path of this element in the document type. Parent-child relations are shown by a period. The following schema represents a set of linked elements. To indicate the path of collection X, you must write: Structure_A.Structure_B.Collection_X This syntax means that collection X is a child of structure B, which in turn is a child of parent structure A. You can also use the following syntax:

```
'Structure A'.'Structure B'.'Collection X'
```

Example:
In the **inventorySrc-amComputerDst** mapping of the Desktop Discovery to Asset Manager scenario, the **Document** collection of the **amComputer** destination document type is mapped to the **storedfile** collection. Since this collection is child of the **storedfiles** structure of the **inventory** document type, the **Source collection** field indicates the following path:

```
storedfiles.storedfile.name
```

If an element name includes a period, square brackets or parentheses '. [ ] ( )', you must place the

element in single quotes:
`'Element.A'`

Example:
Many elements of document types published by the ServiceCenter connector include periods. To reference the **sw.vendor** field of the **sw.vendor** collection in the **ICMDevice** document-type published by the ServiceCenter connector, you must indicate the following path:
`'sw.vendor'.'sw.vendor'`
For fields that do not include periods in their names, single quotes are optional. You can write both:
`ElementA` or `'ElementA'`

Path of document elements

The notation used for the path of document elements is the same as is used for document types. The only exception concerns members of a collection. Members of a collection are numbered incrementally starting from 0: The first member is marked 0, the second member 1, etc.

To indicate a specific member of a collection in a path, refer to its rank using the following syntax:

Name of the collection [rank of the member]

Example: The path concerning the **VersionName** field of the first member of the **Software** collection is indicated as follows:
`Software(0).VersionName.`

For the second member of the collection, the path is `Software(1).VersionName`, etc. You can also use a variable to designate a given element:

```
Dim lId as Long
lId = 3
[Software(lId).VersionName]
```

This syntax is particularly useful to browse the members of a collection. The following example tests for a member (in this example the software Connect-It) in the **Software** collection:

```
' Get number of members in the "Sofware" collection
Dim lCount As Long
Dim lCur As Long
lCount = PifGetItemCount("Software")
lCur = 0

Dim bFound As Integer
bFound = 0

While lCur < lCount AND iFound = 0
If [Software(i).Name] = "Connect-It" Then
bFound = 1
End If

lCur = lCur + 1
Wend
```

Path of a collection of attributes

To specify a given member of a collection of attributes (collection with only one field), don't forget to specify the name of this attribute in your path. Example: To specify the members of an **Address** collection with an **address** attribute, you must write: Address(1).Address, Address(2).Address, Address(3).Address, etc.

Note: *When you perform the collection-to-collection mapping (**Source for the collection mapping field is populated**), it is no longer necessary to specify the numbers of the collection members. Example:*
`[Software.Version]`

Executing mapping scripts on opening and closing a session

Mapping scripts can be supplemented by additional scripts, executed on opening and closing a session. These additional scripts are most often global variables, called by the **OpenSession()** and **CloseSession()** procedures. These procedures must use the following syntax:

```
Sub OpenSession()
rem add your code
End Sub
Sub CloseSession()
rem add your code
End Sub
```

All scripts declared after the **OpenSession()** procedure are executed when the session is opened, after the first document is produced.

All scripts declared after the **CloseSession()** procedure are executed when the session is closed, after the last document is consumed.

Ordering Mappings

The mappings that you edit are ordered by document-type produced by the source connector.When you have several mappings for the same document type, you can classify them to indicate the order in which they will be executed during the document-production phase.

In certain cases, the first mapping enables you to create records in the destination application while the following mappings enable you to update the records.

1. Select a mapping.
2. Click the up or down icons or to move up or down in the list of mappings.

Order of document production and mapping execution The following rules apply to the:

- Execute the scenario without writing to the connectors (test mode) The order in which the documents produced by the source connector, as shown in the **Produced document types** tab, applies.
- Scheduled mode The order that is defined in the Scheduling edit window is applied. In this window, a scheduler can be associated with several document types: The order in which documents are associated with a scheduler is the order to which we are referring here. In this case, the order defined in the **Produced document types** tab has no impact.

Describing a mapping

The Scenario Builder enables you to describe each node of your mapping. For example, a description of a mapping script can be used to test for the presence of an element in a structure or collection.

1. Edit a mapping.
2. Select a node in your mapping.
3. Select the **Mapping** tab in the workspace.
4. Enter your description in the **Description** text zone.
5. Save your mapping. The description is saved in the `.scn` file.

Copying and Pasting Mappings

You can copy a mapping - or part of a mapping - of a source document-type to a destination document-type. Then, you can add or merge this copied source-to-destination mapping into another mapping that shares the same destination document-type as the first mapping. (For example: In a scenario using the Asset Manager connector, you can copy a part of the mapping where the destination document-type is **amAsset** and then you can paste it into another mapping whose destination document type is also **amAsset**.)

This function is particularly useful if you need to create a large number of identical, or very similar, mappings.

1. Open a mapping in an existing scenario.
2. In the mapping work area, place your pointer on one of the following destination document-type elements:
   - Root node
   - Structure
   - Collection
   - Field
3. Right-click.
4. Select **Copy mapping** in the shortcut menu that appears.
5. Open another mapping where the copied mapping's destination document-type is present (either as a root node, a structure or collection).
6. In the work area, place your cursor in the spot where you want to add or merge your mapping (a root node, structure or collection).
7. Right-click and select **Paste mapping** in the shortcut menu that appears.
8. Depending on your needs:
   - Click **Yes** to merge the mapping: The selected element is modified by the copied mapping (the two mappings are merged into one mapping).
   - Click **No** to add the mapping: The copied mapping is added to the existing mapping in the form of a new structure or new collection.

Previewing Source and Destination Data

In the mapping edit window, you can preview the data of the source and destination applications.

Note: *Previewing the destination data is only possible for certain connectors.*

1. Edit a mapping.
2. Position your pointer in the source or destination document-type window.
3. Right-click.
4. Select **View data** from the shortcut menu. Wait for the data viewing window to appear.

Note: *In the absence of data, the values of the pre-published data are the following:*
(null): The complex element is missing from the database
(Empty string): The complex element is not populated with a value

Editing the data preview

You can edit the source document-type of your mapping in the edit window in order to preview the data of your choice.

1. Edit a mapping.
2. Position your pointer in the source document-type window.
3. Select **Edit a document type to preview data**.
4. Wait for the source document-type edit window to appear.
5. Add or delete elements to the workspace.
6. Click a the view icon .
7. View your source data.
8. Click **Close** to go back to the mapping edit window.
   Important: *Do not use this function to edit the source document-type. All modifications made to the source document-type are lost when you close the preview window.*

Finding an element in the mapping edit window

To find an element in the mapping edit window:

1. Select an element in the source or destination document-types zone or in the workspace.
2. Right-click and select **Find** (Ctrl + F) from the shortcut menu.
3. Enter the name of the element that you want to find in the **Find what** field and select the options of your choice:
   - Case sensitive
   - Select the direction of your search: up or down
4. Click **Find**.

To search through previous elements or following elements, do either of the following:

- Right-click and select **Find next (F3)** from the shortcut menu.
- Right-click and select **Find prev.** (**Shift + F3**) from the shortcut menu.

Find - Rules

Finding an element in the hierarchy of document types is governed by the following rules:

- The search is limited to the elements displayed in the window of published document-types. If you want your search to apply to the sub-nodes of a given node, you must unfold the node before the search.
- A search in the workspace will include destination document-types as well as mapping scripts.

Finding and replacing an element in the mapping scripts

1. Select an element in the workspace.
2. Right-click and select **Replace** (Ctrl + H) from the shortcut menu.
3. Enter the name of the element that you want to find in the **Find what** field and select the options of your choice.
4. Enter the name of the replacement for this element in the **Replace with** field.
5. Select the options of your choice:
   - Case sensitive
   - Select the direction of your search: up or down
6. Click **Find**, **Replace** or **Replace all**.

Mapping types

This section details the Scenario Builder's different mapping types.

Direct field-to-field mapping

A direct field-to-field mapping is simply a direct mapping of a source field to a destination field. When data is processed, the value of the source field is used to populate the destination field in the document produced by the mapping box. This operation is performed without the involvement of the Basic engine.

For example, the **Name** field in a source document-type is mapped to the **Name** field in a destination document-type.

Different methods can be used to perform a direct field-to-field mapping:

- **Drag-and-drop method**
  a. Select a field in the **Source** or **Destination** window.
  b. Drag it onto a field in the other window.
- **Icon method**
  a. Select the field in the source zone and the field in the destination zone that you want to map together.
  b. Click .

Two-part drag-and-drop method

1. Select a destination field.
2. Drag and drop it onto the workspace.
3. Select a source field.
4. Drag it onto the work area at the same line as the destination field.

Drag-and-drop with mapping script method

1. Select a destination field.
2. Drag and drop it onto the workspace.
3. Enter the name of the source field directly in the **Mapping script** field.
   Each direct field-to-field mapping appears automatically in the **Mapping script** field. If you enter the name of the source element manually, you must place it in square brackets.

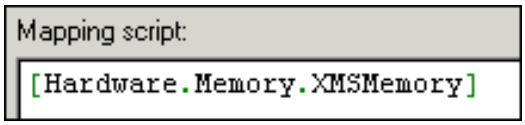


Figure 4-17: Source element in the mapping script

Collection-to-collection mapping

Each element of a collection is a member of the collection.

For example, for a given document type, the software that is installed on a computer is represented by a collection. Each member of this collection contains the description of a software application (name, publisher, version...).

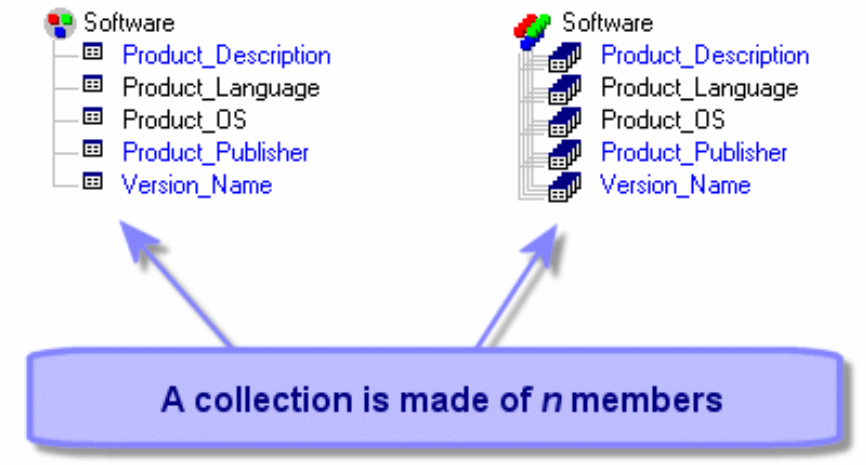


Figure 4-18: A collection

When you map a source collection to a destination collection, Connect-It calculates the number of members in the source collection when processing the data, and it creates the corresponding number of members in the destination collection.

For example, in the Desktop Discovery to Asset Manager scenario, elements in the **application** (software) collection of the **inventory** document type are associated with elements in the **Softinstall** (installed software) collection of the **amAsset** document type.

Different methods can be used to perform a collection-to-collection mapping:

- **Drag-and-drop method**

1. Drag a destination collection onto your work area.
2. Select a source collection. Drag it onto the work area at the same line as the destination collection while holding down both the left mouse button and the Ctrl key on your keyboard.
3. Release the mouse button when the triple document symbol is displayed underneath the mouse pointer.

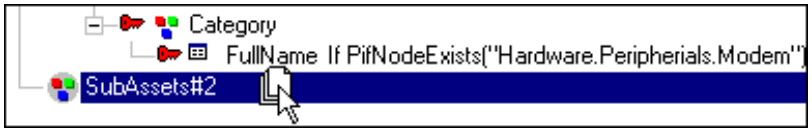


Figure 4-19: Drag-and-drop mapping

The **Source for the collection mapping** field is automatically populated with the path of this collection.

Note: *A warning message appears each time that a mapping of a collection element is performed. This is to remind you that, in most cases, you need to populate the* ***Source for the collection mapping*** *field. The* ***Display a warning every time a collection-to-collection mapping is needed*** *option (****Confirmations*** *section), accessible with the* ***Edit > Options*** *menu, enables you to disable this warning message.*

- **Keyboard method**

1. Drag a destination collection onto your work area.
2. Enter the path of the source collection directly in the **Source for the collection mapping** field of the mapping script. Since you are not calling on the value of this collection, you do not need to include square brackets.

Mapping sub-collections

A produced document type may contain collections that in turn contain other collections. If you wish to map sub-collection elements from the produced document type to a first-level collection in the destination document type, you can specify the path of the sub-collection of the produced document type as the source. For example, the produced document type **FileSystem**, contains the collection **Disks**, which in turn contains the collection **Directories**, which contains the collection **Files**.

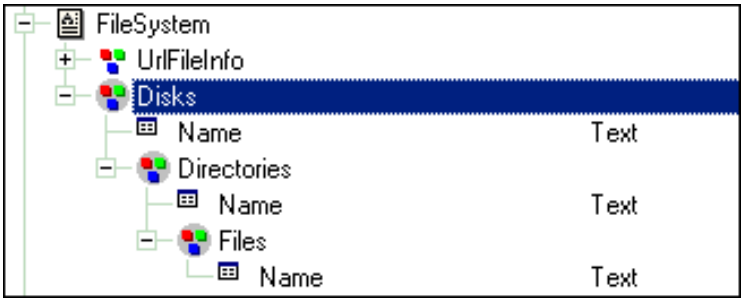


Figure 4-20: Mapping sub-collections example

We wish to create a mapping for the following consumed document type, in order to recover the list of all the folders:

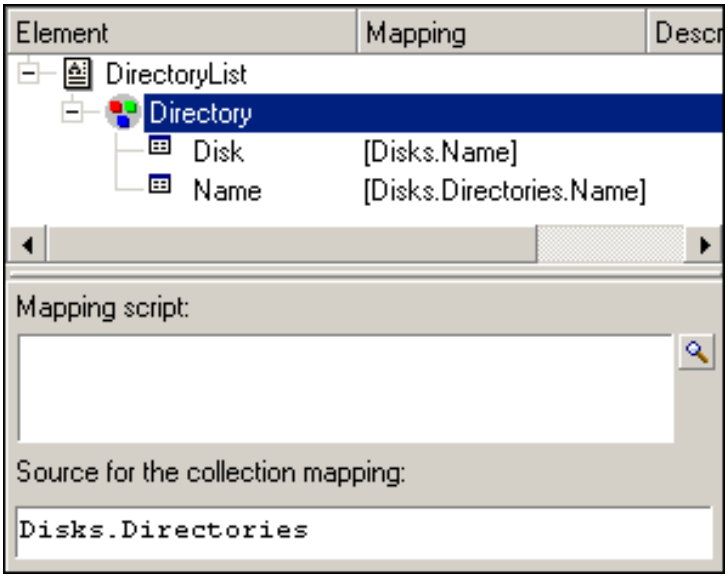


Figure 4-21: Mapping sub-collections example: consumed document type

The mapping used for the **Directory** collection is:
`Disks.Directories`

All the collections contained in the parent element (a collection) create the same number as first-level collections (without parent documents) in the destination.

Collection-to-document mapping

With Connect-It, you can also associate a source collection with the root node of a destination document-type (). While processing data, Connect-It creates as many destination documents as there are members in the source collection. A collection-to-document mapping is defined in the same way as a collection-to-collection mapping. The root node of the document type replaces the destination collection.

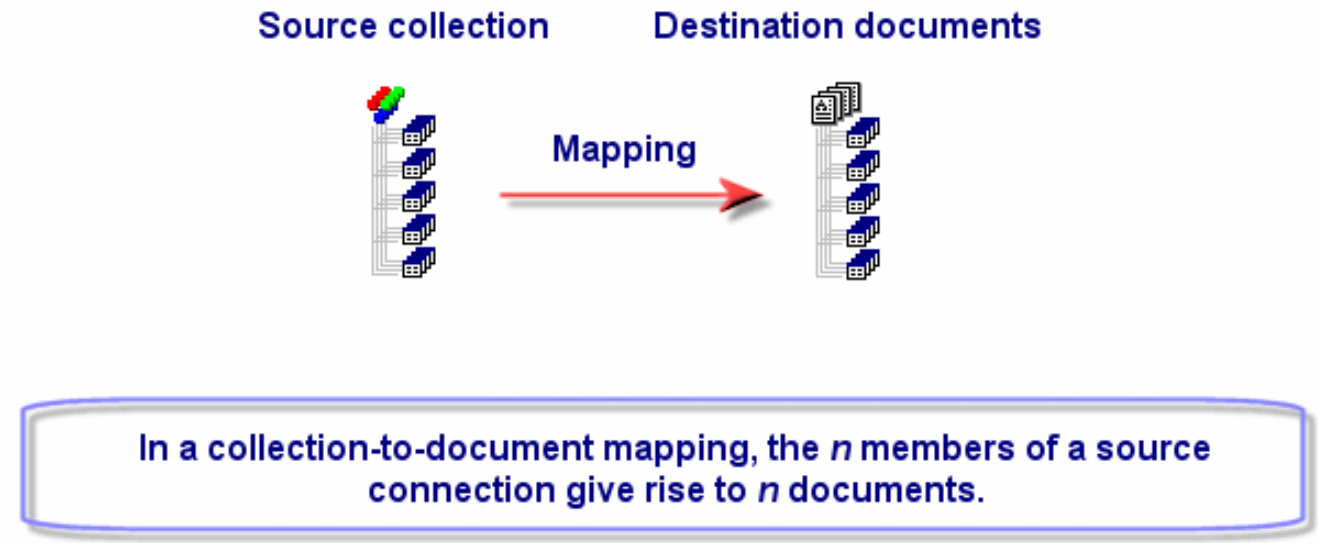


Figure 4-22: Collection to document mapping

For example, in the `scac\sc4ac41\scac.scn` scenario, the **Software** collection (which describes the software installed on a computer), is mapped to the **pcsoftware** document-type.When the data is processed, the members of the software collection give rise to **pcsoftware** documents, which in turn, send input events to ServiceCenter

Syntax

The mapping script between a collection and document type must adhere to the following syntax:
`[Collection.Element(valeur)]`

The value given in parentheses is that of the element of the collection. For example:
`[Machine.Name(0)]`

Field-to-collection mapping

In a field-to-collection mapping, one or more source fields that do not belong to a collection are mapped to a destination field belonging to a collection. The structure containing this field is dealt with as a collection with one single member.

For example,
The **InstalledCards** field regroups all the cards installed on a computer: motherboard, graphics adapter, sound card. In the source document-type, this information is represented by separate fields (**Motherboard**, **GraphicsCard**, **SoundCard** fields).

After dragging your collection onto the work area, duplicate it as many times as is necessary and map the source fields to the **InstalledCards** fields of these duplicates.

To duplicate a collection in the work area:

1. Select this collection.
2. Click .

The first duplication of this collection is indicated by the suffix #1, the second duplication by #2, etc.

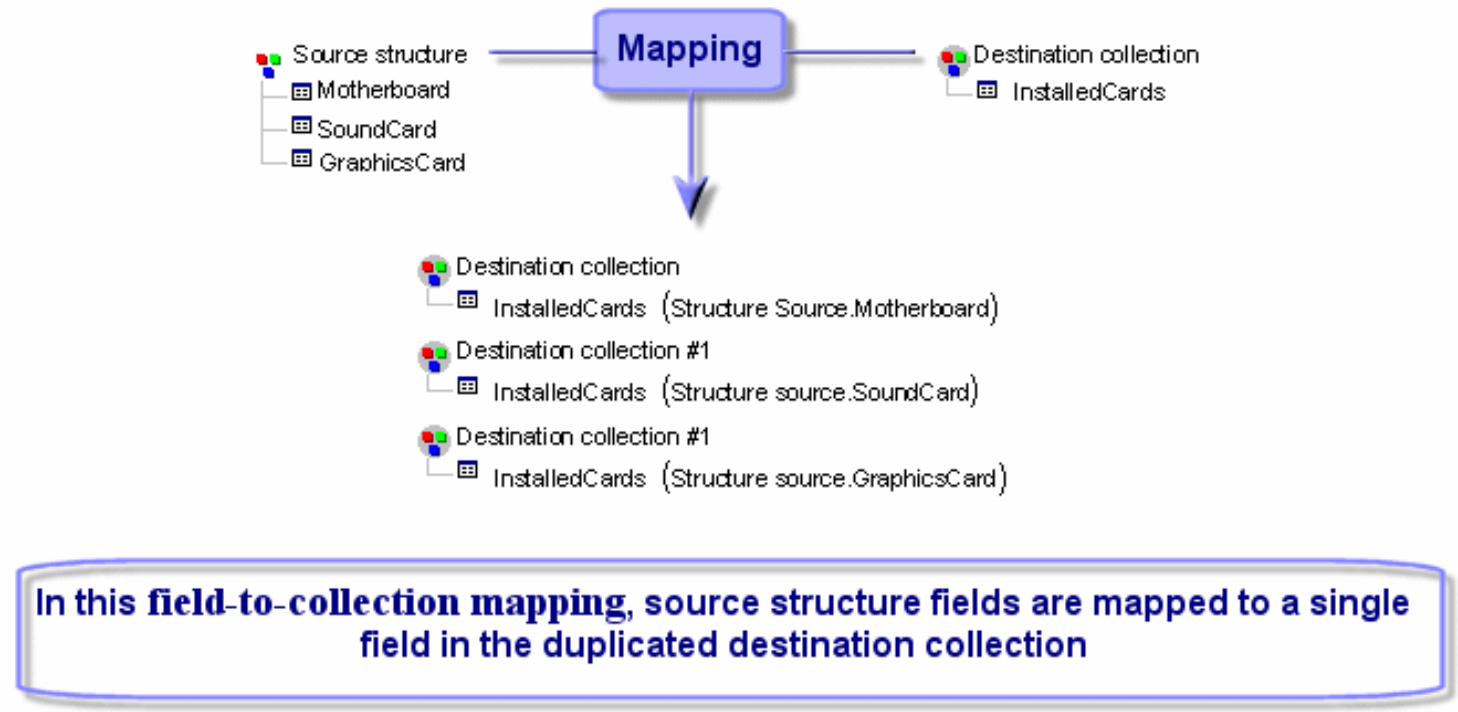


Figure 4-23: Field to collection mapping

When processing the data, the mapping box produces as many destination collections with single members as there are duplicates of this destination collection. Each member has the value of one of the source fields.

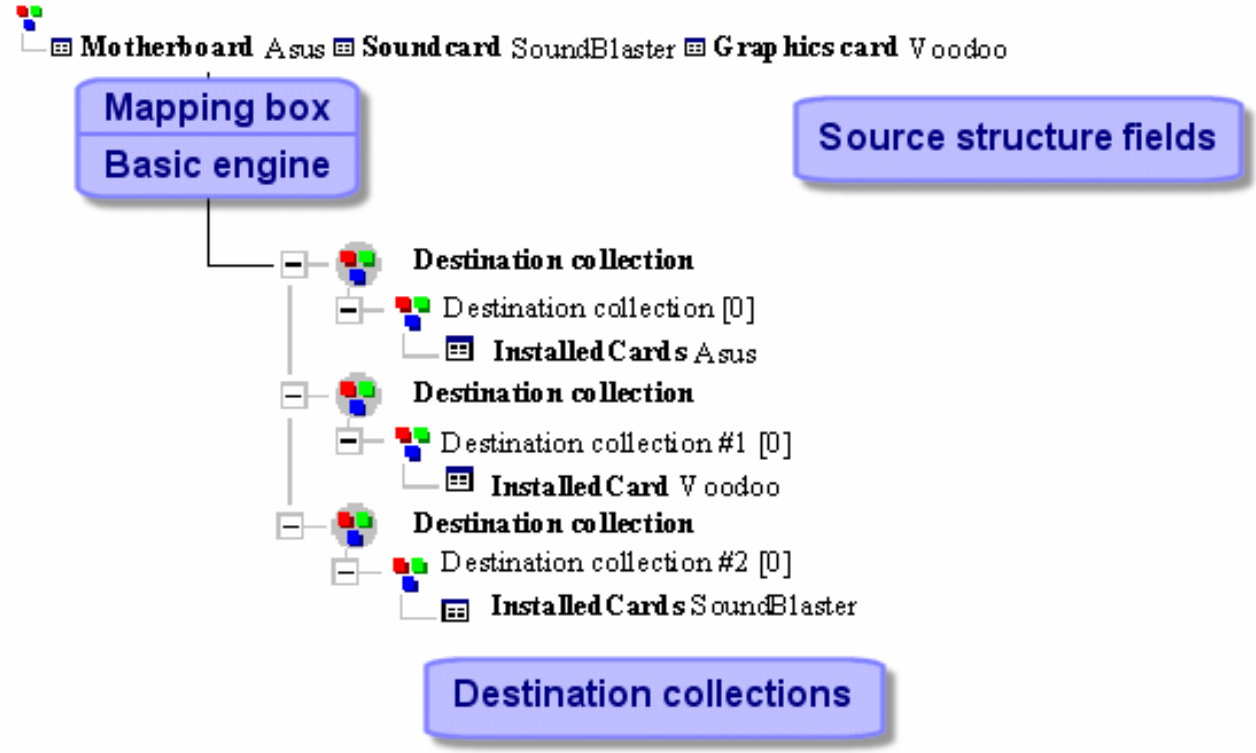


Figure 4-24: Multiple destination collections

Blob-type field mapping

Blob-type fields (binary-large-object-type fields) are those fields corresponding to binary data: sound files, video files, image files. A Blob field can only be mapped to another Blob type field. Two cases are possible:

- You map the destination Blob-field to the source Blob-field. In this case, the binary files are transmitted from the source application to the destination application via the scenario connectors.
- You map the destination Blob-field to a field indicating the name of a binary field located in a file, which is shared by Connect-It and the destination application. In this case, you must use the **Load Blob** from file option, available in the mapping script editing zone.

Create a document or a collection item even if the source collection does not contain items

If you select this option, a collection that does not contain any members produced by the source connector enables you to create:

- A document consumed by the destination connector if you perform a collection-to-document mapping.
- A collection member in the document consumed by the destination connector if you perform a collection-to-collection mapping.

Forcing the creation of a member of a collection or a document enables you to signal the absence of this value in the destination application.

Load Blob from file

This option enables you to indicate that:

- The Blob file is located in the folder shared by Connect-It and the destination application. For example:
  `[name of the shared folder on the network]/blob/pictures.`
- The destination application loads the Blob file from this shared folder.

In order for the destination application to load the file from the shared folder:

1. In the mapping, associate the name of the Blob file from the source to a Blob-type file from the destination application. The file name of the source application can either be the field name linked to the Blob file in the source application (**icon.name**), or it can be the full path of the file in the shared folder: `[name of shared folder on network]/blob/pictures/monimage.png`.
2. Select the **Load Blob from file** option. While the scenario is running, the destination application recovers the **Blob** file from the shared folder.

Convert a hexadecimal string to a Blob

This option enables you to convert a hexadecimal string to a Blob. When this option is enabled, you must specify the code page to use.

Exporting a Blob to a file

You may wish to export the data contained in a Blob field in order to verify the contents. To export the contents of a Blob field:

1. Preview the data produced.
2. Right-click the Blob field and then select **Copy this Blob to a file** from the shortcut menu.
3. Enter the name of the file to save and its nature.

Mapping options

Depending on which connectors are used, different tabs in the mapping box will be available or not. The following tabs are common to all connectors:

- General
- Mapping
- Blob
  This tab is available for all connectors handling Blob files.
- Additional scripts
  This tab is available for all connectors.

The following tabs are specific tabs:

- **Reconciliation**
  This tab is available for Database-type connectors.
- **Advanced reconciliation**
  This tab is specific to the Asset Manager connector.
- **Reconciliation script**
  This tab is specific to the Asset Manager connector.

Refer to the Connector Guide for more information.

Reconciliation keys

You can access the reconciliation tools in the **Reconciliation** tab of the detail of a mapping. Performing a reconciliation operation means bringing together old and new data. Reconciliation consists of defining the fields that enable the unique identification of the records in the tables that a connector creates or updates. Fields used for data reconciliation are identified by marking them with a key, called the reconciliation key.

Complex mapping elements may have multiple reconciliation keys. Each key belongs to a key set. For example, for a given reconciliation, **AssetTag** belongs to key set **#1** and **PhysicalAddress** belongs to key set #2.

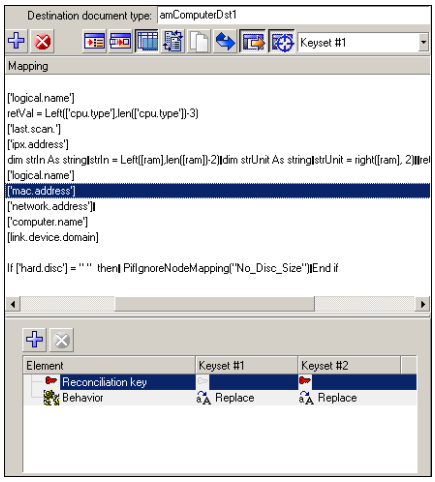


Figure 4-25: Mac address as the reconciliation key

For each reconciliation and key set, we choose one of the following behaviors:

- Update or insert
- Update only
- Insert only
- Delete

For more information, see the Connector Guide.

Viewing reconciliation keys

A filter is available in order to distinguish between the two sets of keys.

To filter on key set # 1 or key set # 2, select the number of the key set in displayed in the icon bar of the mapping box.

How key set weighting works

Each key set has a weight allocated to it, 100 by default, which sets its priority in a given reconciliation operation. The way in which a key sets function depends on their defined behavior and their weight.

Functioning of keys for update or insert

1. In the case where, all reconciliations are **Update or insert**, there are three behaviors for the first key set: If the first key set does not reconcile a record, then the next key set is used.
2. If the first key set reconciles a record:
   - and the weight of the key set is greater than or equal to 100, then this record is updated
   - otherwise, the record and its weight are stored in the list of potential reconciliation candidates and the following key set is examined.
3. If the first key set reconciles several records, then the records and their weights are stored in the list of potential reconciliation candidates and the next key set is examined.

The following is the behavior of the following key set if none of the previous key sets were able to identify a single record:

1. If the following key set does not reconcile a record, then the next key set is used.
2. If the key set identifies one or more records, then, for each new record:
   - A check is performed to test whether it already has been reconciled by one or more of the previous key sets: A record in the list of candidates is considered to be the same as the new record to be processed if the values of the fields are identical (except in the case of the Asset Manager connector, for which we check whether the fields have the same main ID).
   - If the record is already in the list of candidates, the weight of the key set is added to the previous value.
   - If the records is not in the list of candidates, it is added with the weight of the key set.
   - If for all candidates, there is only one record with a weight greater than or equal to 100, then this record is updated.
   - If multiple records have weights greater than or equal to 100, an error message indicates that the key sets do not identify a single record.
   - If the weights of all the records are less than 100, then the following key set is used.

Once all the key sets have been examined, if no record has been selected by the process, then no record will be updated (one new record will be inserted instead).

Example 1
Three key sets are used, their weight being 40, 70 and 50 respectively. The first key set reconciles the records A, B and C. Their weights are therefore the following:

A = 40

B = 40

C = 40

The second key set reconciles the records C, D, E and F. The weights of the records become:

A = 40

B = 40

C = 110

D = 70

E = 70

The record C is the only one with a weight greater than or equal to 100, it is updated and without key set #3 being used.

Example 2
Three key sets are used, their weight being 40, 70 and 50 respectively. The first key set reconciles the records A, B and C. Their weights are therefore the following:

A = 40

B = 40

C = 40

The second key set reconciles the records B, C and D. The weights of the records become:

A = 40

B = 110

C = 110

D = 70

Records B and C having the save weight greater than or equal to 100, it is not possible to uniquely identify them and an error message is generated.

Defining Mapping Scripts

When a direct field-to-field mapping is not possible, a mapping script is needed (**Mapping script** field). This script indicates how data or source elements are manipulated so that they give a value to the destination element.

In the mappings of an integration scenario, scripts enable you to:

- Associate a fixed value to a destination element.
- Associate a calculated value to a destination document-type field.
- Subordinate the processing of a structure's or a collection's fields to the verification of a condition.

An example of this is a Basic script that concatenates two source elements. The return value of this concatenation is mapped to a destination element when data is processed.

See the Programmer's Reference for more information.

Processing order for mapping scripts

When there are several mapping scripts, they are processed in the following order:

1. Script associated with a field
2. Script associated with a structure
3. Script associated with a collection

Editing associated files

The mapping scripts sometimes necessitate using associated files. These associated files contain:

- Character string tables
- Maptables
- Global variables and functions

These files are saved independently of the .scn file. Their file names correspond to the contents:

- `.str`: character string tables
- `.mpt`: maptables
- `.bas`: global functions and variables

- `.scp`: script constants
- `.usr`: user formats

Note: *A scenario (an `.scn` file) that does not have its associated `.str`, `.mpt` and `.bas` files will not function. Make sure that, each time you move a scenario, its attached files are also moved with it. It is also useful keep these files right next to your `.scn` file so that you can easily assure their presence. Moving the associated files prohibits the scenario from obtaining their contents during data processing.*

You can edit elements using the Connect-It editors as an intermediate tool. Use the **Scenario** menu to access these editors. When you use the **Scenario** menu to access an editor, a window is displayed. This window has two panes:

- A pane showing the files (`.str`, `.scp`, `.mpt`, `.usr` or `.bas`) associated with the current scenario.
- A file editor pane (character string tables, maptables, global functions and variables).

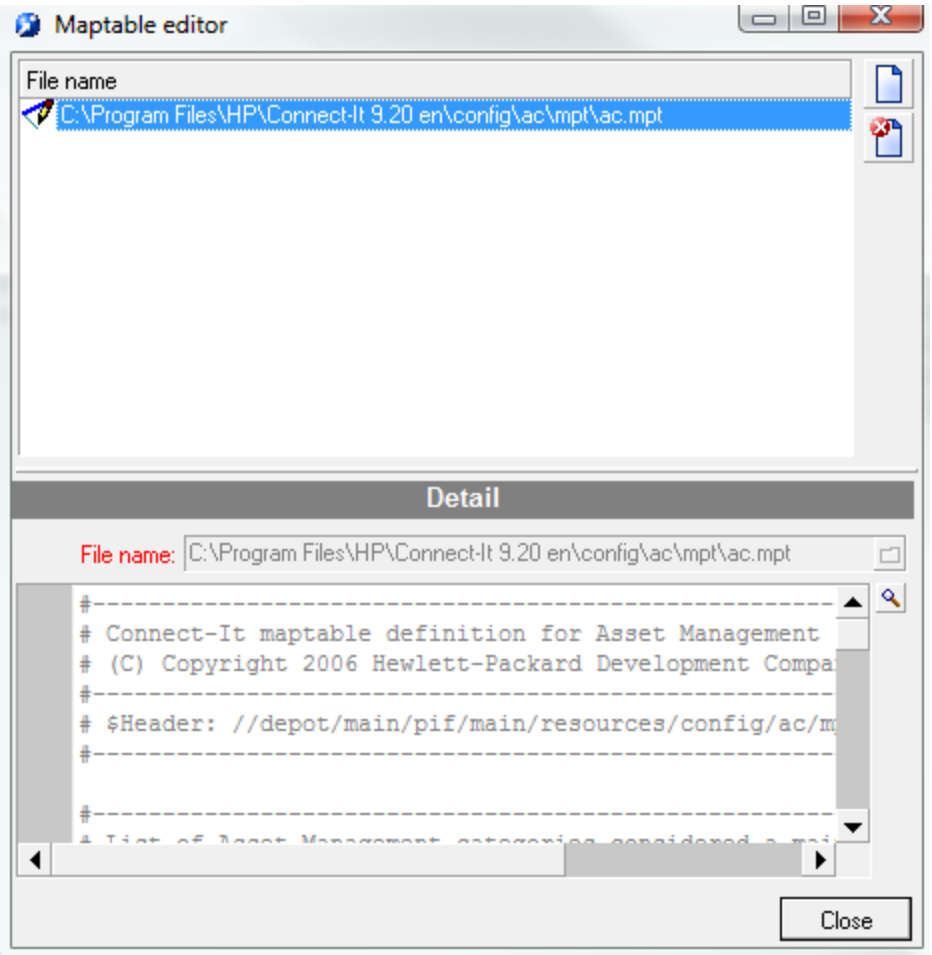


Figure 4-26: The Maptable editor

To create a new associated file:

1. Click on the toolbar.
2. Enter the name of your file in the **File name** field.

3. Specify a location to save the file.
4. Click **Create**.

Opening an existing file

To open a file appearing in the pane showing the associated files of the current scenario, click this file.

Deleting an associated file

To delete a file associated with the current scenario:

1. Select this file in the window of the associated files.
2. Click on the toolbar.

Validating scripts

Connect-It constantly verifies whether your scripts are coherent or not. This validation checks, not only the Basic syntax, but also makes sure that the source document contains those elements that are referenced in the mapping script.

(Only elements that are visible in the source document structure are considered in the validation.)

Note: *The* ***Do not authorize the validation of a script that includes compilation errors*** *option (****Confirmations*** *section) enables you to activate or deactivate the behavior of this validation.*

Editing the text of an associated file

You can access the text editor by clicking the icon, available in each editor near the **Mapping script** field in the mapping edit window. This text editor facilitates the editing of Basic scripts and the `.str`, `.mpt`, and `.bas` files. The functions available from the **Edit** menu or the toolbar are: cut/paste, undo, etc.

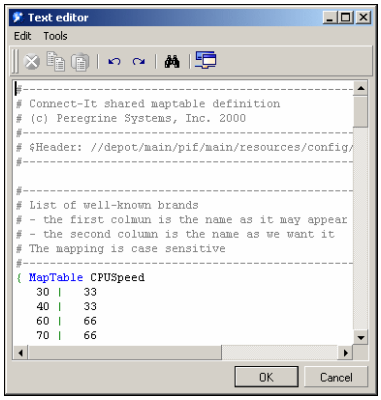


Figure 4-27: The text editor

The following table explains the icons used the text editor:

Icon	Function
	Cuts the selected text.

Icon	Function
	Copies the text from the Clipboard.
	Pastes the text from the Clipboard.
	Cancels the current action.
	Redoes the canceled action.
	Displays the configuration window of the text editor.

Caution: *In order to edit one of the templates available in the text editor, verify that the* `codeedit.cfg` *file located in the* `bin` *sub-folder of the Connect-It installation folder is not read only.*

To configure the text editor, select **Tools > Options** from the menu.

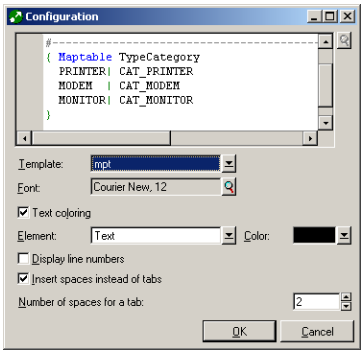


Figure 4-28: Text editor configuration screen

For each text editor there is a template:

Template	Edit contents
bas	Mapping scripts and global functions
str	Character string tables
mpt	Maptables
sql	SQL queries
scn	Connect-It scenarios
Default	All other types

For a given template, you can:

- Modify its character font (type, weight, style).
- Select the color of its elements.

- Show or hide its line numbers.
- Replace tabulations with one to eight spaces.

Modifying a Template

To modify the font used in a template, click the magnifier next to the Font field. A dialog box appears in which you can select a font from those fonts installed on the computer.

You can also modify the color of certain elements:

- Text
- Background
- Selected text
- Selected text background
- Line numbers
- Numeric values
- Delimiters
- Comments
- Strings
- Keywords
- Operators

To set a color for an element, select it in the **Element** field and then select a color in the **Color** field.

You can also choose not to color the text by clearing the **Text coloring** option.

To display line numbers and insert spaces instead of tabs, select the appropriate check boxes.

Editing Character Strings

To access the character-string editor, use the **Edit** menu. In a character string table, each string is associated with a unique identifier. When the data is processed, the Basic scripts replace the identifiers with their respective character string.

To use a character string in your mapping, you need to use the **PifStrVal** function followed by the identifier of the string in quotes and parentheses.

The following example shows how part of the `Category.str` character string table is used in Desktop Discovery to Asset Management scenario.

```
CAT_UNIX, "/Hardware/Unix Workstation"
CAT_SERVER, "/Hardware/Server"
CAT_WORKSTATION, "/Hardware/PC"
CAT_MAC, "/Hardware/Mac"
CAT_TERMINAL, "/Hardware/Terminal"
CAT_PORTABLE, "/Hardware/Portable"
```

For example, to obtain "/Hardware/Unix Workstation", use the following line of code in your mapping script:

```
PifStrVal("CAT_UNIX")
```

In this table, the `CAT_UNIX` identifier corresponds to the "Hardware/Unix Workstation" value. If you change this character string, the scenario accounts for this change without having to recompile the Basic script that uses this identifier. You can also use several character string tables corresponding to a given language: `FrCategory.str` for French, `DeCategory.str` for German, and so on.

Concatenating character strings

The & operator enables you to concatenate character strings. If one of the operands is not a character string type of operand, a character-string conversion is automatically performed.

For example:
```
RetVal = "Current date: " & Date()
```

This script displays a date according to the following format:
```
Current Date: 2002/12/26
```

Concatenating character strings

The **&** operator enables you to concatenate character strings. If one of the operands is not a character string type of operand, a character-string conversion is automatically performed. For example:
```
RetVal = "Current date: " & Date()
```

This script displays a date according to the following format:
```
Current Date: 2002/12/26
```

Creating a character string from a character code

The **Chr()** enables you to generate a character according to the code page used by Connect-It.

This function is useful for generating characters such as the following types:

- Single quotation marks: Chr(39)
- Double quotation marks: Chr(34)
- Carriage return: Chr(13)
- Line skip: Chr(10)

For example:
```
Dim lVal As Long
lVal = 5
RetVal = "Value: " & Chr(39) & lVal & Chr(39)
```

This script returns the value:
```
Value: '5'
```

UNIX/Windows character string

The line return is not managed the same way in UNIX as it is in Windows. In Windows, the line return is managed by the characters Chr(13) and Chr(10). In UNIX, only Chr(10) is used.

For example:
```
RetVal = Replace([WindowsText], Chr(13) & Chr(10), Chr(10))
```

This script replaces all the Windows line returns by UNIX ones in a character string recovered in the **WindowsText** of the source document.

Editing Maptables

To access the maptable editor, use the **Scenario** menu. In a maptable, the first column contains a key and the following columns contain values. Each key corresponds to a value in a given column.

To obtain the value of a given column in your mapping, you associate the **PifMapValue()** function with the key as a parameter, a default value if the key is not defined in the maptable, the name of the maptable and the column number.

At runtime, each time that a key is found in a script, it is replaced by the value of the column indicated in your script. For example: In this extract of the **Brand** maptable, the **Apple** and **Macintosh** keys return "Apple" if column 1 is specified in the script.

```
{ MapTable Brand
Compaq | Compaq
IBM -Lexmark| IBM - Lexmark
Hewlett Packard| Hewlett Packard
HP-UX| Hewlett Packard
Toshiba | Toshiba
Apple | Apple
Macintosh | Apple}
```

For example, to obtain "HP-UX", use the following line of code in your mapping script:
`PifMapValue([Name of field in the mapping],"Brand",0,"DefaultValue")`

For a complete description of the functions linked to the maptables, refer to the following functions in the Programmer's Reference:

- PifCreateDynaMaptableFromFmtName
- PifIsInMap
- PifMapValue
- PifMapValueEx
- PifMapValueContaining
- PifMapValueContainingEx

Creating maptables for different languages

To obtain maptables that return strings in different languages:

1. Create character string files in which each line maps an identifier to a localized string (French, Polish, etc.) as `[Identifier],["localized string"]`.
   For example: a file category `.str`, for English, contains `CAT_UNIX, "UNIX Workstation"`), another file `fcategory.str`, for French, contains `CAT_UNIX, "Station de travail UNIX"`), etc.
2. Include this file in your maptables file using the following syntax:
   `#include_str "[File name]". Example: #include_str "category.str"`

3. Reference each string in the maptable using an identifier, the syntax of which is `[dollar]([Identifier])`.

Example code:

```
#include_str "category.str"
{MapTable Category
[$](IDS_CAT_UNIX)| workstation}
{ MapTable Sc2AcCat
[$](IDS_CAT_UNIX) | workstation}
```

Editing Global Functions and Variables

To access the global functions and variables editor, use the **Scenario** menu. Your mapping scripts use functions and variables that you may want to use in several different places. These global functions and variables can be saved in the same `.bas` file and can then be accessed by the mapping script. At runtime, the mapping box uses these functions and variables located in the `.bas` files associated with the scenario.

For example: The global function **CPUSpeed()** is contained in the `gen.bas` file. This function references a maptable, **CPUSpeed()**, and makes it possible to specify the generic value of the CPU speed.

```
'-----------------------------------------------------------------------
----
' Returns the generic CPU speed frequency
' Use the generic maptable
' CPUSpeed'
Function CPUSpeed(ByVal strValue As String) As Integer
Dim iTmp As Integer
iTmp = CInt(strValue) / 10
CPUSpeed = CInt(PifMapValue(CStr(iTmp * 10), "CPUSpeed", 1, strValue))
End Function
```

Global variables

Variables declared in a mapping script are local. For example, if you declare a variable in a script associated with a field, you cannot use this variable for another element in the document. If the same variable name is used in a mapping script performed on another element, a new local variable is created, and the value of the variable in the first script cannot be recovered.

Declaring a global variable

For the variable to be global, it must be declared at the root of a document type, in the **Additional scripts** tab, in order for it to be calculated and used in the different scripts applied to the different complex elements in the same mapping.

Note: *In order to differentiate between global and local variables, prefix global variables by* `g_`.

For example:

```
Dim g_lCounter As Long
```

You must declare a global variable before defining the Basic script. The variable is taken into account when you open (**OpenSession()**) or close (**CloseSession()**) a session.

For example:

```
Dim g_lCounter As Long
(...)

Sub OpenSession()
rem add your code here
End Sub

Sub CloseSession()
rem add your code here
End Sub
```

Creating a document counter

To create a document counter, you must first declare a global variable. By default, this variable's value is 0. For example:

```
g_lCounter = g_lCounter + 1
PifLogInfoMsg(g_lCounter)
```

Each time that a document is produced by a source connector, the counter increases by 1 and the script returns the value of the counter to the Document log.

As long as the scenario is being executed, the counter is not reinitialized. To reinitialize the value of the counter each time a session is opened, you must perform an additional script.

```
Dim g_lCounter As Long
Sub OpenSession()
g_lCounter = 0
End Sub
```

By keeping the counter's incrementing script at the root of the document type, the values of the global variable will be the following (for example):

```
Session 1
1
2
3
...

Session 2
1
2
3
...
```

Saving a global variable in a file

If a scenario is stopped while it is running in service mode, the current value of the global variable is lost. To keep the current value of the global variable, you must save it in a file and reload it from this file whenever necessary.

In this example:

- A counter counts the number of documents processed without ever being reinitialized.
- This counter will be reloaded from a file if the application is stopped.
- On a root element, if the global variable equals 0, the additional script loads the "C:/tmp/counter.txt" file and verifies it if exits and if it contains data.
  If the global variable equals 0, it implies that:
  - The scenario is executed for the first time.
  - The scenario is interrupted.

```
Dim g_lCounter As Long
Sub OpenSession()
' Counter equals to 0, means that it has not been initialized.
' The application has been stopped and we reload the counter
' value
If g_lCounter = 0 Then

' If the file does not exist, it must be the first run. Check the
' existence of the file to avoid error on opening.
If FileExists("c:/tmp/counter.txt") Then

' Open the file in read mode
Open "c:/tmp/counter.txt" For Input As #1

' Check the file contains data and read the first line of the file.
If Not Eof(1) Then
Line Input #1, g_lCounter
End If
Close #1
End If
End If
End Sub
```

The following script enables you to save the value of the counter in a file each time that the counter is increased on the root element.

```
g_lCounter = g_lCounter + 1
Open "c:/tmp/counter.txt" For Output As #1
Print #1, g_lCounter
Close #1
PifLogInfoMsg(g_lCounter)
```

Note: *This script can be applied to any element of a document type.*

Using Constants

You can define constants for your mapping scripts. These constants are declared and saved in a file that can be accessed via the **Scenario > Script constants** menu. This file has the extension `.scp`.

Declare a constant as follows:

```
constant = <value of the constant>
```

A constant is replaced with its value during preprocessing of a Basic script (similar to the declaration of a #define macro in C or C++). Declaration of the constant depends on its type (integer, string, etc.).

For example:

- For example, double quotes ("") must be used for a string.
  `login = "Maggie Smith"`
- Numeric constants must be declared as follows:
  `idmax = 5`

A constant is identified by the declaration **PifConstant(name of the constant)**.

Note: *Constants are replaced when the Basic script is processed. PifConstant is not considered as a Basic function but as a simple marker.*

For example:
```
RetVal = PifConstant(login)
```

This script will be translated as follows when the script is executed:
```
RetVal = "Maggie Smith"
```

It is assumed that the **Script constant editor** was populated as follows:
```
login = "Maggie Smith"
```

The Programmer's Reference

To help you write your scripts, an online Programmer's Reference is available for Connect-It. This Programmer's Reference is available by pressing **F1** on your keyboard when your pointer is inside the:

- **Mapping script** field of the mapping edit window.
- Entry zone of the different editors.

Executing Scripts

To execute scripts when a session opens, you must declare the code to be executed in the **Additional scripts** tab using the function:

```
Sub OpenSession()
rem add your code here
End Sub
```

To execute scripts when a session closes, you must declare the code to be executed in the **Additional scripts** tab using the function:
```
Sub CloseSession()
rem add your code here
End Sub
```

Creating User Formats

User formats are date-type or numeric-type formats that the user can define for use with the mapping scripts. These formats can be used exclusively with the **PifUserFmtVarToStr** and **PifUserFmtStrToVar** functions. To use these functions, refer to the Programmer's Reference.

Syntax of user formats

You must respect the following rules when you write format formulas:

- The symbols used for date-type or numeric-type formats is identical to those used in Windows operating systems.
- String files appearing in the formats must be surrounded by single quotes.
- The space between two values must be entered as if it were a string, surrounded by single quotes.

For example:
`dddd' 'd' 'mmmm' 'yyyy` is equal to `Thursday 16 February 2002`
`-n'.'nnn','ddd'USD'` is equal to `-10.203,408USD`

To create a date-type or numeric-type user format:

1. Select **User formats** in the **Scenario** menu.
2. Click **Next** on the wizard page that appears. This page shows the date-type formats that cannot be defined.
3. Click on the second page of the wizard.
4. Click in the **Name** column under the name of the last format in the list of existing formats.
5. Name your format in the editable zone that appears. This name must not have any spaces.
6. Click in the **Format** column corresponding to the name that you just entered.
7. Enter a formula using the attributes from the **Date-type format symbol** pane or the **Numeric-type** format symbol pane.
8. Click . An example of the created format appears in the **Result of date-type format** field or **Result in numeric format** field.

To create a numeric-type user format:

1. Select the **Scenario > User** formats menu.
2. Click **Next** on the wizard page that appears. This page shows the numeric-type formats that cannot be defined by the user.
3. Click on the second page of the wizard.
4. Click in the **Name** column under the name of the last format in the list of existing formats.
5. Name your format in the editable zone that appears. This name must not have any spaces.
6. Click in the **Format** column corresponding to the name that you just entered.
7. Enter a formula using the attributes from the **Numeric-type format symbol** pane.
8. Click .
   An example of the created format appears in the **Result in numeric format field**.

Note: Save a user format file in a `usrfrmt` folder so that the file can be identified by the wizard. If you want a user format file applicable to all scenarios, save it in the folder `[Connect-It Installation folder]\config\shared\usrfrmt`.

Additional Mapping Script Tasks

This topic provides a list of additional tasks you must perform when dealing with mapping scripts.

Mapping a fixed value to a destination element

To assign a fixed value (a date, string, number, etc.) to a destination field:

1. Drag the destination field on to the work area.
2. Enter the fixed value in the **Mapping script** field.

For example:
In the Desktop Discovery to Asset Manager scenario, each scanned computer results in the creation of a new asset in the **amAsset** table. By default, this table requires each asset to have a category name. In your mapping definition, you map the fixed value **"/Hardware/Desktop computer/"** to the **FullName.Category** field of the **amAsset** document-type.

Moving several fields by drag-and-drop

In your Basic scripts, you can use several source fields, for example, to concatenate them using a Basic function.

To move several fields by drag-and-drop:

1. Map a first-source field to a destination field.
2. Drag the other fields while holding down the **Shift** key. The fields appear as a list in the **Mapping scripts** pane. Simply rewrite the script using these fields.

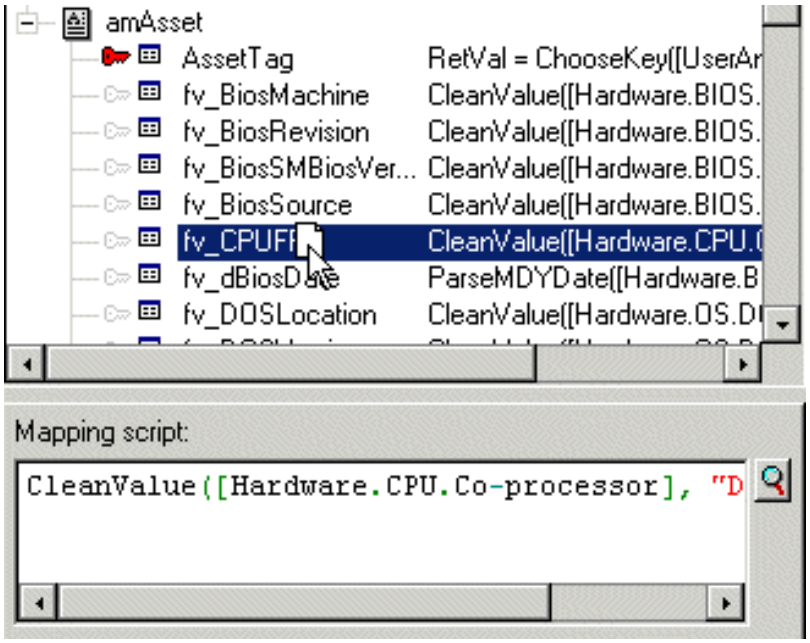


Figure 4-29: Moving several fields by drag-and-drop

Locating source and destination elements

To find the original location of a destination element that is on the work area:

1. Select this element in the work area.
2. Click the right-arrow icon.

This action places the focus on the destination element in the destination document-type pane. This function is useful when the destination document-type contains a large number of elements. Mapped source elements (whose names appear in blue) can also be located in the work area.

To do this, double-click a mapped source element in the source document-type pane. All destination elements that involve this source element are displayed in green.

Duplicating a destination element

Sometimes you need to duplicate a destination field in order to map several source fields to it. This is particularly the case for collections. For example:You want to map fields X and Y to field A of a collection. To do this, you need to duplicate the collection containing field A, and map field X to field A in the original collection, and then field Y to field A in the duplicated collection.

To duplicate an element:

1. Select an element in the work area.
2. Click the duplicate icon .

Duplicated elements are numbered: The original element is numbered 0 (this is not displayed), the first duplicate 1, the second 2, and so on. This numbering system is imposed by Connect-It and cannot be modified.

Copying the path of an element

In a mapping script, you must indicate the full path of the elements that you use. In the following image, the full path of the **dDocDate** field is `[Document.dDocDate]`:

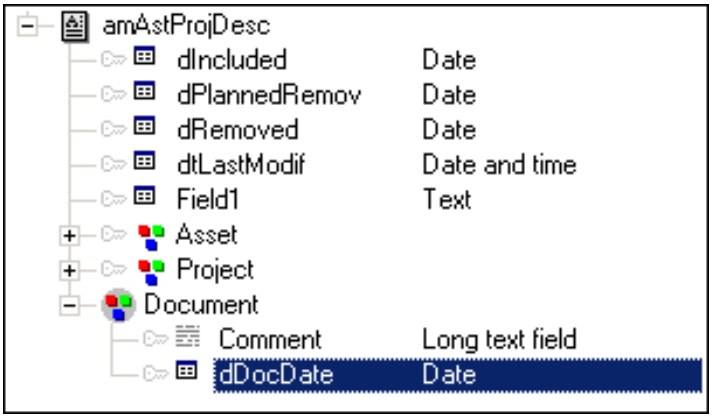


Figure 4-30: Element in the document

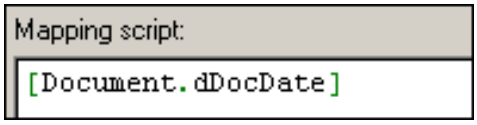


Figure 4-31: Path of element in mapping script

To obtain the path of a document-type element:

1. Select this element.
2. Right-click and then choose **Copy path** from the contextual menu (Ctrl+C).

3. Place the pointer in the **Mapping script** field.
4. Right-click and then choose **Paste** from the contextual menu (Ctrl+V).

Verifying the syntax of a script

In a mapping script, click the magnifier to access a text editor. This editor enables you to write mapping scripts and validate their syntax.

To verify the syntax of a mapping script:

1. In the **Tools** menu, select **Options**.
2. In the configuration window that is displayed, select the script template according to the connector used (**Template** field):
   - **aql** to write an AQL query
   - **bas** for a Visual Basic script
   - **sc** for a ServiceCenter script
3. Once you have finished entering the script, click **OK**.

Validating a Basic script

A script entered into the **Mapping**, **Additional scripts**, or **Reconciliation scripts** tabs is parsed and a error message is shown if they are not valid. In this case, you are able to copy the script but not validate it.

Type-ahead in Basic scripts

To access the dialog box that lets you use type-ahead functionality when entering functions, press **CTRL+Spacebar**.

Using the contextual menu in mapping scripts

When you right-click on the mapping script, a contextual menu is displayed. This contextual menu includes the following functions (the keyboard shortcuts are given in parentheses):

- Undo Keystroke
- Repeat Keystroke
- Cut (Ctrl+X)
- Copy (Ctrl+C)
- Paste (Ctrl+V)
- Select all (Ctrl+A)
- Filter unused document types
- Show source
- Show destination

Contextual menus in the mapping edit window

In the mappings edit window, the commands in the four contextual menus help you to write your mapping scripts.

Command	Function
Copy this XML DTD	Copies the DTD of the document type produced by the source connector.
Copy path	Copies the path of the selected element to the Clipboard.
Show nodes mapped to the selection	Displays in green the nodes of the mappings concerning the selected element (direct or scripted mapping).
View data	Displays a window in which you can view the data from the source document type.
Edit a document type to preview data	Displays a window in which you create a document type produced by the source connector and view its data.
Filter unused document types	Filters the document types that are not used in the current mapping.
Show source	Displays or hides the source document-type pane.
Show destination	Displays or hides the destination document type pane.
Add this element	Places the element on the work area.
Edit the mapping	Enables you to edit the mapping script using the text editor.
Describe mapping	Displays a window in which you can describe the selected mapping node.
Reconciliation key	Specifies that the selected element is used as a reconciliation key in the case of a database type destination connector.
Copy/Paste mapping	Enables you to copy all or part of the mapping to the Clipboard and paste it into another area.

Defining a global variable

You can define global variables for your mapping scripts. A global variable is a variable that was defined at the root of a document tpe and can be called on by a script associated with any complex element of a document type (collection, structure, field). You must declare a global variable before defining the Basic script. The variable is taken into account when you open or close a session. You can define a global variable in the **Additional scripts** tab. It can also be declared in an associated **Basic** file.

Additional scripts tab

The additional scripts are defined in the **Additional scripts** tab for a given document type. This tab is only active for the root element of a document type. It enables you to:

- Define global variables.
- Execute Basic code at the opening of each session.
- Execute Basic code at the closing of each session.

Note: *A sample of additional script is shown for all created document types.*

Defining Supervision Monitors

The scenario monitoring functions are handled by a system of monitors. These monitors enable and handle the flow of information, and processing history from the application and its connectors.

How Monitors Work

The monitors are surveillance tools that may be enabled or disabled and make it possible to display and save information related to the processing of a scenario. The monitors are enabled when creating a scenario.

- Monitoring a scenario involves:
- Keeping a graphical trace of the document log
- Keeping the information linked to the documents that have passed through the source and destination connectors:
  - The documents themselves or the documents contains a processing error (warning, rejection in part or in full)
  - The document logs
  - The Connect-It log
  - The parent documents
- Keeping statistics on document processing

Caution: *When you create a new scenario, the default configuration is used. We recommend verifying the configuration of the monitors before starting the first tests and putting the scenarios into production.*

Each scenario has its own monitor configuration saved in the `.scn` scenario file. Additionally, Connect-It has a default configuration saved in the `conit.ini` file; This default configuration is used when Connect-It is started up and on creating a new scenario.

Configuring Monitors

The monitors are available via the **Monitors > Configure monitors** menu. The scenario monitoring settings are defined in each tab.

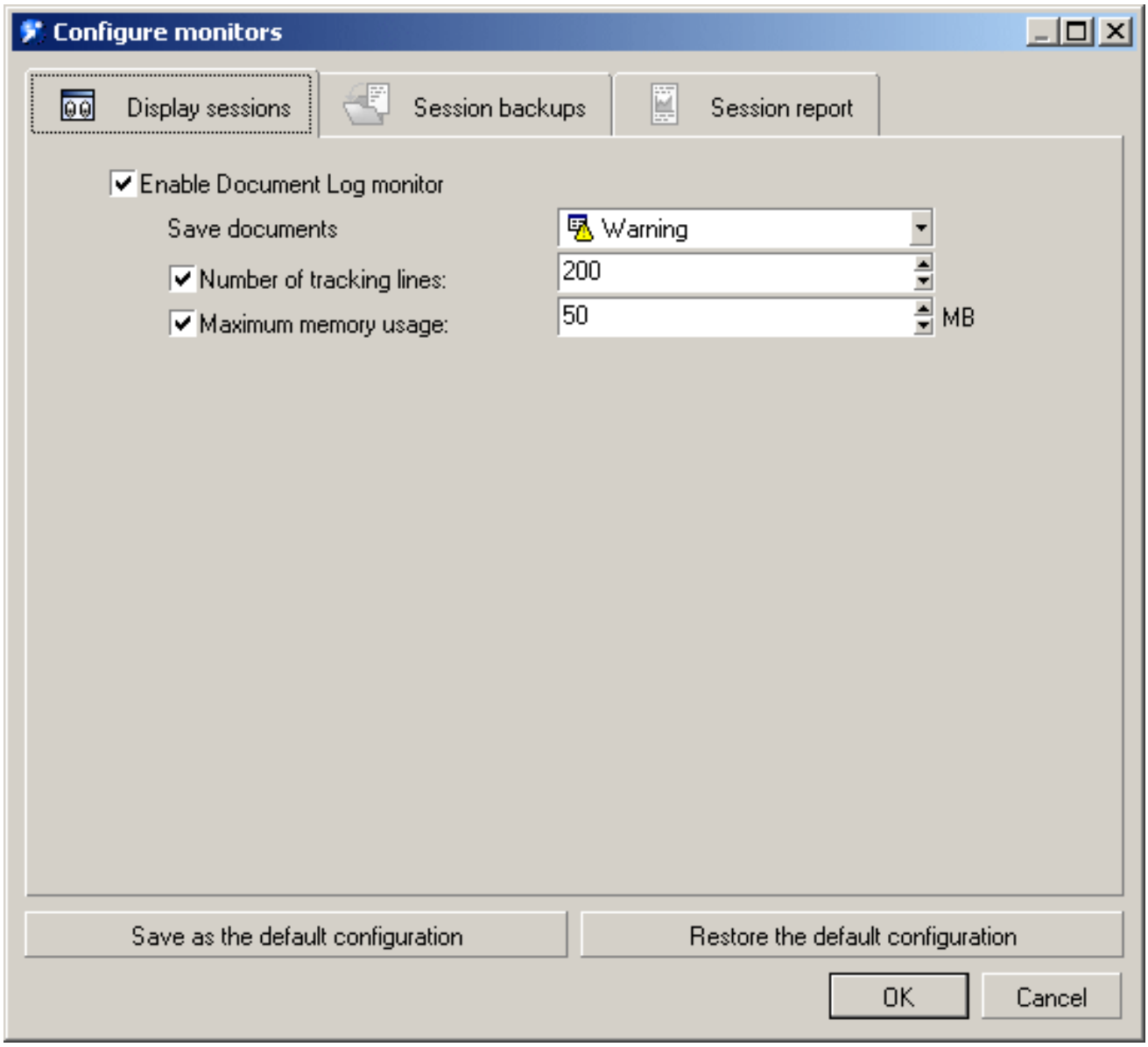


Figure 4-32: The Configure monitors screen

The monitoring is enabled via the following tabs:

- **Display sessions**: Display and configure information shown on the **Document log** tab.
- **Session backups**: Save session-related information (logs, documents, statistics) to file or the Connect-It database.
- **Session report**: Process reports for E-mail, ServiceCenter, the Events log, and Asset Manager.

Each tab represents one or more monitors that may or may not be enabled or independent. The enabling of each monitor depends on the general options validated for each session for all monitors.

Note: *The performance of the application when the monitors are enabled depends on the number of documents produced and consumed and saved in the monitors.*

Display Sessions Monitor

This monitor is used to display the information on the **Document log** tab. Enabling this monitor impacts connector performance and is dissociated from the **Session backups / Keep the logs linked to documents** option in the **Session backups** log.

To enable the monitor, select the **Enable Document Log monitor** option in the **Display sessions** tab.

This monitor can be configured. You can specify:

- The condition for displaying the documents
- The number of tracking lines displayed in the document log
- The allocated memory size, between 512 KB and 20 MB

The contents of this monitor can be seen in the **Document log** tab of your scenario editor.

Session Backups

The options in this tab enable you to define which items of history are handled by the application and are saved to file or the Connect-It database. In the **Sessions backup** tab, select the options handled by each monitor:

- Save the Connect-It log
- Save documents
- Save statistics

Session options handled by the monitors

	Display sessions monitor	File monitor	Database monitor	E-mail monitor
Applications log	N/A	No	Yes	No
Documents	Yes	Yes	Yes	No
Document log	Yes	Yes	Yes	No
Statistics	No	Yes	Yes	Yes

Save Connect-It logs option

This option enables you to activate the Connect-It log.

Save documents option

This option enables you to configure:

- The information that is visible in the **Document log** tab of the scenario editor.
- The information that is saved in the **File** and/or **Database** monitors.

Configuring the documents saved consists of:

- Filtering the saved documents.
  This filtering is obtained using the drop-down list available for the **Save documents** option.
  Filtering the documents saved enables you to save:
  - The documents themselves (**normal processing** filter)
    This option is mainly used when testing your scenarios.
  - The warnings associated with documents (**Warnings** filter)
  - Partial rejections
  - Full rejections
- Filtering the logs associated with the documents you wish to keep.
  This filtering is obtained drop-down list in the **Keep the logs linked to documents** option.

Save statistics option

This option enables to activate the production of statistics. The following statistics are produced:

- Document statistics: Documents produced and documents consumed
- Time statistics: Length of the session, length of processing by the connector

These statistics highlight the key elements in a scenario (insertion, deletion, or updating of documents). These statistics are:

- visible in the Scenario Builder when the pointer is on one of the mapping elements.

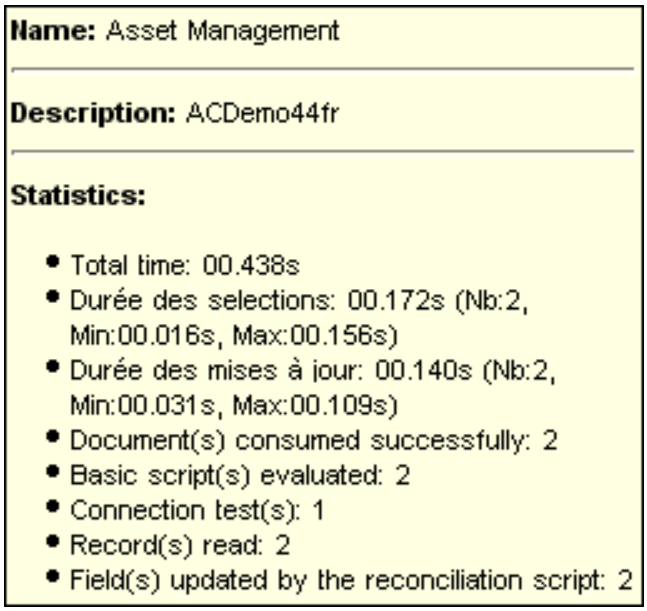


Figure 4-33: Session statistics

- visible in the screen for managing saved sessions (**Monitors > Manage saved sessions** menu) when the **File** monitor has been enabled.

List of statistics | Time | Documents

Element	Type	Detail	Value
Connect-It monitor			
Total time	2368	05.041s	
Asset Management			
Catalog			
Total time	562	03.250s	
Document(s) consumed successfully	148		
SuccessReport1_catalogSrc	148		
Document(s) produced successfully	148		
catalogSrc	148		
Mapping			
Total time	149	00.062s	
Time in scripts	148	00.000s	
Document(s) consumed successfully	148		
catalogSrc	148		
Document(s) produced successfully	148		
amCatRefDst	148		
Retroaction			

Figure 4-34: Sorted session statistics

- sorted by element type (connector, mapping box) and by value (duration, success, failure).

Limit data backed up for scenario option

This option enables you to set maximum operating values (time, number) for the monitors:

- For each execution of a scenario, for example from the time the application is opened until the time it is closed
- For each session, i.e. the number of times a scenario has been launched

The newest sessions replace the oldest ones.

Saving the general options

The configuration of your monitoring tools is saved for each scenario. You can save a default configuration, which will be saved in the `conit.ini` file. This configuration will be loaded each time the application is launched.

To save your configuration, click **Save the default configuration**. The default configuration is applied to all new scenarios created. It is also applied to all the scenarios shipped with Connect-It.

Note: *The default configuration will not be applied to scenarios created or updated using previous versions of Connect-It. In this case, the scenario configuration defined in the previous version of Connect-It will be kept.*

This configuration can be restored at any moment by clicking **Restore the default configuration**. This button allows you to apply the default configuration to the scenario being edited.

Database Monitor

To enable the monitor, select the **Enable monitor** option in the **Database** tab.

This monitor enables you to specify:

- The Connect-It database used to store processing history (Connection field) The database connection must first be declared in your database manager. If the connection does not exist, you can create it using the database administration tool.
- The database login
- The database password
- The temporary disabling of history for tracking lines

Note: *You can test the validity of your connection by clicking* ***Test****.*

Caution: *If you have set the* ***Save documents*** *option to* ***Normal processing (no filter)****, all processed documents are saved in the database; In this case, performance may be impacted and you may run the risk of saturating the database. We recommend saving documents with errors.*

Because of changes to the database structure, it is not possible to load sessions prior to Connect-It version 3.4.

Temporary disabling of tracking-line groups

The option **Disable temporarily if the number of tracking-line groups to save exceeds** enables you to define an upper limit for saving tracking-line groups. This option is particularly useful when a large amount of errors are encountered that are obviously the result of a mapping error.

A tracking-line group corresponds to a set of information on the processing of documents. This information includes: The document produced by the source connector, by the mapping box, the document consumed by the destination connector, and the parents documents at the origin of the document. If the value defined for the option is exceeded, the monitor is disabled for the rest of the session and an error is entered in the Connect-It log.

File Monitor

This monitor saves the contents of the documents and the associated document logs to file. To enable this monitor, select the **Enable monitor** option in the **File** tab.

This monitor enables you to specify the folder in which the general settings are saved.

Note: *The Backup directory field allows you to enter either the absolute or relative paths of your files.*

For example: `c:\test\<Generic name>`or `..\<Generic name>`

This folder contains all the sessions defined for the **Limit data backed up for scenario** option. Each session has a corresponding number.

Note: *This folder is used to import saved sessions (****Monitor*** *menu).*

There are as many session folders as there are scenarios executed. The maximum number of session folders for each scenario is set by the **Sessions to keep** field. Each session folder has a session number and is saved in a folder bearing the name of the scenario.

The main folder containing the scenario sessions can be named as you like. This makes it possible to save the sessions pertaining to a given scenario in a new folder.We do however recommend saving your sessions to the same main folder. All sessions are listed in the `seslist.xml` file and all scenarios are listed in the scnlist.xml file. Each session folder contains the processing history in the form of multiple files:

- The `doclog` and `document` files in the xml format
- The `doctrace` and `stat` files in text format

Caution: *If you have set the* ***Save documents*** *option to* ***Normal processing (no filter)****, all processed documents are saved in the database. In this case, performance may be impacted and you may run the risk of saturating your backup media.*

Session Report Monitors- Asset Manager Monitor

This monitor enables you to create a record in the Asset Manager Work Orders (**amWorkOrder**) table. We recommend creating a specific work order model in Asset Manager in order to handle and categorize the records inserted by Connect-It.

To enable this monitor, select the **Enable monitor if** option in the **Session report** tab and then define the filter associated with this monitor (Normal processing, Field reject, Warning, Reject).

The monitor parameters are the following:

- **Connection**: Asset Manager database declared in the DBMS
- **Login**: connection identifier
- **Password**: User password
- **Model**: Name if the existing model of nature Work order
- **Title**: Name of the scenario populating the Label field in the Work orders table
- **Group**: Name of the group in the Departments and employees table (amEmplDept)
- **Problem**: description of the session as shown in the Problem field of an Asset Manager work order.
- **Status** (not visible): This field returns the value 0 (Notified status) for the **Status** (seStatus) field of a work order.

The syntax of the template is the same as that used for the E-mail monitor.

To test the validity of the connection, click **Test the connection**.

Session Report Monitors- Events Log Monitor

This monitor enables you to create an event that you can seen in the **Event Viewer** in Windows.

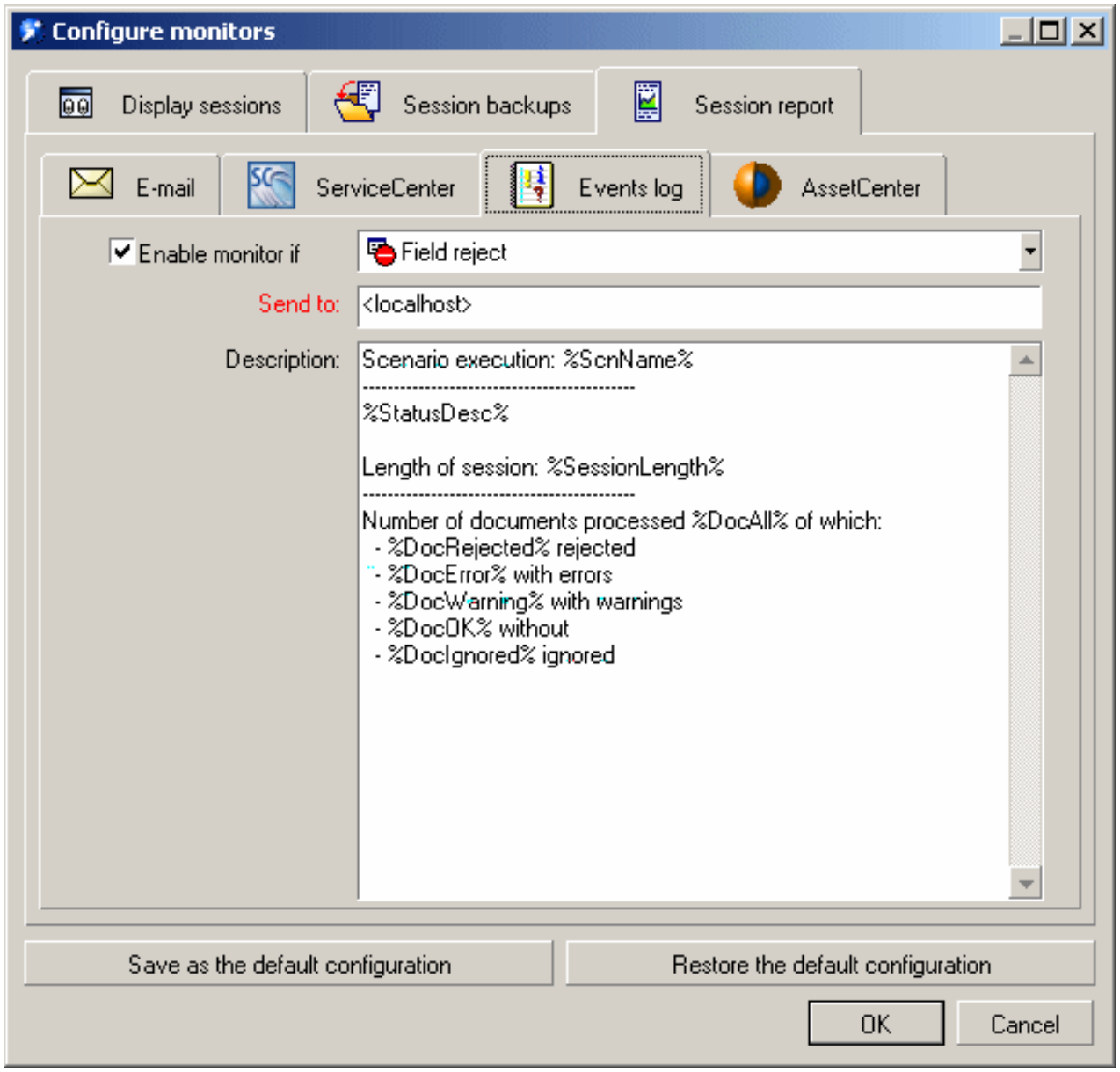


Figure 4-35: Event log

To enable this monitor, select the **Enable monitor if** option in the **Session report** tab and then define the filter associated with this monitor (Normal processing, Field reject,Warning, Reject).

The monitor parameters are the following:

- **Send to**: Name of the computer (or group of computers) to receive the event
- **Description**: Description of the event as shown in the **Description** field of the Windows event

The default template is the following:

```
Scenario execution: %ScnName%
---------------------------------------------
%StatusDesc% Length of session: %SessionLength%
---------------------------------------------
Number of documents processed %DocAll% of which:
```

```
- %DocRejected% rejected
- %DocError% with errors
- %DocWarning% with warnings
- %DocOK% without errors
- %DocIgnored% ignored
```

The syntax of the template is the same as that used for the E-mail monitor.

Session Report Monitors- ServiceCenter Monitor

This monitor enables you to create a record in the ServiceCenter Incidents table. The monitor parameters are the following:

- **Connection**: ServiceCenter database. For example, **Test:12670**.
- **Login**: connection identifier.
- **Password**: User password.
- **Category**: incident category.
- **Severity**: incident severity.
- **Problem**: Problem type giving rise the incident.
- **Description**: description of the session as shown in the Description field of a ServiceCenter work order.

The syntax of the template is the same as that used for the E-mail monitor.

Session Report Monitors- Email Monitor

This monitor enables you to send an e-mail at the end of each session, containing formatted statistics concerning the session. It also enables you to retrieve and format the processing history.

To enable this monitor, select the **Enable monitor** option in the **E-mail** tab.

You can specify:

- When an e-mail should be sent:
  - Normal processing (no filter)
  - Warning
  - Partial rejection
  - Total rejection
- The messaging protocol: MAPI, SMTP
- The name of the messaging server, its port number
- Information related to the message: Return address, recipient, subject

The subject of the message can be automated using the following variables:

Variable	Description
%Status%	Description of the status of the session

Variable	Description
%DocAll%	Total number of documents processed
%DocOk%	Number of documents successfully processed
%DocWarning%	Number of documents processed with warnings
%DocError%	Number of documents processed with errors
%DocRejected%	Number of documents processed and rejected
%DocIgnored%	Number of documents processed and ignored
%DocConsumed%	Number of documents consumed
%DocConsumedOk%	Number of successfully consumed documents
%DocProduced%	Number of documents produced
%DocProducedOk%	Number of documents produced with success
%DocConsumedWarning%	Number of documents consumed with warnings
%DocConsumedError%	Number of documents consumed with errors
%DocConsumedRejected%	Number of documents consumed and rejected
%DocConsumedIgnored%	Number of documents consumed and ignored
%DocProducedWarning%	Number of documents produced with warnings
%DocProducedError%	Number of documents produced with errors
%DocProducedRejected%	Number of documents produced and rejected
%DocProducedIgnored%	Number of documents produced and ignored
%ScnName%	Scenario name
%ScnFullName%	Full path of the scenario
%SessionLength%	Length of the session
%StartTime%	Start time of the session
%EndTime%	End time of the session

The names of the variables are not case-sensitive.

- The format of the message (**E-mail type** field) is **Text**, **HTML** or **XML**. The format is defined via the **Modify** button. For the text file, specify the number of character per line (**Maximum text width** field).

  For the HTML format, select the Use a custom stylesheet option if you want to use a style sheet other than the default one. The default template is the following:

```
BODY {
FONT-FAMILY: helvetica;
```

```
BACKGROUND-COLOR: #ffffff
}
H1 {
PADDING-RIGHT: 5px;
PADDING-LEFT: 5px;
FONT-WEIGHT: bold;
FONT-SIZE: 150%;
PADDING-BOTTOM: 5px;
COLOR: #ffffff;
PADDING-TOP: 5px;
BACKGROUND-COLOR: #000066
}
TD.ItemDesc {
FONT-WEIGHT: bold
}
SPAN.ItemDesc {
FONT-WEIGHT: bold
}
P.NotAvailable {
FONT-STYLE: italic;
TEXT-ALIGN: center
}
TR.Header {
FONT-WEIGHT: bold;
COLOR: #ffffff;
BACKGROUND-COLOR: #000066
}
TD.Group {
FONT-WEIGHT: bold;
FONT-SIZE: 125%
}
HP Connect-It 4.11 - User's guide | 155
TR.GraphDoc {
BACKGROUND-COLOR: #e0e0e0
}
TD.GraphDoc {
BACKGROUND-COLOR: #000066
}
TR.GraphTime {
BACKGROUND-COLOR: #e0e0e0
}
TD.GraphTime {
BACKGROUND-COLOR: #000066
}
TD.DocOK {
BACKGROUND-COLOR: #00e000
}
TD.DocWarning {
BACKGROUND-COLOR: #e0a800
}
TD.DocError {
```

```
BACKGROUND-COLOR: #e07000
}
TD.DocRejected {
BACKGROUND-COLOR: #e07000
}
TD.DocIgnored {
BACKGROUND-COLOR: #0000e0
}
```

For the XML format, the message body is written in XML using the following tags:
`<Report><Section><Start><End><Status><Docs><Time><TotalTime><Group>`

- The contents of the e-mail message are as follows:
  - Execution report
  - Statistics on the documents in the scenario
  - Time-related statistics on the scenario
  - List of statistics sorted by element
  - List of statistics ordered by value type

  The contents of the e-mail message is presented in the form of options that can be enabled or not. This options can be sorted by order of preference (**Move up** and **Move down** arrows). The number of options selected is shown in the **Contents of the e-mail** field in the **E-mail** tab.

Managing Saved Sessions

The history for each session can be seen in the session manager. Each saved session has a tab for each declared monitor. Click a session to view its history in each tab (list of statistics, durations, document, database, e-mail). Each selected session can be:

- Opened in a new scenario editor (**Open** button): The scenario is shown with its logs (Connect-It log, document log).
- Loaded in the current window of the scenario editor (**Load** button): The current scenario is shown with its logs (Connect-It log, document log).
- Deleted (**Delete** button): The session history is deleted.
- Closed (**Close**): The session management window is closed.

Session options

The session options, which are defined when configuring the monitors (**Monitors > Configure monitors** menu, **Session backups**), impact the data that is saved. For example, if you choose to save only those documents whose status is **Warning**, when you load the session (**Monitors > Managed saved sessions** menu), you will not see the documents that have been processed normally.

Configuring Saved Sessions

You may apply a display filter to your sessions in order to reduce the number displayed. A session is displayed according to the following conditions:

- scenario name
- date of modification of the session
- status of the session
- number of sessions to display

To access the filter parameters, click **Configure**. In the window that is displayed you can create, modify, or delete a filter.

Note: *The pre-existing system filters cannot be edited.*

Session-filter conditions

Each filter is an option that can be enabled or left disabled.

- **Filter name**: Name of the filter displayed in the list available in the List of available sessions field in the Manage saved sessions window. If no name is specified, a name is automatically assigned describing the options used.
- **Display the sessions of the scenario**:When this option is selected and a scenario name specified, only the session related to the scenario is displayed.
  Note: *If this option is selected but without a scenario name specified, the filter will be applied to the current Connect-It scenario session.*
- **Display the sessions modified since**:
  - Option not selected: The filter does not take the last date of modification of the session into account.
  - Option selected: The filter enables you to select a duration. For example, for 12 hours, only the sessions modified or completed in the last 12 hours are displayed.
- **Display the sessions with the status**: This option enables you to filter the status of the session. When this option is selected, the filter is applied according to a hierarchic order. Filtering on a **Warning** status implies that all sessions with status **Warning**, **Field reject** and **Reject** are displayed and only sessions without errors are not displayed.
- **Maximum number of sessions displayed**: This option enables you to define the maximum number of sessions displayed.

Note: *The most recent sessions cannot be displayed if the maximum number has been overrun.*

Loading Saved Sessions

The **Load** button enables you to load a session and apply a filter to it. The information available in the **Document log** tab is filtered according to a given filter:

- Normal processing (no filter)
- Warning
- Partial rejection
- Total rejection

The loaded sessions come from the session backup folder and the Connect-It database. You can choose to display the first or last N tracking lines only (**Only reload a portion of the tracking lines** option).

Filtering according to the processing status of documents and restricting the number of tracking lines displayed enables you to reduce the time taken to process the lines displayed.

Note: *If there is a large number of documents to be loaded (500 for the file monitor, 1000 for the database monitor), a warning message is displayed.*

Importing Saved Sessions

You can import session files from other scenarios into the current scenario (**Monitors > Import saved sessions**). Doing this is useful when transferring information from one workstation to another. The principle is as follows:

1. The session folder and related files from the first workstation (`.scn`, `.dat`, `.xml`, `.dtd`, `.ini`, and so on) are archived to a `.zip` file.
2. This folder is copied and unzipped to a folder such as `c:\tmp\test` on the target workstation; the related files are copied to their original locations (`.ini` to the user settings, the scenario at the same level as the session folder, and so on).
3. Connect-It is started and the scenario loaded.
4. The **File** folder is enabled and populated with the path of the unzipped session folder (**Monitors > Configure monitors > Session backups > File**).
   If the session path is incorrectly populated, the sessions will not be imported and an error message displayed.
5. The session import is used (**Monitors > Import saved sessions**) The link tying together the sessions on the original workstation is restored and the new sessions are now saved in the specified folder.

Defining a Connect-It Service (Windows environment)

Connect-It enables you to associate a Windows service to a scenario. This service enables your Connect-It server to start the data-processing procedure as a background task, depending on the scheduler associated to your scenario. Connect-It enables you to create and launch as many services as there are scenarios.

Caution: *If one of your scenario's connectors uses an ODBC connection, it absolutely must use a system data source (system DSN). If this connection uses a user data source (user DSN), it will not be visible to the service to which it is associated.*

Notes: *To create and delete Connect-It services, you must be logged on as a user with local administrator rights. Any user can start or stop a Connect-It service, but a Connect-It service logon account must have local administrator rights.*

To run the any scenario service on Windows Server 2008/Vista, you must be logged on as an Administrator

If you modified an environment variable in a 32-bit Windows (the search path, for example), this modification is not applied to the service until you restart the computer.

If a connector specifies a folder or a file on another computer, it cannot indicate the drive mapped by the user, instead it should reference the remote computer.
For example:
`\\XSFStore\Scan` *and:* `Z:\Scan` *if the Z drive is mapped to* `\\XSFStore`*.*

Service connection properties

In certain cases, you must modify the service connection properties in Windows and use another user account so that it can function correctly. The properties of the default connection to the service are saved in the **LocalSystem** account.
In the following cases, you must specify a particular account in the service connection properties:

- The source connector of the scenario linked to the service reads the files in the folder on the network drive to which the service's local account does not have access.
- The E-mail connector of a scenario only works with one particular account.
- Some settings, such as the items under the **Options** menu, only function with one particular account. For a service's local account, only the default values for the settings are used.

  Note: *Some settings made in GUI mode only work with one particular account. Only default values for configuration settings are applied to the service's local account.*

You can specify an account directly via the operating system or by using the **Change** option in the Connect-It Service Console (**The service starts in account** field).

To modify a service's connection properties in Windows XP:

1. Start Windows XP.
2. Select the **Start > Settings > Control Panel > Administrative Tools > Services** menu.
3. Double-click the service in the list.
4. Select the **Log On** tab in the dialog box that appears.
5. Select the **This account** option.
6. Enter the values that enable you to properly use the scenario linked to your service in the **This account** and **Password** fields.
7. Click **Apply**.

To modify the connection properties of a service using the Service Console:

1. Click **Change**.
2. Select the new account to use (**This account** option) and populate the **Password** field.
3. Click **Validate**.

If an error occurs with a new user account, try the following:

1. In Windows, go to **Control Panel > Administrative Tools > Local Security Policy > Security Setting > Local Policies > User Rights Assignment**.
2. Double-click **Log on as a Service** and add the user.

Scenario path information

You must respect certain rules when indicating a scenario's path in the **Scenario** field:

- The scenario is saved on the Connect-It server. If the scenario is located in a folder associated with a network drive, do not indicate the letter of this drive in the Scenario field.

For example: the `scenario\myscenario.scn` scenario is located in the folder `C:\Program Files\ConnectIt` associated with the drive `R:`. In this case, you would enter `C:\Program Files\ConnectIt\scenario\myscenario.scn` in the Scenario field instead of `R:\scenario\myscenario.scn`.

This is because the service usually uses the local system account or a specific account, which have no associations between the folder `C:\Program Files\ConnectIt` and the network drive `R:`.

- The scenario is installed on the network.

Verify that the service can use the network drive indicated in the **Scenario** field. In order for the service to be able to use a network drive, you must associate this service with a user name and password that can use this network drive.

Path of the log file

The path entered for the log file associated with the service must take into account the privileges of the current user. In Windows, privileges are defined:

- In the Control Panel, click **Administrative Tools**, then **Local Security Policy**. The Local Security Settings tool opens. Click **Local Policies > User Rights Assignment** and then locate **Log on as a service** in the list of policies.
- In the Services console: **Properties > Log On**, account and password.
- In the folder properties: **Sharing and Security > Security**, read/write permissions.

The Service Console

The Service Console is a component of Connect-It. It is a graphical interface that enables you to manage your scenarios and create services to associate to them.

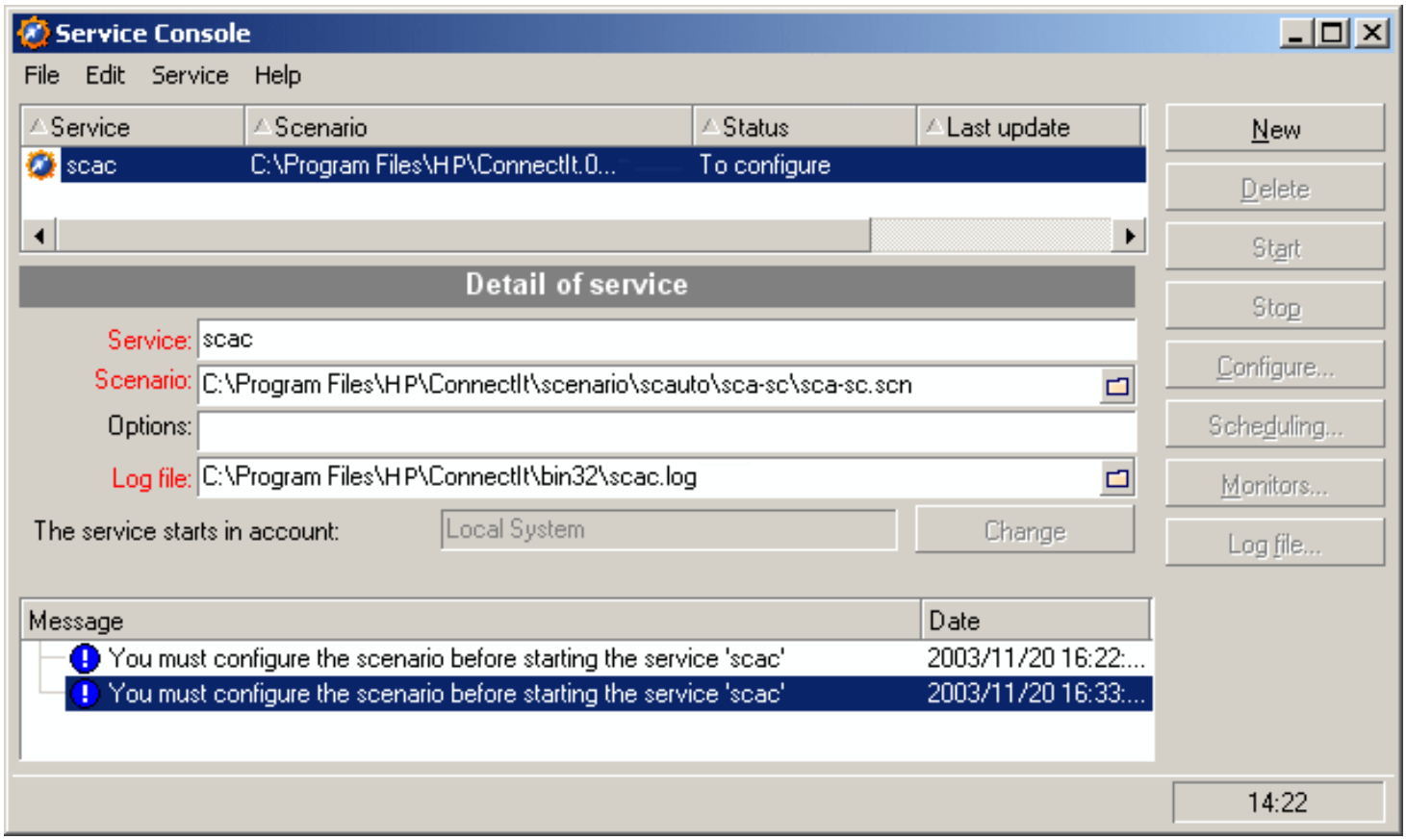


Figure 4-36: The Service Console interface

To launch the console, select **Service Console** in the HP\ Connect-It program group. You can also launch the `console.exe` executable file in the bin folder of the Connect-It installation folder.

Use the **Service** menu to create, delete, install, uninstall, start, stop, or configure Connect-It services. Other options are:

- **Scheduling:** modify the schedulers that are used in the scenario associated to the service.
- **Monitors:** launch the Scenario Builder by displaying the Connect-It log and the Document log tabs.
- **Log file:** view the log file that accompanies each Connect-It service.

Steps in creating and using a Connect-It service in Windows

Creating a Windows service using the service console does not necessarily imply using it. You must adhere to the following steps:

1. Create the service.
2. Configure the service.
3. Install the service.
4. Start the service.

Creating a Connect-It Service

You can create a Connect-It service using the Service Console or from the command line.

Service Console

To create a Connect-It service with the Service Console:

1. Launch the Service Console by selecting **Service Console** in the `HP\Connect-It` program group. You can also launch the `console.exe` executable file in the bin folder of the Connect-It installation folder.
2. Click **New**.
3. Name your service in the **Service** field.
4. Enter the path and the name of your scenario by clicking .
5. Specify a command option if necessary (**Options** field). For example, you can specify the **Forcecnx** option to require an automatic reconnection.
6. Enter application log file (`.log`).
   This field is automatically populated if you do not specify a log file.
7. Click **Create**.
   The created service appears in the upper pane of the console. Its status is **To configure**.
   Note: *The service is only properly created once each scenario connector is configured (Configure button).*

Command Line

To create a Connect-It service from the command line:

1. Open a command prompt in the `bin` folder of the Connect-It installation folder.
2. Execute the `csvctool` command. For example:
   ```
   csvctool -create [name of the service]
   ```

Starting, Stopping, or Deleting a Connect-It Service

From the Connect-It console

To start a Connect-It service:

1. Launch the Connect-It console.
2. Select the service in the main pane of Connect-It.
3. Click **Start**.

Note: *You need to have already configured a scenario in order to start it.*

To stop a Connect-It service:

1. Launch the Connect-It console.
2. Select the service in the main pane of Connect-It.

3. Click **Stop**.

To delete a Connect-It service:

1. Launch the Connect-It console.
2. Select the service in the main pane of Connect-It.
3. Click **Delete**.

From the command line

To start a service:

1. Go to the `bin` folder in the Connect-It installation folder
   `Example: C:\HP\Connect-It\bin\`
2. Execute the following at the command line:
   `net start <Name of the service>`

For example, if you launch the **Asset Manager-ServiceCenter** service, the command line is:
`net start Asset Management-ServiceCenter`

To delete a service:

Use the following command line:
`csvctool -delete [name of the service]`

Using Scheduling

Scheduling allows you to set the times at which connectors produce documents. A scenario is not complete without a schedule. Scheduling consists of associating produced document-types with schedulers. A scheduler plays the role of a timer that "wakes up" a connector:

- At regular intervals during or outside a given period of time.
- At a specified time (March 6, 2003, for example).

Rules can be used to modify the behavior of a scheduler; for example: a scheduler wakes up a connector every day and a rule can be applied changing the scheduler for a given day.

As another example: the Desktop Discovery connector of the Desktop Discovery to Asset Management scenario produces **inventory** document types every day from 9 A.M. to 10 P.M. at intervals of five minutes. Outside of this period, the Desktop Discovery connector produces documents every hour. You can add a rule to change these parameters for the days of your choice.

Non-modifiable schedules

Two non-modifiable schedulers are provided:

- The **Once** scheduler: This scheduler enables you to start the production of a document one time. When the produced document type is created, it is associated with a connector by default.
- The **Synchronous** scheduler: This scheduler enables you to start producing documents every second from 00h00-24h00.

Order of produced documentation types in a schedule

The way in which data is processed depends on two factors:

- The order of produced document-types in the schedule
  The order in which your document types are arranged determines the order in which they are produced.
- The order of mappings within the same produced document-type
  Connect-It processes the mappings for a given source document-type in the same order you specify.

Editing a Scheduler

To access the scheduler editor, select **Scenario > Schedulers**.

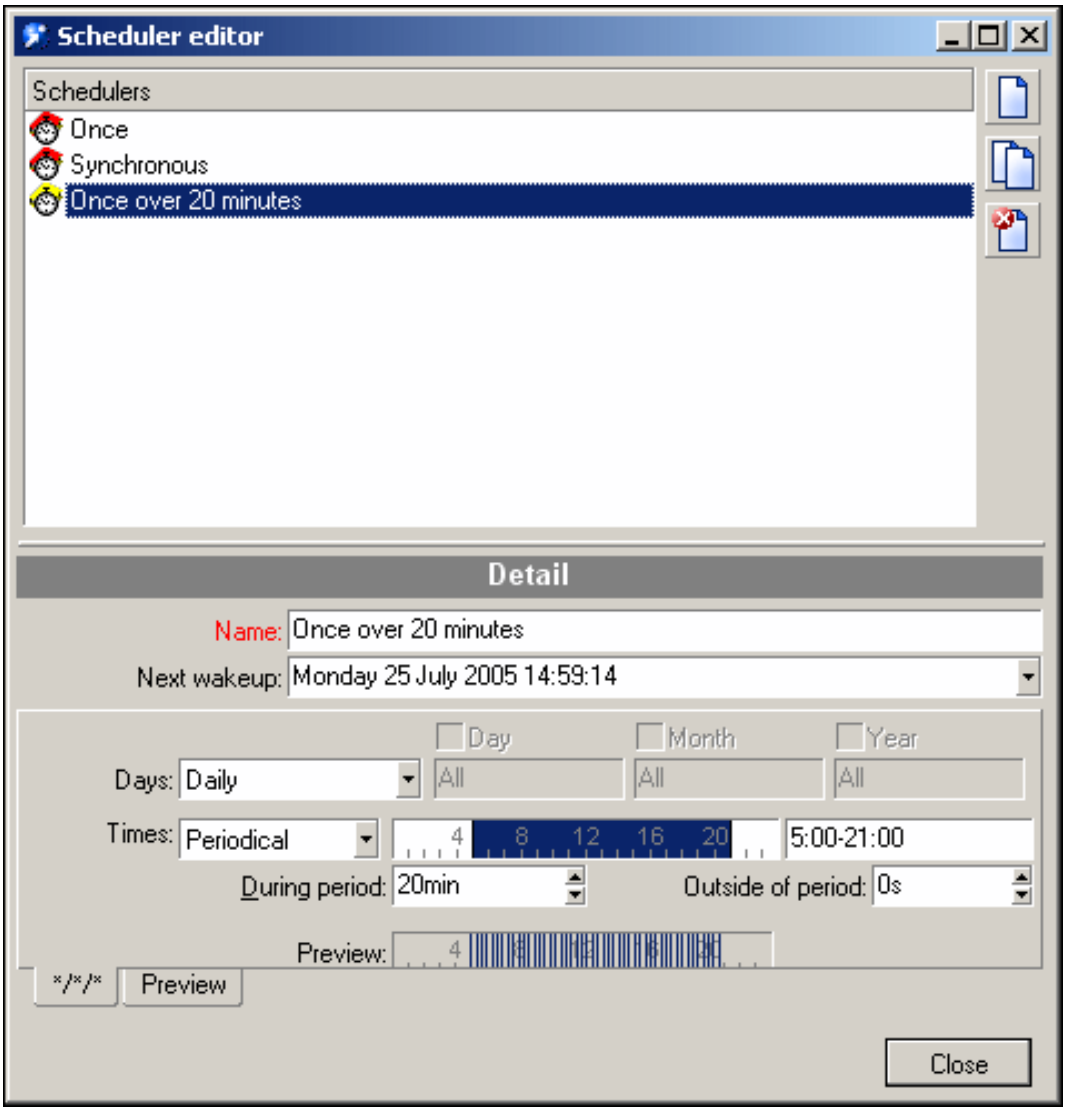


Figure 4-37: The Scheduler editor

Icon	Function
	Launches the creation of a new scheduler.
	Duplicates the selected scheduler.
	Deletes the selected scheduler.

You can modify the following:

- **Days** field. You have two options for this field:
  - **Daily**
  - **Day of the year**: a day or selection of days, defined by selecting the Day, Month, and Year fields. For example: January 6, 2002.
    The **first, second, third, fourth, next to last, last day**
    Define a day of the week using the Day field. This applies on a regular basis or is restricted by the following Month and/or Year fields. For example, the first Friday of each month.
- **Times** field. You have two options for this field:
  - **Periodical**
    By selecting this option, you set a time during the day for which you define a period in the **During period** field.
    For example: every five minutes from 4 A.M. to 10 P.M. You can also define a period outside of this one in the **Outside of period** field. To define a time range, enter a value in the text field. You must use the following syntax:
    ```
    <Start> -
    <End>, <Start> - <End>
    ```
    The date format depends on your computer's regional settings (via the Windows Control Panel). If the option parameter [AM|PM] is not given, the value is considered as being expressed using the 24-hour clock. For example: If you enter "18", 6:00 P.M. is displayed automatically after validation.

    The graphical editor is only accurate to the nearest half hour. You can adjust these values manually to the nearest minute.

    The frequency in hours (h), minutes (min) and seconds (s), is defined in the **During period** and **Outside of period** fields. For example:
    ```
    5min 30s
    1h 20min 10s
    30s
    ```
  - Itemized list
    In this case, you enter a list of times separated by semi-colons. This allows you to wake up the connector on a selective basis:
    ```
    5:00AM;8:00PM; etc.
    ```

Creating, Modifying, and Deleting a Scheduler (an example)

This section describes how to create a scheduler for an example wake-up event:

- Every day of the week
- Every 10 minutes from 8 A.M. to 10 P.M. and then every hour outside this period

You add the following rule:

- The first Sunday of the month
- Every 20 minutes from 6 A.M. to 10 P.M. and then every 30 minutes outside of this period.

To create a schedule, click new schedule icon .

Populate the fields in the tab displayed below the scheduler.

Daily:
In the **Days** field, select **Daily**.

Every 10 minutes from 8 A.M. to 10 P.M. and then every hour outside this period:
In the **Times** field, select **Periodical**.

To select the 8 A.M. to 10 P.M. time range, you can:

- Enter it directly in the text field (8:00 A.M.-10:00 P.M. or 8-22).
- Or enter it using the graphical editor.

Next, populate the **During period** and **Outside of period** fields using the values "10 min" and "1 h". These two fields govern the wake-up frequencies during and outside the selected period. Your tab should look like this:

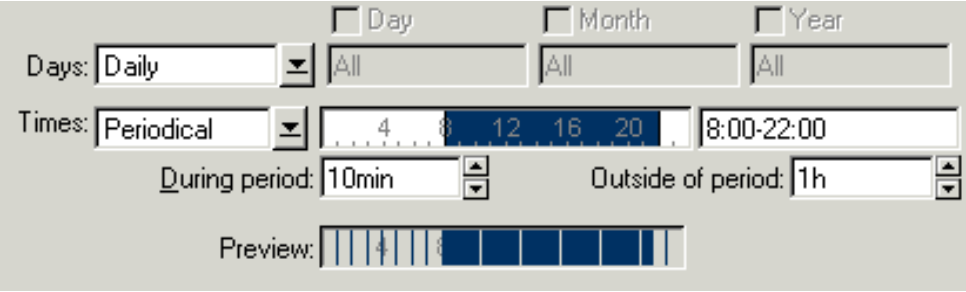


Figure 4-38: Scheduler toolbar example

This tab is named automatically using the information from the **Days** field. Click **Create** to validate your scheduler.

To modify a scheduler:

1. Select a scheduler from the list.
2. Modify the required parameters in the tabs.
3. Validate your modifications by clicking **Modify**.

To delete a scheduler:

1. Select a scheduler from the list.
2. Press **Delete** or click .

Creating a Rule

1. To create a rule, right-click one of the tabs in the scheduler editor, and then select **Add a rule**. A new tab is displayed.
2. Populate the fields.
3. Click **Create** to validate your rule.

You can also delete the rule by right-clicking the tab corresponding to this rule and then selecting **Delete rule**.

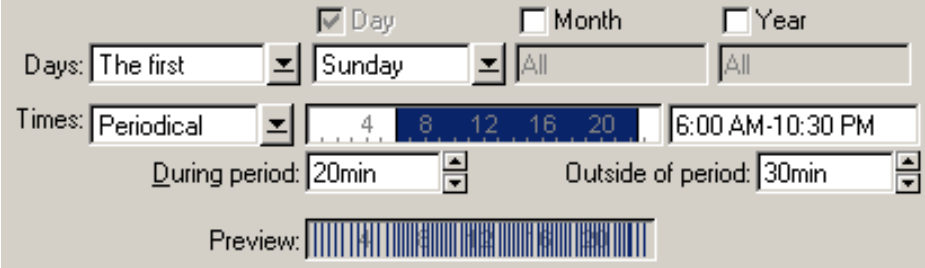


Figure 4-39: Scheduler preview

Preview

The **Preview** tab shows the scheduler for the current week. By changing the day shown in the **View** field, a preview is shown for the week starting on this day.

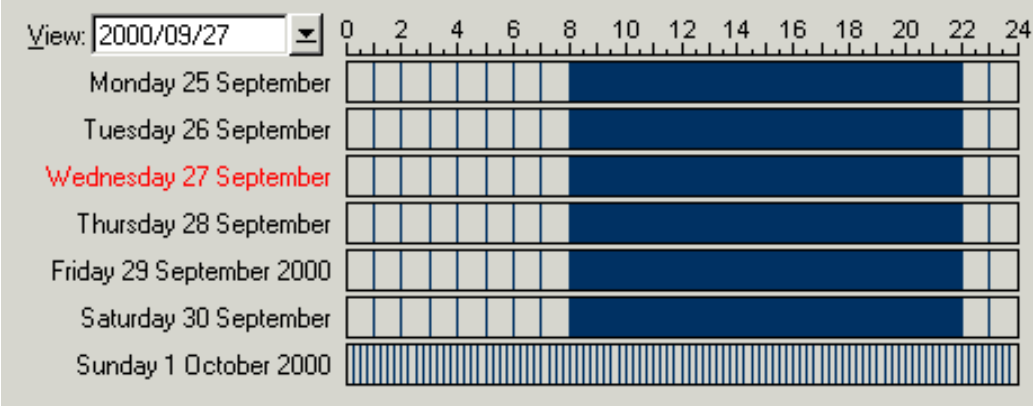


Figure 4-40: Preview tab

Editing Scheduling

To edit the scheduling, select **Scenario > Scheduling**.

By default, the produced document-types are linked to the Once scheduler. To apply a scheduler to a document type, do one of the following:

- Drag a product type underneath the scheduler.
- Select a produced document-type and use the arrow buttons on the right to move it to the required position.

Your schedulers are shown in the edit window, sorted in alphabetical order.You associate them with document types in the scenario.

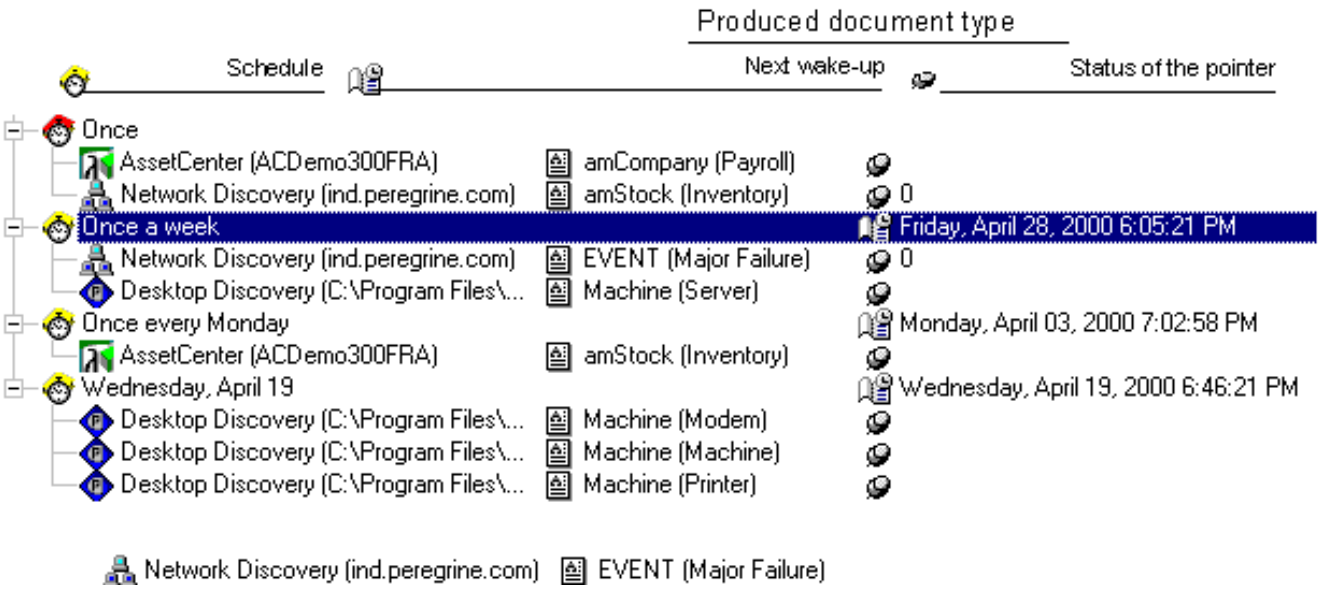


Figure 4-41: The Schedule edit window

Accessing Service Logs in Scheduler Mode

If you are encountering problems with a scheduled service and want to access log information:

- From the Connect-It menu, select **Scenario > Start all schedulers**. The log file will be located in the installation folder:
  `%Installation folder%\bin\conitgui.log`
- Use the service console to consult the log file. The log file will be located in the installation folder and have the name of the service:
  `%Installation folder%\bin\`
- Use the command line mode to run the scheduler. The log is located in the same folder with the associated scenario and the log file name is the same as the name of the scenario.

Arranging Mappings

The order of the mappings in the **Mappings** tab of the main window of Connect-It is important: Connect-It processes the mappings for a given source document-type in the same order you specify.

To arrange the mappings:

1. Select a mapping box in the Scenario diagram pane.
2. Select the **Mappings** tab.
3. Select a produced document-type.
4. Change the order of the mappings by moving them inside the list.

For example: for a given scenario, the **Machine** [Machine] document type has six mappings.

Figure 4-42: Mapping order example

When a scenario is launched, the priorities of Connect-It for a given scheduler are as follows:

1. The order of the produced document-types.
2. The order of the mappings for the same produced document-type.

Pointer Status

In most cases, the pointer status refers to a specific time associated with the scheduler you define. The information provided by the pointer enables you to place the data processing of an external application in a time-based context.

The type of pointer employed depends on the external application:

- Asset Manager connector
  For each mapping used in your scenario, the pointer corresponds to the last date on which the mapping was started. All records whose last modification date (**dtLastModif** field) is more recent are processed.
  Connect-It automatically adjusts the time difference between the computer on which it is installed and the Asset Manager server.
- ServiceCenter connector
  This connector's pointer changes according to the nature of the data coming from the source application:
  - For events, the pointer corresponds to their sequence number (**evsysseq**).
    For each mapping used in your scenario, the pointer corresponds to the sequence number of the last event processed the last time the mapping was launched. The next time it is launched, all events with a sequence number greater than this value are processed.
  - For tables, the pointer corresponds to the date that the mapping was last launched. The next time it is launched, all records whose last modification date (**sysmodtime** field) is more recent than the pointer are processed.
    Note: *According to the configuration of your ServiceCenter connector, the time difference between the computer on which Connect-It is installed and the ServiceCenter server is:*
    ** Either automatically adjusted.*
    ** Or adjusted according to the offset entered by the user.*
- Database connector
  The pointer used is that defined by the user.
- NT Security connector
  Each time the scheduler is woken up, the connector recovers all the information from the domain to explore and not only the information concerning the changes.

Note: *No schedule pointer is shown when you create a new scheduler and assign it an NT domain.*

- Universal CMDB 8 connector
  For each mapping used in your scenario, the pointer corresponds to the last date the mapping was started. All records with a more recent last update date (**root_updatetime** field) are processed.
- Universal CMDB 9 connector
  For each mapping used in your scenario, the pointer corresponds to the last date the mapping was started. All records with a more recent last update date (**last_modified_time field**) are processed.

By double-clicking the pointer status line, you can force another date for the pointer status of an `.fsf` file or another event number for a Network Discovery event.

For example:
Several tens of thousands of events are memorized by Network Discovery. By changing the pointer status (which is 0 before you start the scenario for the first time) to 20,000, only events after 20,000 are processed by the scenario.

Session time reference

Connect-It provides the **PifGetOpenSessionTime()** and **PifGetLastOpenSessionTime()** functions to allow users to access the start time of the current and last scheduled sessions, and you can query delta data within the time range.

The time reference comes from Connect-It internal logic, and follows the time settings of Connect-It server. You may need some setting changes if the source connector and the destination connectors are in different time zones. For more information about using the two functions, see the *Programmers' Reference Guide*.

Refreshing the pointers in the scheduling window

If the scheduling window is open when a scenario is launched, the status of the pointers is not refreshed. In order for the statuses of the pointers to be refreshed in the scheduling window, you must close this window and then reopen it.

Starting and stopping a scenario

To start a scenario, select **Start all schedulers** from the Scenario menu or click .

To stop a scenario, choose **Stop** from the Scenario menu or click .

Pointer Offset

Sometimes when the connector is updating, the data can not be retrieved near the point. For example, with the database connector, when the database is updating data with one transaction, the data could be written to the database at one time, but the time value checked in scheduling is the update time. When Connect-It tries to retrieve the data at that point, the data is not available because of the transaction. And for the transaction, the data is out of the scheduling status. Therefore, it may be required to shift the time backwards to process the fresh data when scheduling status. Two offsets (lower offset and upper offset) allow definition of the backward value.

- **Lower offset**: Applied on the start point of the scheduler pointer. Can be the time value (in seconds) if the scheduler pointer is set on the timestamp field, or an integer value for other scheduler pointers.
- **Upper offset**: Applied on the end point of the scheduler pointer. Can be the time value (in seconds) if the scheduler pointer is set on the timestamp field, or an integer value for other scheduler pointers.

Note:

All connectors support the lower offset of the pointer.
Three connectors support the upper offset of the pointer:
** Universal Cmdb connector (Java)*
** AssetCenter/Asset Manager connector*
** Database connector*

The value of the upper offset cannot be greater than the lower offset, and it is strongly recommend that the two values are equal. If the value of the upper offset is less than the lower offset, duplicated records will processed and reconciliation will be required.

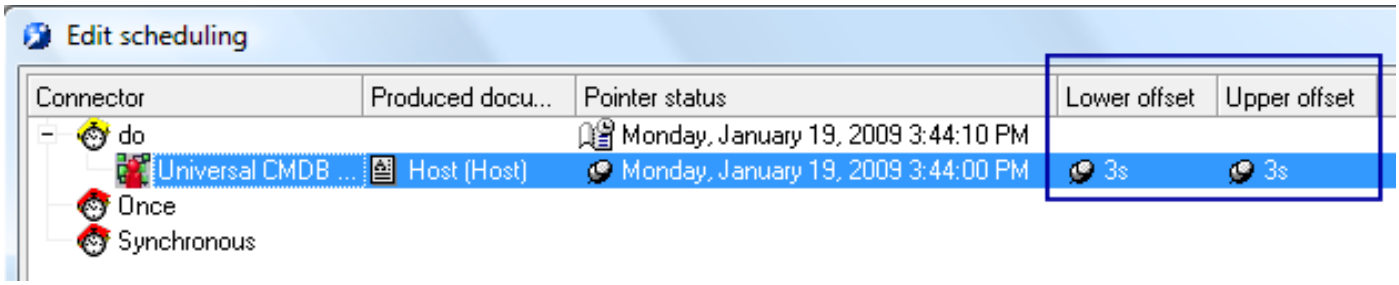


Figure 4-43: Lower and Upper offsets

Scheduler Commands

In this example:

- the scenario used is `pdiac.scn`, located in the `pdi` scenario folder
- the scenario is modified and includes a ServiceCenter scenario
- several document types are processed
- the scenario is executed once
- the and `-once` and `-scheduler` commands are used

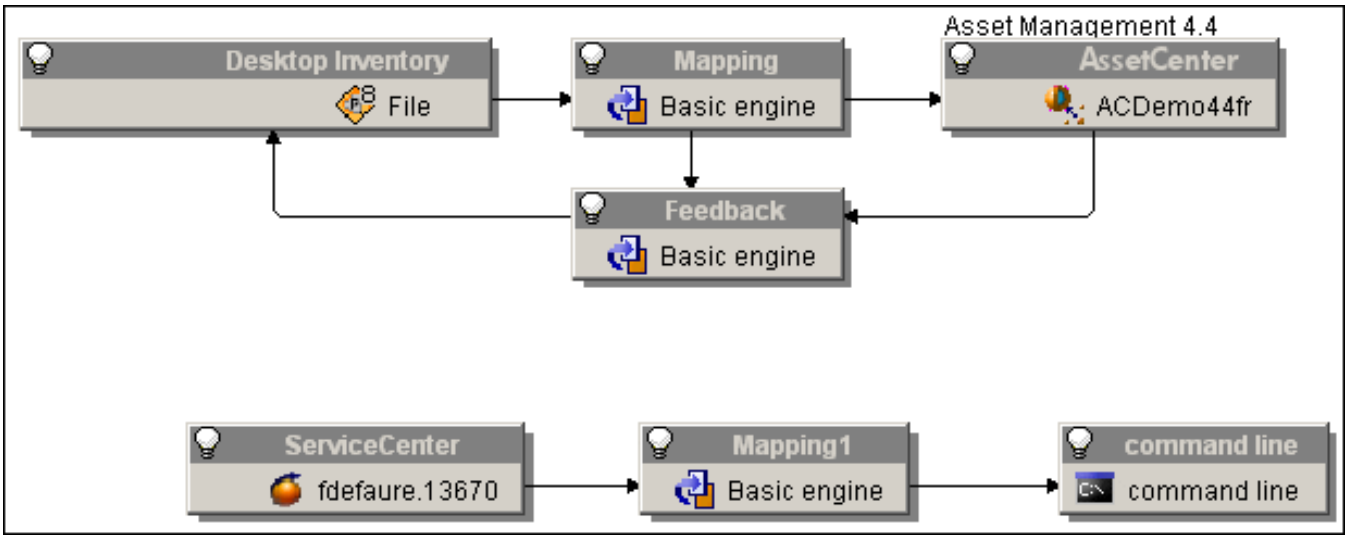


Figure 4-44: Example scenario diagram

-once command

The order of production of the documents corresponds to the order of definition of the produced document types and their mapping to a connector (visible, for a connector selected in the **Document type** tab).

For example, for a source connector producing two document types **Inventory(inventorySrc1)** and **Inventory(inventorySrc2)**, the document **Inventory(inventorySrc1)** will be produced first.

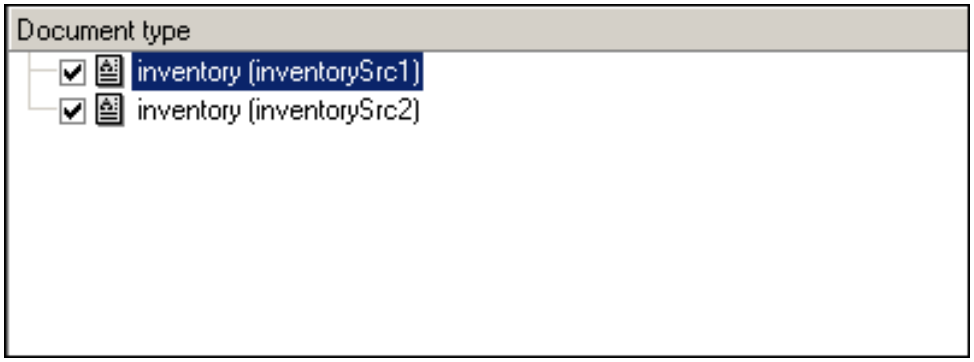


Figure 4-45: Example document types

The command line is the following:

```
conitsvc -once 'D:\Program Files\HP\Connect-It 3.80
en\scenario\pdiac.scn'
```

If multiple connectors produce multiple document types, the order of production will be the order of creation of the connectors.

Note: *Do not use the -once command if multiple connectors in the same scenario produce documents.*

The order of production of the document types defined in the schedulers is ignored. The -once command, used alone, corresponds to the command in the GUI. When the path for a scenario is

defined as a parameter, the -once (or -scheduler) option must be defined as a parameter. Otherwise, Connect-It exits after the scenario is loaded.

-once -scheduler command

The -once and -scheduler options must not be applied at the same time.

-scheduler command

The order of production of the document types is that defined by the **Once** scheduler. The -scheduler command corresponds to the command in the GUI.

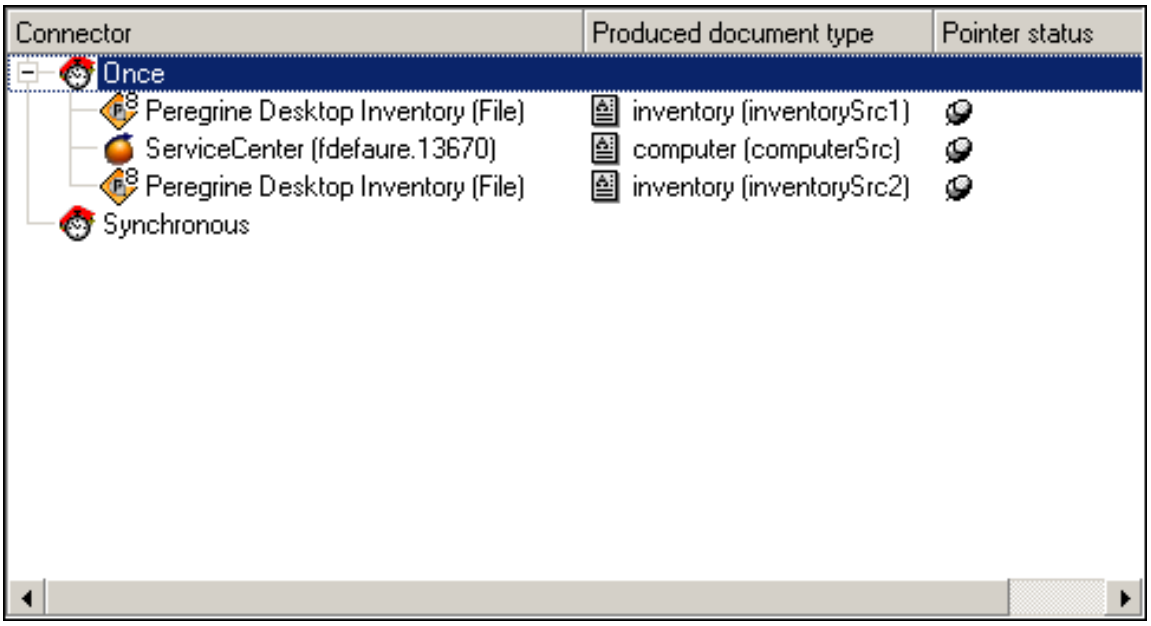


Figure 4-46: The Once scheduler

For example, the document types will be processed in the following order:

inventorySrc1 (PDI connector), **computer (ServiceCenter connector)**, **inventorySrc2 (PDI connector)**. When more than one connector producing documents exists, only the -scheduler option controls the production order of the document types of the different connectors. The scheduling pointers are used and updated after the scenario executes.

The command line is the following:

```
conitsvc -once -scheduler 'D:\Program Files\HP\Connect-It
4.11\scenario\pdiac.scn
```

When the command line is executed, only the records modified or inserted since the last time are recovered according to the parameters defined for the schedulers.

Note: *The scheduling option makes use of the scheduling pointers. It is possible to disable use of the scheduling pointers in the connection configuration wizard in order to obtain the same behavior as the* `-once` *option used alone, the difference being the order in which documents are produced.*

When the `-scheduler` option is used as a parameter, the values of the schedule pointers are used and updated after executing a session. There are two different behaviors according to the scheduler definitions:

- If the document types are associated with the Once scheduler, then Connect-It exits after the scenario is executed. This is the same behavior as the -once option and it takes schedule pointers into account.
- If the document types are associated with a scheduler, then Connect-It never exits and wakes up at the frequency defined by the schedulers.

Using Scenario Documentation

The Scenario Builder enables you to view or create documentation containing different information about the current scenario. The information in the scenario documentation is always up-to-date because it is extracted dynamically from the scenario's `.scn` file.

Scenario documentation can be created in HTML and DBK format.

Note: *Creating a scenario documentation in DBK format creates an XML file that conforms to the DocBook DTD. For more information about the DocBook DTD, consult the following Web site: http://www.docbook.org*

Contents of the scenario documentation

A scenario documentation contains the following sections:

- General information
  This section provides the following information about the scenario:
  - Name
    The name of the scenario is preceded by the full path name on your computer.
  - Date of file's last modification.
  - Version and build number of the Connect-It application with which the scenario was last modified.
  - All the information entered by the user in the last scenario history. (**File > Scenario history** menu).
- Information about scenario diagrams
  This section provides the following information about the scenario:
  - Information about views
    The mappings associated with each view are listed.
  - Diagrams associated with views
    The preview of the views is in a .bmp image.
- Connector configuration
  This section provides the configuration parameters of the connectors in the scenario. For more information about connector configuration, refer to the Connectors guide.
- List of WHERE and ORDERBY clauses by document type
  This section deals with the list of WHERE and ORDERBY clauses by document type. These clauses are part of the production directives of the scenario's source connectors.
- Document types defined by the user
  This section presents the elements of each document type defined by the user.

For each document type, the following information is available:
- Name of the document type.
- Name of each element.
- Nature of the element:
  - field (ATTRIBUTE)
  - structure (STRUCT)
  - collection (ARRAY)
- The data type of each field: string, short, double, timestamp, etc.

- Mappings defined by the user

This section details the mappings between the document types defined by the user.

For each mapping, the following information is available:

- The name of the mapping.
  After the name of the mapping, the names of the source and destination document types published by the connectors will be indicated in parentheses.
- Name of the source-document type.
- Name of the destination-document type.
- For each mapping node, the:
  - Destination element
  - Mapping script
  - Source element
  - Possible mapping description
- Schedulers and their associated files
  This section presents the:
  - Schedulers of the scenario.
  - For each scheduler, the following are provided: name, periodicity, and connectors and associated document types.
  - Maptable files
  - Basic script files
  - Character string files
- Scenario modification history
  This section provides information about each modification that can be madeto each scenario. This information corresponds to the data that the scenario author enters in the **Scenario history** window (**File > Scenario** history menu).

Scenario Documentation Properties

The creation of scenario documentation uses the following elements:

- An XSL processor
  The processor provided with Connect-It is the Xalan processor.

Note: *The Xalan processor is not compatible with Java RunTime Environment 1.1. Java RunTime Environment or Java Development Kit version 1.2 or higher must be installed.*

- A CSS style sheet used for viewing HTML format.
- XSL style sheets enables you to convert SCN files to DBK format.
  - SCN files in DBK format
  - DBK files in HTML format

The conversion of SCN files to DBK format goes through an intermediate conversion of a SCN file to an XML format. The conversion of an SCN file to HTML format goes through the intermediate conversions to an XML format, then to an HTML format.

Conversion order

- For DBK:
  (1) SCN
  (2) XML
  (3) DBK
- For HTML:
  (1) SCN
  (2) XML
  (3) DBK
  (4) HTML

Viewing Scenario Documentation in HTML Format

The Scenario Builder enables you to display the documentation of the current scenario in an Internet browser (in HTML format).

To view a scenario documentation in HTML format:

1. Open or create the scenario with the Scenario Builder.
2. Select the **File > View** scenario documentation menu.
3. Wait for your Internet browser to open and display the scenario documentation.

Note: *To use the **View scenario documentation** function, verify that your operating system associates this format (HTML) to an Internet browser Microsoft Internet and Firefox.*

Creating Scenario Documentation

The Scenario Builder enables you to create scenario documentations in the following formats:

- HTML format
- DBK format

Caution: *The XSL processor that is provided with Connect-It cannot be used to generate a scenario's documentation on Windows NT4. Please refer to technical note TN31211114 to use the MSXSL processor (Microsoft® XSL processor). This processor can also be used to increase documentation generation speeds on other Windows environments.*

To create scenario documentation:

1. Open or create a scenario using the Scenario Builder.
2. Select the **File > Create a documentation** menu.
3. Name the documentation file.
4. Select the documentation format in the **Type** field.
5. Click **Save**.

Note: *By default, the scenario documentation is saved in the same folder as your scenario's SCN file.*

Editing Scenario Documentation Properties

Edit scenario documentation using the wizard, which you launch by selecting **File > Documentation properties** from the menu.

Configuring the XSL processor

This wizard page enables you to configure the XSL processor used to convert the SCN files to DBK and HTML format.The Xalan processor is the default processor provided with Connect-It. Its file path is: `[Connect-It installation folder]\datakit\doctrans\xalan\xalan.bat`.

You can use other XSL processors, such as the MSXSL processor which can be obtained from Microsoft.

Using the XSL processor executable file

In this field, specify the full path of an XSL processor. By default, the path of this file is: `[Connect-It installation file]/datakit/doctrans/xalan/xalan.bat`.

XSL processor parameters

The default parameters of this field are:

- `%IN`
  This variable corresponds to the full path of the SCN file to convert.
- `%XSL`
  This variable corresponds to the full path of the XSL file used for the DBK or HTML conversion.
- `%OUT`
  This variable corresponds to the full path of the output DBK or HTML file.

Using a CSS style sheet to preview in HTML

Select this option to view the scenario documentation in HTML format that uses a CSS style sheet.

The path to the CSS style sheet used by default is: `[Connect-It installation folder]\datakit\doctrans\css\default.css`

Predefined XSL style sheets

This page indicates the style sheets used for the conversion:

- From an XML file to DBK format.
- From a DBK file to HTML format.

You can change the value of the **Description** and **Alias or XSL style sheet** columns by clicking directly on these values. The alias of a style sheet is the value entered in the **Extension** column. By indicating an alias before the full path of another style sheet, separated by a semi-colon, you are indicating the first style sheet that your XSL processor should use.

For the HTM extension, the value `DBK;C:\Program Files\HP\Connect-It\datakit\doctrans\xsl\dbk2htm.xsl` indicates that the XSL processor converts the XML format of the scenario to DBK format, then to HTM format.

Self-defined XSL style sheets

This page enables you to indicate new XSL style sheets, which enable you to convert a file from one format to another.

To indicate an XSL style sheet:

1. Click the icon to indicate a style sheet.
2. Enter a file extension name in the **Extension** column.
3. Click on the same line in the **Description** column and enter a description.
4. Click on the same line in the **Alias or XSL style sheet** column and enter the path of your XSL style sheet.
   By indicating the alias of other XSL style sheets, you can specify as many intermediate conversions between the starting format and the final format as you want.

Chapter 5

Managing an Existing Scenario

This section explains how to manage your scenarios.

Opening an Existing Scenario

The scenario editor enables you to open files with the extension `.scn`.

To open an existing scenario:

Perform one of the following actions:

- Launch the Scenario Builder and select the **File > Open** menu.
- Select the `.scn` file in a browser and double-click this file.
  The Scenario Builder will open the scenario.
- Select the `.scn` file in a browser and drag and drop it into the Scenario Builder's main window.

Note: *If a scenario is already open, a dialog box appears asking if you want to save this scenario before opening a new one.*

The **Open all the current scenario's connectors when starting a connector** option enables you to automatically open all the connectors in a scenario when you start one single connector. This is very useful for scenarios using numerous connectors.

Deploying a Scenario

To deploy an existing scenario in Unix:

- On a Windows computer:
  a. Open the scenario and perform the necessary configurations and modifications.
  b. Create a property file using the `-df` command.
  c. Export the scenario configuration to the property file using the `-export` command.
  For example, for the scenario called myScenario, the export command will be the following:
  `conitsvc -export myScenario.scn`
  d. Edit the `.prop` property file and modify it for Unix.
- On a Unix computer:
  a. Do not modify the scenario but instead using the following commands to change the behavior:
  - To test the scenario:
    `conitsvc -df:<scenario name>.prop [<scenario properties option>] <name of the scenario>.scn`
    Note: *When the path for a scenario is defined as a parameter, the `-once` (or `-scheduler`) option must be defined as a parameter. Otherwise, Connect-It exits after the scenario is loaded.*

- To launch the Connect-It service:
  `conitsvc -svc <name of the service>`
- To create a Connect-It service:
  `csvctool -create -scn:<name of the scenario>.scn -svclog:<name of th e scenario>.log -options:"-df:<name of the scenario>.prop" <name of the service>`
- To start the Unix daemon, execute the following command line:
  `conitsvc -svc indsc &`

Using Connect-It from the Command Line

There are two ways to execute Connect-It:

- Using the graphical interface
- From the command line

This section presents the different options and the syntax used to execute certain tasks from the command line, such as opening a connector or putting a scenario into production.

To start Connect-It from the command line:

1. Open a command prompt.
2. Go to the bin folder in the Connect-It installation folder.

Commands

The following commands are used:

- `conitsvc`: Connect-It in non-graphical mode. This application is executed by a service created from the service console.
- `conitgui`: Connect-It in graphical mode.
- `csvctool`: Connect-It service management utility.

Syntax

- The non-graphical version of Connect-It has the following command-line parameters:

```
conitsvc [-verbose] [-?|h|H]
[-log:<Log file name>]
[-d:<connector.property=value>]
[-dc:<connector.property=value>]*
[-dm:<(section|monitor).property=value>]*
[-df:<Properties file>]*
[-once] [-scheduler]
[-port:<Port>] [-activate:<Document types to activate>]
[-updatescn:<Name of the updated scenario file>]
[-gendoc:<Name of the documentation file to generate>] [-
openconnectors] [-svc] [-showstatus] [-sleep:<Length of pause>]
[-export:<Name of the property file>] <scn|svc>
[-forcecnx:<Name of the connection>]
```

- The graphical version of Connect-It has the following command-line parameters:
```
conitgui [-verbose] [-?|h|H]
[-log:<Log file name>]
[-d:<connector.property=value>]
[-dc:<connector.property=value>]*
[-dm:<(section|monitor).property=value>]* [-df:<Property file>]* [-
once] [-scheduler]
[-port:<Port>] [-activate:<Document types to activate>]
[-updatescn:<Name of the updated scenario file>]
[-gendoc:<Name of the documentation file to generate>] [-
openconnectors] [-configscheduler] [-configconnectors]
[-export:<Name of the property file>] <scn>
```
- The Service Console has the following parameters:
```
csvctool-<option>[<parameter>:<value of the parameter>]*[-y]<svc>
```
-y: This option disables confirmation of modification.

The conitsvc.ini Configuration File

This file contains all services declared for the Connect-It Windows or Unix version. This file is located at the following:

- For versions prior to version 3.7 (Windows):
```
C:\Document and settings\All users\Application Data\Peregrine
```
- For version prior to version 3.7 (Unix):
```
~/Peregrine
```
- For Windows 7, Windows Vista, and Windows Server 2008:
```
C:\ProgramData\HP\ConnectIt\conf\conitsvc.ini
```
- For Windows 2003 and earlier:
```
C:\Documents and Settings\All Users\Application
Data\ConnectIt\conf\conitsvc.ini
```
- For Unix:
```
~/HP/ConnectIt/conf/conitsvc.ini
```

Command Options for conitgui and conitsvc

Option	conitgui	conitsvc	Description	Value
once	yes	yes	Start all connectors once only. This option must not be used at the same time as the `-scheduler` option.	
scheduler	yes	yes	Start the schedulers. This option must not be used at the same time as the `-once` option.	
openconnectors	yes	yes	Open all connectors. In graphical mode, a window containing the messages concerning the actions performed is opened.	
forcecnx	no	yes	Force the automatic reconnection when opening connectors. By default, a connection failure when opening a scenario causes Connect-It to stop. If you select this option, the automatic reconnection process is applied even when opening the scenario.	
verbose	yes	yes	Enables more detailed messages.	
gendoc	yes	yes	Generates the scenario documentation. If no documentation file is specified, a documentation DBK is generated at the same location as the scenario and includes the same name.	Name of the documentation file (optional)
svc	no	yes	Specifies a Connect-It service to use instead of using the scenario. A Connect-It service is a combination (name/ scenario/ log file/ options) defined using the `csvctool` program or the Service Console.	

Option	conitgui	conitsvc	Description	Value
configscheduler	yes	no	Starts the configuration of the schedulers.	
configconnectors	yes	no	Starts the configuration of the connectors.	
port	yes	yes	Assigns a port number for the communication socket between conitgui or `conitsvc` and `cntrsrv`. If no port is specified, a number is assigned automatically.	Port number
sleep	no	yes	Length of time the activity is paused in seconds before production.	Value in seconds
log	yes	yes	Specifies the name and path of the log file.	Log-file name
activate	yes	yes	List of document types to activate before launching a scenario. Used with the `-updatescn` option, saves the activation in the scenario.	List of document types to activate, separated by commas
d	yes	yes	This option is maintained for compatibility reasons. This option has been replaced by the `-dc` option.	Deprecated option
dc	yes	yes	Assigns a value to the connector configuration property. The declared value is valid for the current scenario but is not saved. To save the modifications, use the `-updatescn` option.	<connectorname> .<connectorproperty> =<propertyvalue>
dm	yes	yes	Assigns a value to a monitor configuration property. The declared value is valid for the current scenario but is not saved. To save the modifications, use the `-updatescn` option.	<section|monit-or> .<parameter> =< value>
updatescn	yes	yes	Updates the scenario with all the declared values. If no backup file is specified, the new scenario replaces the previous	Name of the updated scenario file (optional)

Option	conitgui	conitsvc	Description	Value
			one.	
configure	yes	yes	Exports the properties and updates the scenario with the exported values.	Name of the updated scenario file (optional)
df	yes	yes	Specifies a property file to update the connector and monitor configurations. The declared values are valid for the current scenario but are not saved. To save the modifications, use the `-updatescn` option.	Property file
showstatus	no	yes	Displays the processing status of the documents.	
export	yes	yes	Exports the scenario configuration to a property file (called by the `-df` command option). If no property file is specified, the name used is that of the scenario, to which the extension `.prop` is added.	Name of the property file (optional)
enablecache	no	yes	Enables the cache associated with the connector to be activated and improves performance when processing data.	Connector cache

Command Options for csvctool

Option	Unix	Request for confirmation	Description
list	yes		Lists the Connect-It services.
info	yes		Gets information concerning a service: Name, scenario, options, warnings and messages file, service configured or not (Windows only), service installed or not (Windows only).
create	yes		Creates a new service.
update	yes	yes	Updates the service.
delete	yes	yes	Deletes a service.
install			Installs a Windows service.
uninstall		yes	Uninstalls a Windows service.

Parameter	Value	Unix	Option	Description
name	New name for the service	yes	update	Name of the service
scn	Scenario name	yes	update / create	Scenario associated with the service
svclog	Log file name	yes	update / create	Log file associated with the service
c			update / create	Service defined as configured
options	Additional service parameters	yes	update / create	Additional service parameters
account	User account		update / create	User account in which the Windows service is started
password	User account		update / create	User account password
log	Name of the csvctool log file	yes		Log file

Using a Property File

The configuration parameters of a scenario can be exported to a property file with the `.prop` file extension. This file is then called by the `-df` command-line option. The configuration properties are:

- sorted by connector and monitor
- preceded by a brief description
- commented

Changing the configuration of a scenario consists of changing the value of a property.

Syntax of a property file

The property names follow the following syntax:
`<type>.<object>.<name>`

- The type corresponds to the value to be updated. The possible values are **Monitor** and **Connector**.
- The object corresponds to the name of the object whose property is to be updated.
- The name corresponds to the name of the property to be updated.

To update a configuration property for a connector, the syntax is as follows:

```
Connector.<name of the connector>.<name of the configuration property>
= <value of the configuration property>
```

For example, to change the name of the connector called "My AC connector", the command line is as follows:

```
Connector.My AC connector.Server = MyProductionServer
```

To update a configuration property for a monitor, the syntax is as follows:

```
Monitor.<name of the monitor>.<name of the parameter> = <value of the
parameter>
```

For example, for the name of the SMTP server:

```
Monitor.MailMonitor.SMTPServer = smtp.myserver.com
```

Note: *If there are commas in the path of the DirPooled field, replace the commas with question marks* ***'?'****. For example:*
Original path: `Connector.XML.DirPooled = ../path,with,comma/`
Update to: `Connector.XML.DirPooled = ../path?with?comma/`

Example of a property file

A property file is structured as follows:

```
# Comment
! Comment
# Blank lines are ignored

# Connector configuration properties are defined using the following
syntax:
# Connector.<name of the connector>.<name of the property>
# The ':' and '=' characters are used to separate the property names
and values.
Connector.MyCntr.Property = Value
Connector.MyCntr.Property2 : Value
Connector.MyCntr.Property3= Long value split over \multiple lines
Connector.MyCntr.Property4= new lines and tabulations may be inserted
\using the \t and \n parameters

# If the name of the connector contains the '=' or ':' character, the
theyare escaped as '\=' and '\:'
# Example for the 'My cntr := test' connector
Connector.My cntr \:\= test.Property=value

# If the name of a character contains a period, an additional period
must be added
# Example for the 'My.cntr' connector
Connector.My..cntr.Property=Value

# Monitors are configured using the following syntax:
# Monitors.<section or monitor name>.<property name>
Monitor.ApplicationLogs.Capture=false
Monitor.MailMonitor.TextPassword = test
```

Examples of Commands

This section presents several examples of command lines.

- `-dc`
  Initialize the ODBC connection of the database connector called **test**
  `conitsvc.exe -dc:test.Odbc_Dsn=AC43fr database_sc.scn`

- `-dc`
  Using the password unencrypted `conitsvc -dc:assetcenter.textpassword=b42var9`
  If you use the 'password' command option, the password to populate is encrypted.
- `-openconnectors`
  Open all connectors
  `conitsvc -openconnectors mail_sc.scn`
- `-forcecnx`
  Force the automatic reconnection to a service
  `conitsvc -svc -forcecnx myService`
- `-dm`
  Disable Mail monitor
  `conitsvc -dm:MailMonitor.Active=false ldap_sc.scn`
- `-dm`
  Increase the document log size
  `conitgui -dm:MemoryMonitor.MaximumTraceItems=2000 ldap_sc.scn`
- Start as service
  `conitsvc -svc servicename`
  Note: *The name of the service is that which is saved in the `conitsvc.ini` file (located, in Windows, in the `c:\Documents and Settings\<useraccount>\Application Data file`)*
- Specification of the document type to produce
  `conitsvc -activate:amAssetSrc,amEmplDept test.scn`
- Using a property file for the scenario
  `conitsvc -once -df:myPropFile.prop test.scn`

Using Connect-It Web

The Web console is used to manage centrally a set of Connect-It services using one or more local or remote agents. Service and scheduler definitions and monitoring information are stored in a unique database.

To access the web interface:

1. Start the Tomcat server.
2. Open an Internet browser and enter the following address:
   `http://<server address>:<server port number>/<name of the .war file>`
   For example: `http://localhost:8080/cit`

A user name and password are required to use Connect-It Web. See Installing Connect-It Web.

Managing an Agent

An agent manages its services and schedulers on a given machine. When an agent is started, it automatically registers itself and will be visible in the list of available agents. Each instance is defined by:

- An identifier or a name
- The name or IP address of the host machine
- The listener port

To access detailed agent information, click on the agent in the list. The details appear in the **Agent information** frame.

To test the connection to an agent:

1. On the Connect-It navigator, click the **Agents** menu.
2. Choose the agent you wish to test.
3. Click **Test**.

To modify an agent:

1. In the Connect-It navigator, choose the **Agents** menu.
2. Select the agent that you wish to modify.
3. Click **Modify**.
4. Fill in the **Agent name** field.
   The agent name must be unique.
5. Provide a description for this agent. This is an optional field.
6. Modify the port and address.
   Note: *The communication port and address are defined according to the agent configuration at startup. Modifying these parameters can cause the communication with the agent to fail. However, the if the network infrastructure changes it may become necessary to change these parameters.*
7. Click **Confirm**.

To delete an agent:

1. Use the checkbox to select it in the list.
2. Click **Delete**.
   You can delete multiple agents at once.

Defining a Service

A service is an instance of a scenario. Each scenario instance is defined by:

- An identifier or name
- One or more scenario files

When accessing Connect-It Web, the scenarios list is shown on the right-hand side of the page. To access detailed information about a service, click on the service in the list. Information is displayed in the **Information about the service** frame.

Defining a new service

1. In the Connect-It navigator, choose the **Services** menu.
2. Choose the agent for which you wish to create this service.
3. Click **New**.
4. Fill in the **Service name** field. The name of the service must be unique.
5. Provide a description of the service. This field is optional.
6. Define the scenario file(s) to associate with the service.
   Using the file navigator, you can choose the available scenario or scenarios on the file system of the agent in question. The agent can manage multiple locations for these scenarios. You cannot navigate an agent's file system if the agent is not running. In that case you must manually specify the path.
   Note: *Paths are case-sensitive in Unix and Linux.*
7. Click **Add**.
8. Click **Validate**.
   The newly created service appears in the list of services.

Associating several scenarios with a service

Several scenarios can be associated with the same service. Scenarios are launched by the service in the order that they have been associated with the service. For a given service, if scenario A, D and B are associated with the service in that order, scenario A will execute first, scenario D, second, and scenario B, third.

A scenario can be executed more than once for the same service. For example, scenario A can execute, followed by scenario B, followed by scenario A. The Scenario index column shows the execution order of the scenarios.

To associate several scenarios with a service:

1. Define your service as explained above.
2. Enter the path of the scenario to associate with the service and click **Add**.
3. Repeat this operation as many times as required.
4. Click **Validate**.
   The scenarios that have been entered appear in the service's detail.
5. To change the scenarios associated with a service, click **Modify** in the details.

Note: *Execution of scenarios associated with a service is interrupted if an error occurs for one of the scenarios.*

Impact of associating several scenarios on the scenario scheduling

Internal schedulers cannot be used when several scenarios are associated with the same service.

To delete a service:

1. Use the checkbox to select it in the list.
2. Click **Delete**.
   You can delete multiple services at once.

Configuring a service

Connect-It Web lets you define parameters to change the configuration of a scenario's connectors. Defining parameters is optional. These parameters will be used in place of the parameters that are defined in the scenario.

Parameters can be accessed on the service's **Parameters** tab in the **Information about the service** frame.

To add parameters:

1. Select the desired service.
2. Click the **Parameters** tab.
3. Click **New**.
4. Populate:
   - The name of the scenario for which the parameter is applied. All scenarios associated with the service are given in the drop-down list.
     Caution:
     ** Each scenario has its own parameters.*
     ** Scenarios appear in the order that they have been entered when the service was created. * A scenario can appear more than once in the service's list. Each scenario occurrence has its own parameters.*
   - The name of the connector
   - The name of the parameter
   - The value of the parameter
5. Click **Validate**.
6. Repeat this operation as many times as required.

All parameters associated with a scenario are listed on the **Parameters** tab of the service's detail. The index number corresponds to the order used for the scenarios.

Tip: *To find out which parameters are used in your scenario, export the parameters using the* `conitsvc` *command's* `-export` *option.*
For example, to export the parameters of the catalog scenario:
`..\..\..\bin\conitsvc.exe -export catalog.scn`
The properties file that is created is located in the same folder as the scenario.

To delete parameters:

1. Select the parameters to delete using the checkbox.
2. Click **Delete**.

Scheduling a Service

Connect-It Web gives you complete control over how services are scheduled. Scheduling features are based on schedulers that are separate from scenarios. A scheduler can be associated with several services.

To access the list of schedulers, select the **Schedulers** menu on the navigator.

How a scheduler works

A scheduler:

- Defines when to execute one or more services with which it is associated
- Defines one or more time ranges for the execution frequency
- Defines an execution frequency outside of a time range

To ensure the correct operation of the scenario that is associated with the service, the document types which are produced by the connectors must be configured as follows:

- Produced document types must be associated with a **Once** scheduler in the Connect-It Scenario Builder.
- Produced document types must be placed in the order that you want them to be produced.

Note: *The date used is the date of the agent.*

Defining a scheduler

To define a scheduler:

1. In the Connect-It navigator, click the **Schedulers** menu.
2. Choose the agent for which you wish to create this scheduler.
3. Click **New**.
4. Populate the **Scheduler name** field.
5. Provide a description of the scheduler. This field is optional.
6. Define the date of the scheduler's next wakeup. The date of the next wakeup is updated after the scheduler has executed.
7. Populate the scheduler's behavior:
   - Occurrence: Used to define the scheduler's execution frequency (daily, once per week, etc.).
   - Time ranges:
     i. Populate the time range fields (**Start** and **End** fields). The level of granularity of time ranges is one hour.
     ii. Click **Add**.
   - Populate the **Every** field to define the intervals at which the services associated with the scheduler are to be executed.
     For example, for a scenario that uses the E-Mail connector, you can define a frequency of

one second. For an inventory scenario, you can define an hourly frequency that executes between 7 and 7:59 am.
If necessary, define when to execute the services outside of a given time range.

- Repeat this operation as many times as required and then click **Validate**.

Deleting a scheduler

To delete a scheduler:

1. Select the scheduler using the checkbox.
2. Click **Delete**.
3. Click **OK**.

Note: *When a scheduler is deleted, services are no longer associated with it.*

Associating a scheduler with a service

You can associate a scheduler

- From a service through the **Scheduling** tab:
  a. Select the service.
  b. On the **Scheduling** tab, click **Configure**.
  c. Select the scheduler to assign from the drop-down list.
  d. Click **Validate**
- From a scheduler via the Assigned services tab:
  a. Select the scheduler.
  b. On the **Associated services** tab, click **Modify**.
  c. Select the service(s) to assign from the list of services.
  d. Click **Validate**.

Note: *When a service has several scenarios, triggering of the scheduler causes each of the scenarios to be executed in the order in which it has been added to the service during its creation.*

Internal scheduling

The console's schedulers replace the scheduling information defined in the scenarios. However, it is possible to maintain the scenario's original programming information.

To do this:

- Select the service.
- On the **Scheduling** tab, click **Configure**.
- Select **Internal scheduling**.
- Click **Validate**.

Note: *These two scheduling modes are exclusive.*
The internal scheduler cannot be used if several scenarios have been associated with a service.

Event-driven connectors

Starting in Connect-It 3.70, scenarios whose source connector is an event-driven connector, such as the XML listening connector, no longer need to be scheduled. The scenario is automatically triggered when an event is received. For this type of scenario, you do not need to assign a scheduler to the service.

Starting a Service

To start or stop a service, select it via the checkbox and then click **Start** or **Stop**. When a service is started, the associated scenario is opened, and:

- In console scheduling mode, the scenario waits for an event from the associated scheduler.
- In internal scheduling mode, the internal scheduling starts.

In console scheduling mode, the associated scheduler must also be started. The service waits as long as the scheduler has not started.

To start or stop a scheduler, select it via the checkbox and then click **Start** or **Stop**.

Note: *Starting and stopping services is independent from starting and stopping schedulers. The corresponding agent must be started.*

Monitoring a Service

Connect-It Web lets you view the activities linked with the execution of a service:

- log
- sessions
- statistics

Configuring service monitoring

Connect-It Web lets you configure the desired monitoring level for each service:

1. Select the service.
2. On the **Monitoring** tab, click **Configure**.
3. Select the appropriate options:
   - Save service execution log: Select this option to save log information (debug, information, warning, error) in the Connect-It Web database.
   - Session information: This option lets you display the start and end dates of each session.
   - Save execution statistics: This option lets you save the execution statistics of the scenario's session. The behavior is the same as the one described for the Connect-It document log.
   - Limit persistence of monitoring information: This option lets you define how long information about the service is kept.

Viewing monitoring information

The **Monitoring** tab lets you view the scenario's last session and the last 20 lines of the log.

Note: *Modify the value of the Page size field to specify how lines from the log are displayed.*

The contents on the Monitoring tab depends on how scenario items are processed.

The Monitoring tab lets you do the following:

- Refresh log information
- Configure monitoring
- Display all supervised elements (session histories and service log)
- Delete all monitoring information (session histories and service log)

Click **Display all** to view the entire log. This button lets you access the session histories and the service log.

For each of these elements, you can Refresh or Clear the Session history or Service log.

Note: *Clearing the contents of the service log does not affect the session history and vice versa.*

Favorites

Favorites are preconfigured connectors. They are visible in the Favorites tab of the Scenario Builder's Toolbox. When you use a favorite in a scenario (by dragging it and dropping it there), it creates an instance of the connector associated with this favorite.You can then delete the association between this connector instance and the favorite.

When a favorite is associated to one or more connectors:

- Anytime you reconfigure a favorite, it reconfigures the connectors associated with it throughout all scenarios.
  Warning: *The name and description of a favorite are unique to that particular favorite. When you modify this name and description in the configuration wizard, the changes are not carried over to the configuration of the associated connectors.*

  In order for this reconfiguration to actually take place for each connector in all scenarios, you must manually open each of these scenarios in the Scenario Builder.
- Anytime you reconfigure a connector, it might been the reconfiguration of the favorite associated with it, as well as all the other connectors associated with the favorite. At the end of the connector's reconfiguration, a dialog box proposes you the following choices:
  - Update the associated favorite.
  - Break the association with the favorite before updating the connector.
  - Cancel the reconfiguration of the connector and the favorite.

Editing Favorites

A favorite enables you to keep a connector's configuration and to reuse it in other scenarios.

To create a favorite associated with a connector:

1. Start the Scenario Builder.
2. Open an existing scenario or create a new one.
3. Select the connector for which you want to create a favorite.
4. Right-click.
5. Select **Favorites > Add to the favorites with association** from the shortcut menu.
   The favorite appears in the **Favorites** sub-tab of the **Toolbox** pane.

Note: *When a connector is associated with a favorite, the name of the favorite appears above the connector in the Scenario diagram pane.*

To create a favorite not associated with a connector:

1. Start the Scenario Builder.
2. Open an existing scenario or create a new one.
3. Select the connector for which you want to create a favorite.
4. Right-click.
5. Select **Favorites > Add to the favorites** without association from the shortcut menu.
   The favorite appears in the **Favorites** tab of the **Toolbox** pane.

To use a favorite in a scenario:

1. Open and create the scenario in which you want to use the favorite.
2. Move the mouse cursor over the Favorites tab of the Toolbox.
3. Select the favorite.
4. Perform one of the following actions:
   - Drag and drop this favorite into the Scenario diagram pane.
   - Double-click.

   An instance of the connector associated with this favorite is automatically created in the Scenario diagram.

To break the association between a connector and a favorite:

1. Select a connector associated with a favorite in the scenario. If the connector is associated with a favorite, the name of this favorite appears in the Scenario diagram.
2. Right-click.
3. Select **Favorites > Break association with the favorite** from the shortcut menu.

As soon as the association with the association is broken, the name of the favorite that appears above the connector in the Scenario diagram disappears.

To reconfigure a connector using a favorite and creating an association:

1. Select the favorite.
2. Drag it on a connector similar to the favorite.
   Example: an XML favorite onto an XML connector.

3. A dialog box opens asking if you want to update the connector with the configuration of the favorite and to create an association.
4. Click **OK**.

To reconfigure a connector using a favorite without creating an association:

1. Select the favorite.
2. Drag it onto a connector similar to the favorite while holding down the left mouse button or by holding down the **Shift** key.
3. Release the mouse button or **Shift** key.
4. A dialog box opens asking if you want to update the connector with the configuration of the favorite without creating an association.
5. Click **OK**.

To reconfigure a favorite from the Favorites sub-tab:

1. Start the Scenario Builder.
2. Select the **Favorites** tab from the **Toolbox** pane.
3. Select the favorite that you want to reconfigure.
4. Perform one of the following actions:
   - Click on the Favorites toolbar.
   - Right-click and select **Reconfigure the favorite**.
   - Select **Favorites > Reconfigure** the favorite.
5. Modify the configuration of the favorite using the configure wizard that opens.

When the scenario using this favorite is reloaded, the associated connectors are also automatically reconfigured.

To reconfigure a favorite from an associated connector:

1. Start the Scenario Builder.
2. Open a scenario using a connector associated with the favorite that you want to reconfigure.
3. Select the associated connector.
4. Perform one of the following actions:
   - Right-click and select **Configure the favorite** from the shortcut menu.
   - Select the **Tools > Configure** menu (**F2**).
5. Modify the configuration of the favorite using the configure wizard that opens.
6. Click **Yes** in the dialog box that appears.
   If you click **No** in this dialog box, the association with the favorite is broken before the connector is updated.

When the scenario using this favorite is reloaded, the associated connectors are also automatically reconfigured.

Note: *A favorite associated with a connector is only effectively updated once the scenario is reloaded.*

To delete a favorite:

1. Start the Scenario Builder.
2. Select the **Favorites** tab from the **Toolbox** pane.
3. Select the favorite that you want to delete.
4. Perform one of the following actions:
   - Click on the **Favorites** toolbar.
   - Right-click and select **Delete the favorite** from the shortcut menu.
   - Select the **Favorites > Delete the favorite** menu.
5. Wait for the favorite to disappear from the **Favorites** tab.

Note: *When a favorite is deleted, the associated connectors lose this association. This loss is symbolized by the disappearance of the favorite's name above the connector in the scenario diagram.*

Managing the Favorites File

The parameters of the favorites (preconfigured connectors) are kept in the Favorite`.fav` file containing the Connect-It version number. This file is saved in the bin folder of your Connect-It installation folder. Example:
`C:\Program\Files\Hewlett-Packard\Connect-It\bin\Favorite330.fav`

Note: *The last version of the favorite`.fav` file is saved in a `favorite.bak` file. If a problem comes up during the update, use this file by renaming it.*

This file can be exported or imported between two Scenario Builders.

To import a scenario file:

1. Start the Scenario Builder.
2. Put your cursor in the zone of the **Favorites** tab.
3. Perform one of the following actions:
   - Click on the **Favorites** toolbar.
   - Right-click and select **Import favorites** from the shortcut menu.
4. Indicate the path of the Favorite`.fav` file containing the favorites that you want to import into the Scenario Builder.

Note: *You can perform this operation manually in a Windows browsers by copying and pasting the Favorite`.fav` file in the bin folder of the Connect-It installation folder.*

To export a scenario file:

1. Start the Scenario Builder.
2. Perform one of the following actions:
   - Right-click the **Favorites** tab and then select **Export favorites** from the shortcut menu.
   - Click on the **Favorites** toolbar.

- You can select multiple favorites by holding down the `CTRL` key while selecting them with the mouse.

3. Specify the path of the folder in which you want to save the Favorite`.fav` file containing favorites of the Scenario Builder you are using.

Note: *You can perform this operation manually in a Windows browser by copying and pasting the Favorite`.fav` file in the folder of your choice.*

Updates between favorite and associated connectors

When you open a scenario, the synchronization between a favorite and its associated connectors depends on the date they were updated. The favorite or the connector having the most recent update imposes its configuration on the others.

Importing favorites from previous versions of Connect-It

The favorites are linked to the version of Connect-It used. When importing favorites from a previous version to the version used, we recommend checking the names of each favorite to make sure there are no conflicts with the versions used. If there are any conflicts, the application renames them automatically.

Defining a default favorites file

The **Edit > Options** menu enables you define a default favorites file. Specify the file to use for the **Connector > Favorites** file option.

Viewing Scenario History

All information related to the creation and modification of a scenario is available via the **File > Scenario** history menu.

The **General** tab enables you to populate the scenario with your personal information. A summary is available in the **History** tab. A new summary is created each time the **Add** button is used. The existing summary is updated each time the **Update** button is used.

All the differences between two versions of a Connect-It scenario are provided on these tabs.

Sequencing a Scenario

In Connect-It, two different data processing approaches exist:

- Parallelization
- Sequencing

Sequencing is used to optimize a scenario's execution and makes the scenario easier to read. This procedure splits the execution of one mapping into several, smaller mappings that are executed in a sequence.

It is possible to separate certain elements from a complex "mapping" in order to process them first before processing the other elements in subsequent mappings. To do this, sequencing uses partial reconciliation on the main mapping parts that are not to be executed initially. A processing report must be produced to trigger the remaining mappings.

As the transformation is defined in the main mapping, writing other mappings consists in copying sub-sections and referencing the main document that is produced. The **Paste the mapping in a processing report** option was developed to facilitate the writing of these mappings.

To increase the performance of the scenario, we recommend that you have the parts that consume the least amount of resources processed first and to have the other parts processed in subsequent mappings.

For example, for `pdiac.scn`, the original scenario is as follows:

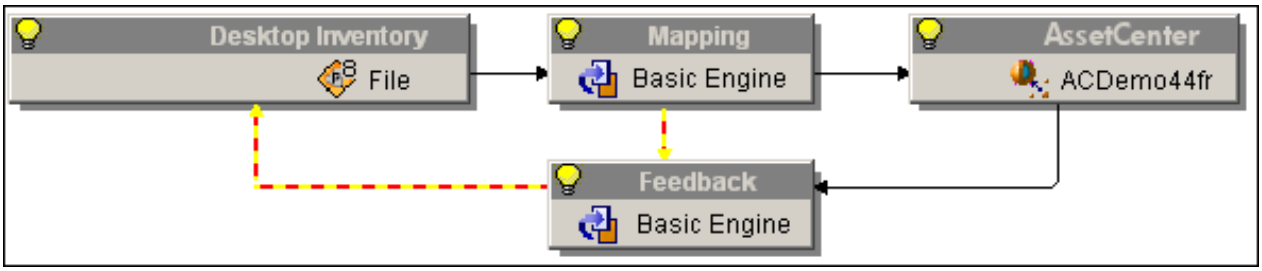


Figure 5-1: Sequencing example: the original scenario

Splitting the main mapping into two sequential mappings produces the following scenario:

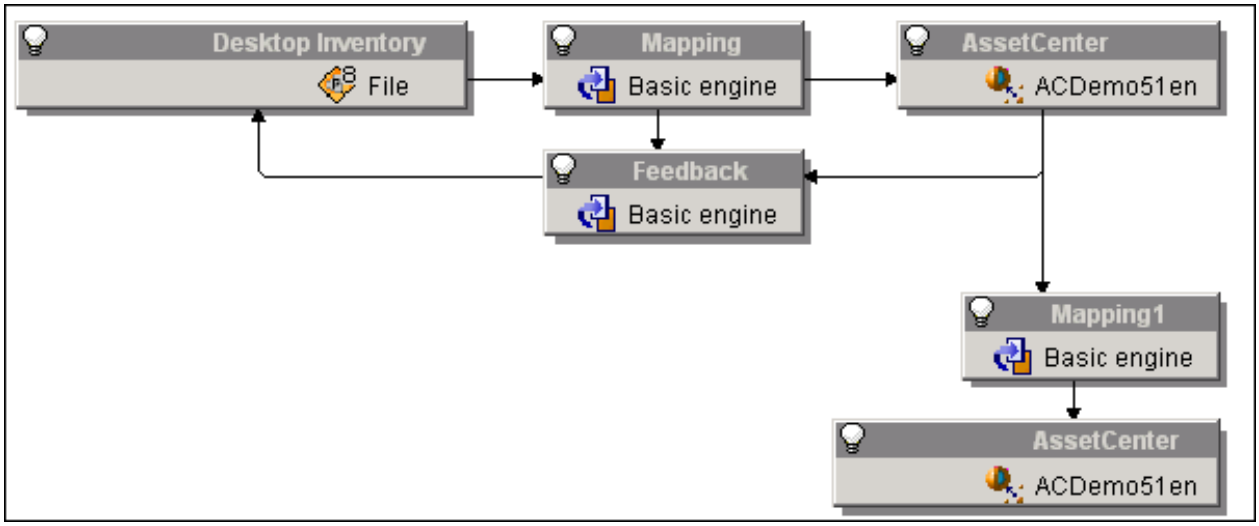


Figure 5-2: Sequencing example: the split-mapping scenario

To ensure that the scenario sequencing operates correctly:

- The **Do not reconcile** option must be enabled for the mapping part that is to be processed second.
  The mapping part for which this option is enabled is executed and the document type is produced, but the defined part is not reconciled.
- The processing report produced by the destination connector (the Asset Manager connector in this example) must reference the document type that is common to the first mapping (Mapping) and the second mapping (Mapping 1). The **amComputer** document type is used in this example. The data processing result produced by the processing report triggers the data production in the second mapping.

The mapping is structured in the following manner:

- Main mapping (first mapping box), between the **inventorySrc** document type and the **amComputer** document type.

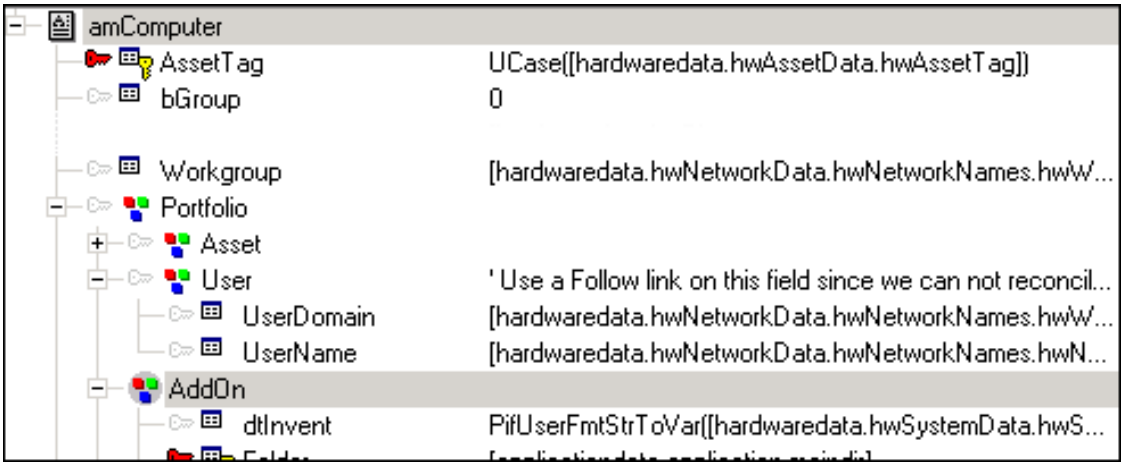


Figure 5-3: Sequencing example: main mapping

The **Do not reconcile** option is enabled for the **AddOn** collection.

- Secondary mapping (second mapping box), between the processing report and the **amComputer** document type.

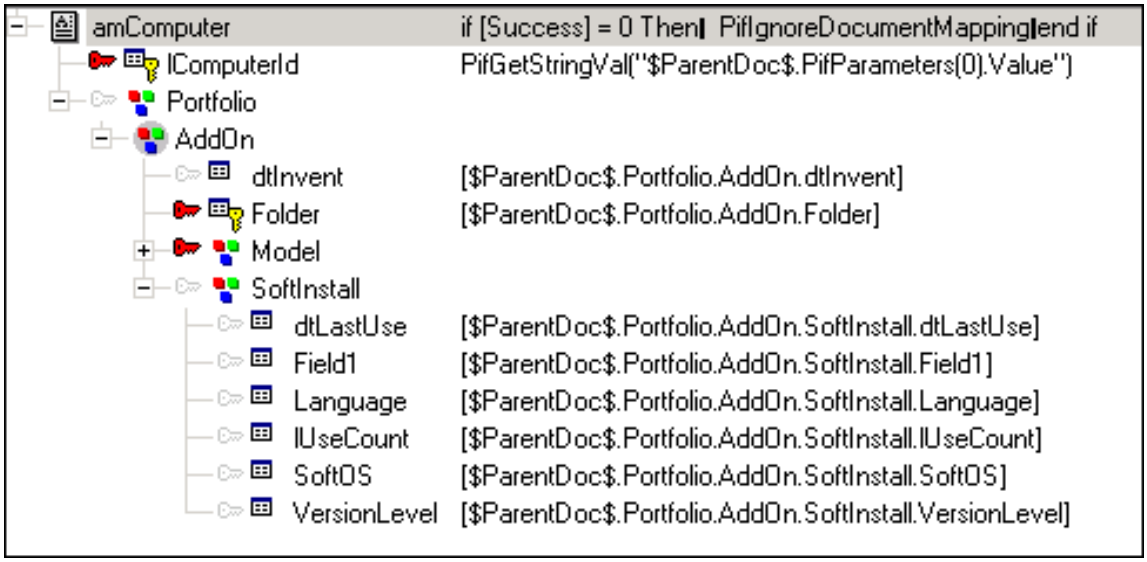


Figure 5-4: Sequencing example: secondary mapping

This mapping was created from the **Copy mapping** and **Paste the mapping in a processing report** commands. All of the fields have the **$ParentDoc$** variable, a result of the special paste operation. This variable is used to reference information in the first mapping.

Duplicating mappings when splitting the main mapping into a second mapping results in the duplication of the destination connector and, thus, in the duplication of connections.

In this scenario, the **amComputer** document is processed in two steps:

- In step one, all data is processed, but data for the **AddOn** collection, related to software installations, are not reconciled (the appropriate option is enabled). The data is consumed by the first destination connector.
- In step two, the second mapping processes data linked to the processing report via the processing report's **$ParentDoc$** structure. The data is consumed by the second destination connector.

Comparing Two Scenarios

The scenario comparison tool reveals the differences between two versions of a scenario in a graphical interface.

Note: *It is a tool that displays, in raw xml, parts of the scenario that have been deleted, added or modified. This tool is informational only. The content displayed by this tool should not be used directly in a scenario file. All scenario modifications must be made using the Connect-It GUI.*

Limitation of the scenario comparison tool

- The scenario comparison tool does not compare portions of the scenario relating to monitors.
- Only the paths of text files, mapping tables, basic functions and user formats are compared. To examine other changes you need to use a general file comparison tool.

Using the scenario comparison tool

Open the scenario comparison tool by executing `conitdiff.exe`.

Fill in the following fields:

- **Scenario to compare**: the full path to the scenario you wish to compare.
- **Reference scenario**: the full path to the reference scenario against which the scenario will be compared
- The **Compare** button initiates the comparison of the scenarios.
- The **Close** button closes the window.

The upper portion shows the modifications made relative to the reference scenario.

There are four columns:

- **Differences**: displays in a tree structure the parts of the scenario that have been modified, as well as the type of change (add, delete, modify).
- **ID**: displays the id of the scenario element that has been modified.
- **Reference**: displays the modification made relative to the reference scenario.
- **Scenario**: displays the value found in the scenario being compared when the element is present in both scenarios.
- **Reference value** and **Compared value** display the respective value found in the two scenarios when a property has been updated. Markers indicate lines that contain differences.

Testing and Debugging an Integration Scenario

Testing a scenario enables you to know if:

- The source connector correctly produces the documents for which you created produced document-types.
- The mapping box correctly transforms these documents.
- The destination connector correctly consumes these documents after the mapping box transforms them.

Caution: *To perform these tests, we recommend using test data (demonstration files and databases). Untested scenarios that are put into production mode could seriously damage your real data.*

Using the logs

Using the Document log enables you to see if any problems occurred while processing the documents produced by a source connector. To deal with processing problems, we recommend configuring the Document log so that only the problem documents are displayed.

The Scenario Builder enables you to consult two logs:

- The Connect-It log
- The Document log

Use the Script Debugger

A basic script can be debugged using the **Debug script** option in the mapping box. Click the debug icon to debug a scenario. When starting a scenario in debug mode, a modal box containing the script to debug opens.

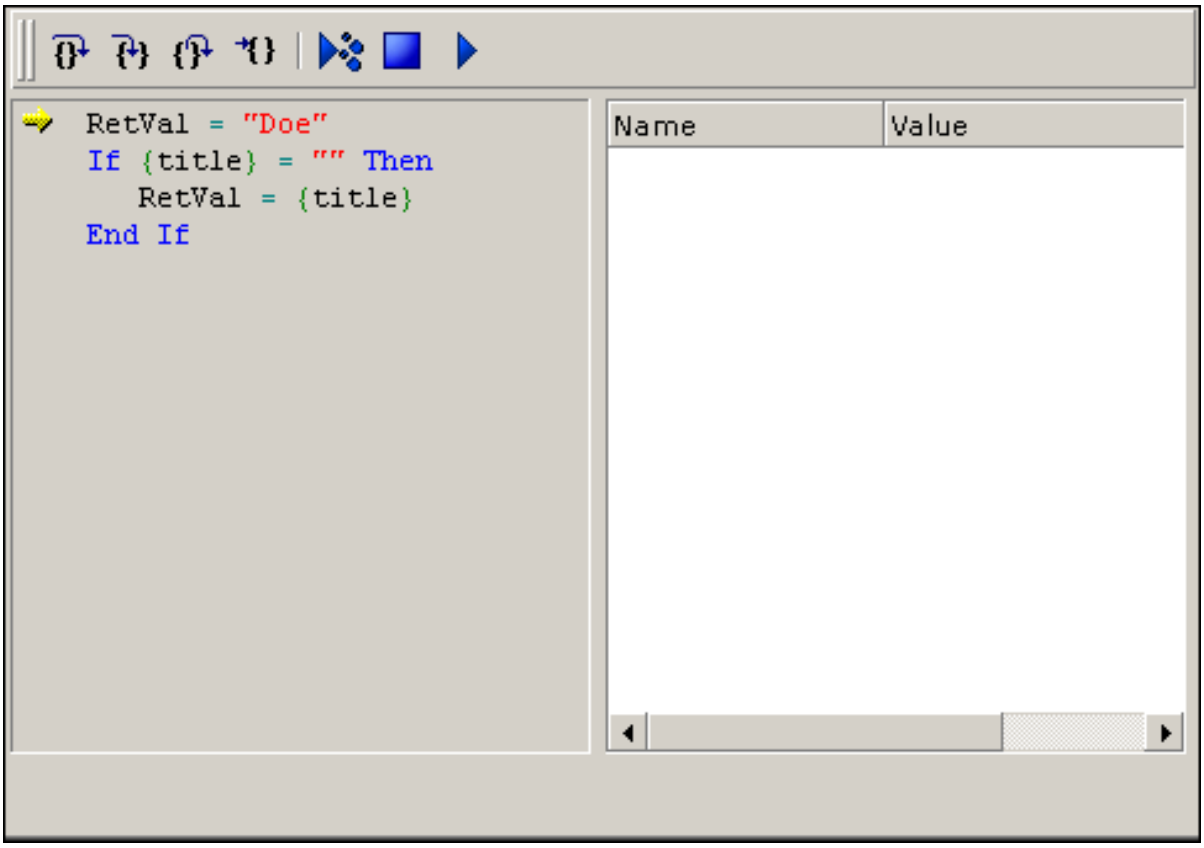


Figure 5-5: Script debugger

For each line of script, the following debug instructions are used:

- Step over: The instruction is executed.
- Step into: Functions in the instruction are executed one by one. Their value is displayed.
- Step out: Returns to the calling function or exits debug mode if currently in the main function.
- Run to cursor: Functions are executed up to the cursor.

To display the value of a variable used in a script, use the following shortcuts:

- Double-click the variable
- Ctrl-Shift-F9
- Shift-F9

Using Processing Reports

A processing report is a document that a connector or a mapping box can produce every time that they produce or consume a document. Each processing report informs you if a document has been correctly processed or not. A successfully processed document is a document in which no elements have been rejected.

There are two different types of processing reports:

- Consumption reports: generated by a connector consuming documents.
- Production reports: generated by a connector producing documents.

All connectors can produce a processing report as a document type and choose how it will behave. This report will analyze the documents produced or consumed by the connector.

For example, the Asset Manager source connector, produces two produced document types: **amAsset** and **ProcessReport**. If the processing report generated is a production report, it analyzes the documents produced by the Asset Manager connector.

Conversely, the Asset Manager connector consumes a document type, **amBudget** and produces the **ProcessReport** document type. If the processing report generated is a consumption report, it analyzes the documents consumed by the Asset Manager connector.

The processing report is like a document type that can be produced by each connector and the mapping box. The following table details the information contained in a processing report.

Information in the processing reports

Element	Element	Field type
ProcessReport	Root node of the processing report.	
DocumentType	Name of the produced or consumed document-type.	Text
DocumentTypeID	Unique ID of the document.	Text
ErrorNumber	Number of errors occurring during the processing of a document.	Integer (32 bit)
Success	Normal processing (value: 1) or abnormal processing (value: 0) of a document. Abnormal processing means that the document was totally rejected.	Boolean
Pending	Document pending or not Corresponds to a document pending validation by an Asset Manager user	Boolean
Ignored	Document ignored (**PifIgnore- DocumentMapping** function)	Integer (32 bit)
WarningNumber	Number of warnings occurring during the processing of a document.	Integer (32 bit)
ParentDoc$	Parent document associated with the processing report when the processing report is in consumption mode and the filter on the consumed document type is enabled.	
Logs	Collection corresponding to messages issued when processing a document.	
Date	Date of the message.	Date and time
LogType	Type of message. The possible values are: 1 (Error), 2 (Warning), 4 (Information), 16 (Additional information)	Integer (32 bit)
Msg	Contents of the message.	Text
Path	Path in the document of the element concerned by the message.	Text

Filtering a Processing Report

The filter is available in the **Processing report production parameters** frame.

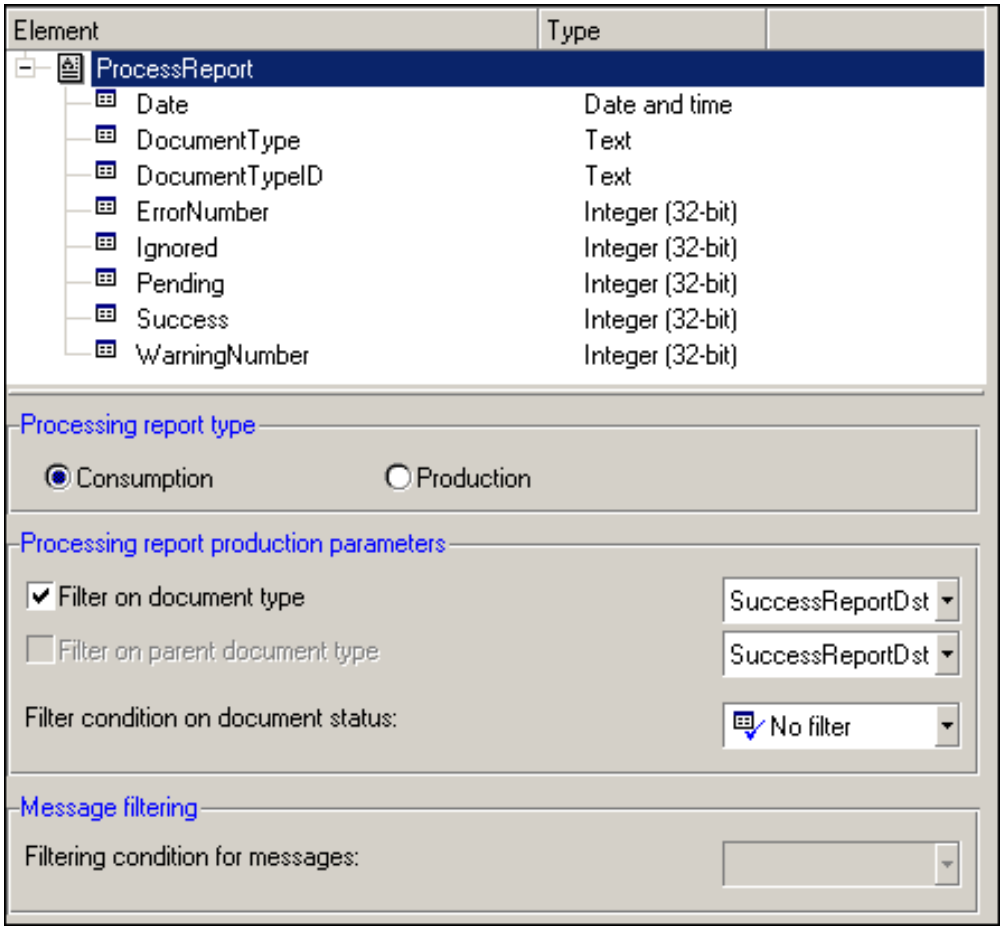


Figure 5-6: Processing report settings

To filter on a document type:

1. Select the **Filter on document type**.
2. In the drop-down list, select the document type consumed or produced on which you want to filter.
   In this case, the processing report will only be produced on consuming or producing the selected document type.
3. Select a filter condition on the document status, if necessary: **Warning**, **Field reject**, **Reject**.

The **Filter on parent document type** option is only enabled for production-type processing reports. This option is particularly useful for the connectors producing documents on consumption (SOAP, SAP BAPI). In this case, the filter does not concern the document type produced but the document type consumed that gave rise to the production of the document.

In addition to the filters applied to a document type, you can filter the messages that appear in the document log.

To filter the messages:

- Add the **Logs** collection to the produced processing report
- Select the collection
- In the **Message filtering** frame, select the filter from among those available (**Filtering condition for messages** field)

Syntax

When you want to use the information contained in a remote document as well as a connector for you mapping script, you have the choice of using two variables:

- `$ParentDoc$`: can be used to reference the consumed parent document.
- `$LinkedDoc$`: can be used to reference the document linked to the consumed processing report.

Processing Report Example

In several of the scenarios provided with Connect-It, the processing reports are used to condition an action (deleting, moving, etc.) on the files used by the source connector. To integrate the processing reports into your scenarios, we recommend that you study the provided scenarios that use them.

The following section details how the Hewlett-Packard Desktop Discovery connector uses processing reports in the `pdi\pdi8ac44\pdiac.scn` scenario. This scenario enables you to insert or update records in the Asset Manager database via `.xsf` files which are processed by the Hewlett-Packard Desktop Discovery connector.

In this scenario, a mapping box named **Feedback** enables you to send the processing reports produced by the mapping box Mapping to the:

- Hewlett-Packard Desktop Discovery connector
- Asset Manager connector

This **Feedback** mapping box contains two mappings:

- A mapping between the mapping box's process report, **ProcessReportFromMapping**, and the Hewlett-Packard Desktop Discovery source connector document type, **DirectoryPoolerAction**:

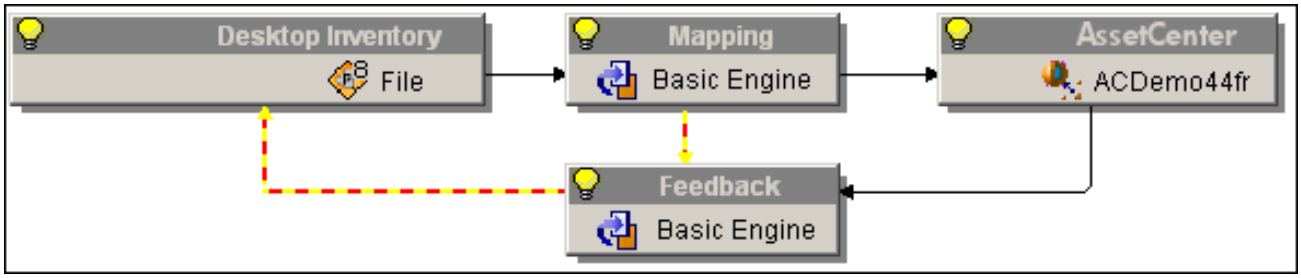


Figure 5-7: Processing report example: first mapping

- A mapping between the Asset Manager connector's processing report, **ProcessReportFromUpdate**, and the Hewlett-Packard Desktop Discovery source connector's **SuccessReportMapping** document type:

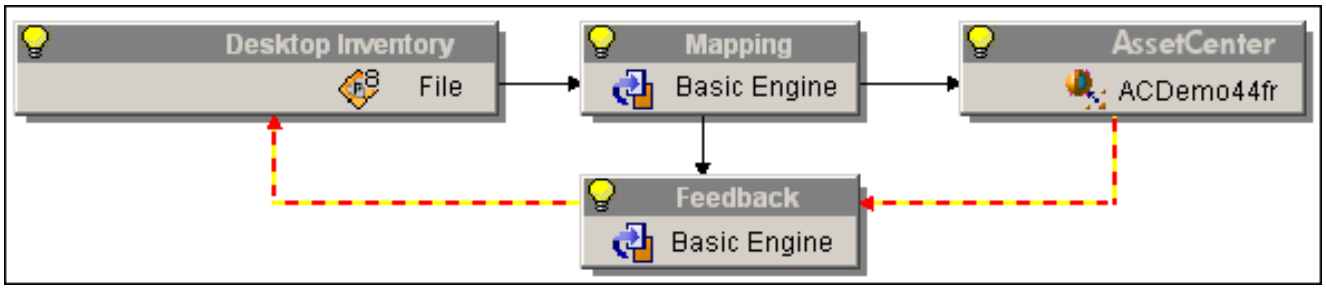


Figure 5-8: Processing report example: second mapping

The following table shows the details of the mapping between the ProcessReportFromMapping processing report produced by the Mapping mapping box and the SuccessReportMapping document type consumed by the Hewlett-Packard Desktop Discovery connector:

SuccessReportMapping	Processing report or script element
SuccessReportMapping (root node) The processing report is only produced if the document is rejected in part or in full by the mapping box. This behavior is defined at the level of the SuccessReportMapping produced document type for the Feedback mapping box.	
Path	`[$ParentDoc$.UrlFileInfo.Path]`
Enables you to obtain the UrlFileInfo.Path field from the Inventory document type produced by the Hewlett-Packard Desktop Discovery connector. This field corresponds to the name of an .xsf file processed by the connector.	

Success	`if [ErrorNumber] = 0 then`
	`RetVal = [Success]`
	`else`
	`RetVal = 0`
	`end if`

Boolean field: • The value '0' indicates that the document has been rejected in part or in whole by the mapping box. • The value '1' indicates that the document has been normally processed by the mapping box.	

The following table shows the details of the mapping between the processing report produced by the ProcessReportFromUpdate Asset Manager connector and the SuccessReportMapping document type consumed by the Hewlett-Packard Desktop Discovery connector

SuccessReportUpdate	Processing report or script element

SuccessReportMapping (root node)	`if [Pending] = 1 then`
	`PifIgnoreDocumentMapping`
	`end if`

Path	`[$ParentDoc$.$ParentDoc$.UrlFileInfo.Path]`
Enables you to obtain the FileInfo.FileName field from the Inventory document type produced by the	

SuccessReportUpdate	Processing report or script element
Hewlett-Packard Desktop Discovery connector. This field corresponds to the name of an .xsf file processed by the connector.	

Success	`if [ErrorNumber] = 0 then`
	`RetVal = [Success]`
	`else`
	`RetVal = 0`
	`end if`

Boolean field: • The value '0' indicates that the document has been rejected in part or in whole by the Asset Manager connector. • The value '1' indicates that the document has been normally processed by the Asset Manager connector.	

Note: *Use of the `$ParentDoc$` variable*

- *The `[$ParentDoc$. field]` notation enables you to obtain the value of this field in the parent document of a processed document.*
- *The [$ParentDoc$.$ParentDoc$. field] notation enables you to obtain the value of this field in the parent document of a parent document of a processed document.*

Effect of the processing reports on the .xsf files processed by the Hewlett-Packard Desktop Discovery connector

Each processing report allows the Hewlett-Packard Desktop Discovery connector to perform a particular action on an `.xsf` file corresponding to the document concerned by the report. The **FileInfo.FileName** field of each processed document enables you to identify the corresponding `.xsf` file. This particular action is selected during configuration of the Hewlett-Packard Desktop Discovery connector.

For example: the following options are available to manage your `.xsf` files:

- In the case where the document was successfully processed, the `.xsf` file that corresponds to it is deleted from its folder of origin.
- In the case where the processing of the document failed, the `.xsf` file that corresponds to it is moved to a `Failure` folder.

Once the documents have been processed by the scenario, you can open the Failure folder to obtain the .xsf files. These files contain the data that could not be correctly transferred to your Asset Manager application. To spot problems arising from the total or partial rejection of a document, consult the Document log in the Scenario Builder. `.xsf`files whose corresponding documents are successfully processed by the Asset Manager connector (**Success** field with the value "1") are deleted by Hewlett-Packard Desktop Discovery from their folder of origin.

Post-processing Actions

For certain connectors, there is a predefined policy for managing errors or successes. This error-management policy can be access in the connector configuration page called **Define post-**

processing actions and in the **Manage process reports** wizard.

Not all the connectors have this function available. In order for a source connector to use a processing report, it must publish a **SuccessReport** document type.

When a source connector uses a mapping between the **ProcessReport** and the **SuccessReport** document type, it can perform a particular action: it can transform the values it extracted from the files into documents.

A **Manage processing reports** wizard enables you to automatically create a mapping between a processing report and the **SuccessReport** document type of a source connector.

Processing report and post-processing actions

For a connector to be able to use a processing report, it must:

- Publish a **SuccessReport** document type. This document type is for mapping the elements contained in a processing report (**ProcessReport** document type).

  The following connectors have a **SuccessReport** document type:

  - XML connector
  - Delimited-text connector
  - SAP IDOC connector
  - E-mail (fetching) connector
  - Websphere MQ connector

- Have a **Define post-processing actions** page in its configuration wizard.
  This page enables you to set a document's post-processing actions after the connector consumes the **SuccessReport** document.

  For example, the **Define post-processing actions** page lets the connector to put all the documents rejected by the destination connector into the error folder.

Note: *The connectors not meeting this criteria can use processing reports, but they can use the* ***Manage processing reports*** *wizard.*

Contents of the SuccessReport Document Type

The contents of the **SuccessReport** document type vary depending on the connector. The following tables detail the contents of these document types.

Connectors	Element	Information	Field type
XML connector	SuccessReport	Root node of the processing report.	
Delimited-text connector	Success	Status of the file processing (success or failure).	Boolean
PDI connector	UrlFileInfo	Structure containing information about the processed document.	

Connectors	Element	Information	Field type
SAP IDOC connector	Path	Path of the file.	Text
E-mail (fetching) connector	SuccessReport	Root node of the processing report.	
	MailInfo	Structure containing information on the processed message.	
	UniqueID	ID of the message.	Text
Websphere MQ connector	SuccessReport	Root node of the processing report.	
	Success	Status of the file processing (success or failure).	Boolean
	MessageInfo	Structure containing information on the processed message.	
	MsgID	ID of the message.	Integer
	PutDate	Date and time the message was processed.	Date

Using the Define Post-processing Actions Page

The processing report lets a connector producing documents from files perform actions after the successful or unsuccessful processing of these files:

- Leave the files in their original folder.
- Delete the files from their original folder.
- Move the files to another folder.

To display the Define post-processing actions page:

1. Select one of the connectors having this page; for example, the Delimited text connector.
2. Select the **Tools > Configure** menu (`F2`) to launch the configuration wizard.
3. Click **Next** in the wizard until you get the **Define post-processing** actions page.
   The following screen capture shows the **Define post-processing actions** page for the XML

connector.

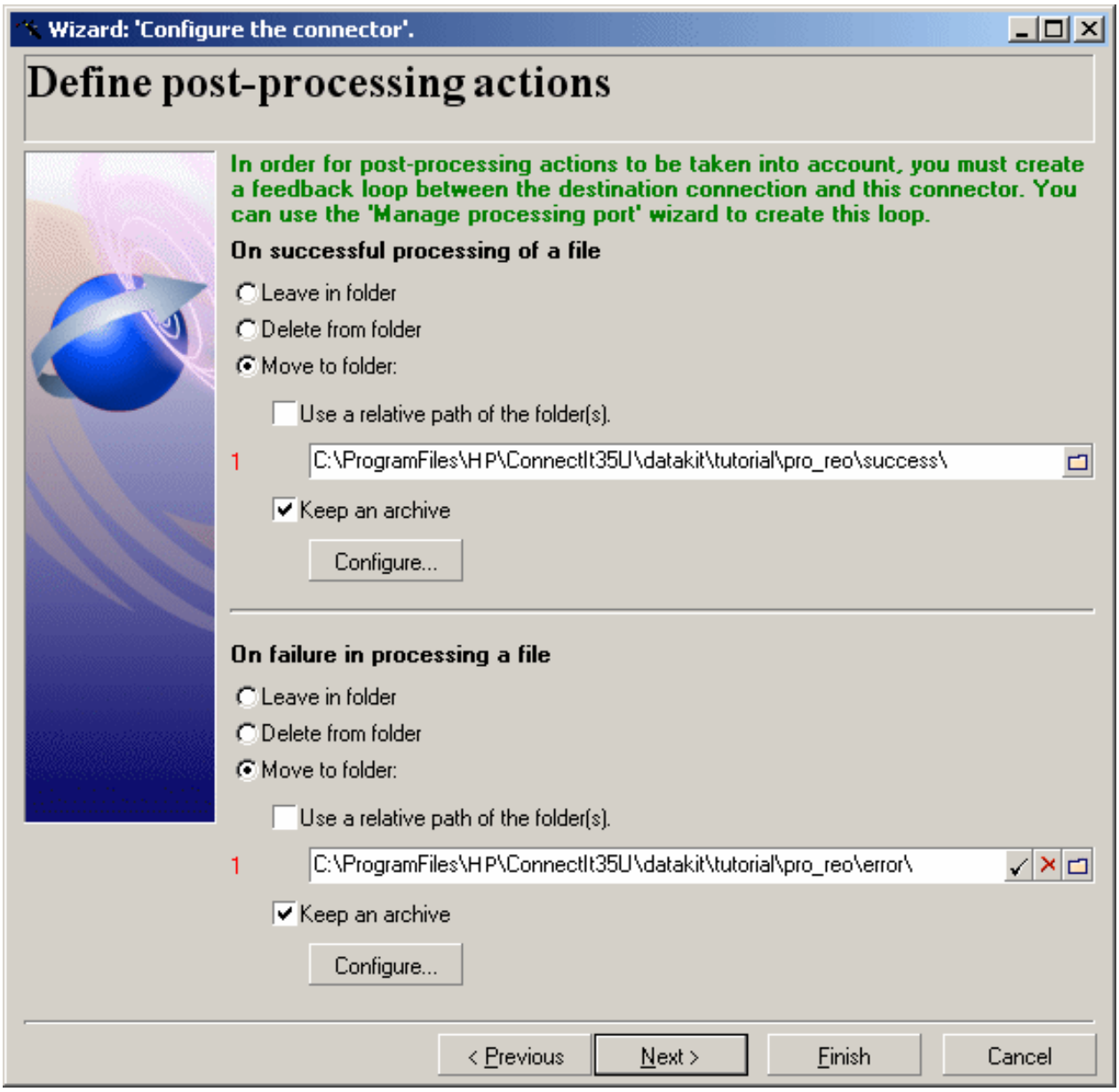


Figure 5-9: Post-processing actions

Principle for handling processing reports

Post-processing actions are all applied when closing the session for the connector. Processing is performed as follows:

1. During the session, information from the **SuccessReport** document consumed by the connector is stored and updated progressively.
2. When the session closes, the post-processing actions are applied for all resources (files, e-mails, messages, etc.) for which at least one **SuccessReport** document was received.

Any incomplete **SuccessReport** document that is produced generates an error when it is consumed. In verbose mode, actions performed on resources are recorded in the log file. Note that by default the Scenario Builder is enabled in verbose mode and that conitsvc (Connect-It application in non-graphic mode) is in non-verbose mode by default.

Using the Wizard to Manage Processing Reports

The **Manage processing reports** wizard enables you to create (for a document type produced by the source connector):

- A feedback loop between a destination connector consuming this document type and the source connector.
  This feedback loop maps the information from the processing report produced by the destination connector and the SuccessReport document type of the source connector.
- A possible feedback loop between a mapping box and the source connector.

Using the Manage process reports wizard:

1. Start the Scenario Builder.
2. Open a scenario in which the source connector publishes a **SuccessReport** document type.
3. Select the source connector producing the document type for which you want to create a feedback loop.
4. Select the **Tools > Wizard > Manage processing reports** menu.
5. On the **Select a source document type** page, indicate the document type for which you want to create a feedback loop.
6. On the **Select a destination connector** page, indicate the destination connector for which you want to recover the processing report of the source document-type selected on the previous page.
7. You can also select **Force the production of a processing report from a mapping box linked to the source connector**.
8. Click **Finish**.

Testing a Produced Document Type

In a scenario where a connector produces more than one document type, it is necessary to test each one of these produced document-types before going into production mode.

To test a document type produced by a source connector:

1. Open the source connector.
2. Select the **Document types** tab.
3. Clear all document types produced by the connector except the one that you want to test.
   If you want to test several document types, do not clear them before going onto the next step.
4. Launch the production of the document type by clicking or selecting **Produce** in the **Tools** menu.
5. Consult the Document log to see if any problems were encountered while processing the documents produced by your source connector.

Note: *For the Scenario Builder options (**Edit > Options**), the Number of documents to produce in a test production of documents option sets the number of documents to produce during a test. This option is automatically taken into account when you test a produced document-type. On the other hand, when the scenario is executed as a Windows service, this option is automatically deactivated.*

Debug Mapping Scripts

It is sometimes difficult to locate a syntax error in Basic script (mapping/concerned element).We thus recommend that you test scripts one by one after you write them, rather than write them all and test them all at the end.

Using the Cache Files

The cache files used by the connectors contain the description of the document types that they publish.

For example, when you open a database connector, it automatically obtains the description of all the database tables indicated in its configuration. By using a cache file, the connector no longer needs to obtain these descriptions; it uses the descriptions recorded in the cache file that was created when the connector was last opened.

This function is very useful in the testing and debugging phase of a scenario in which you will open and close the connectors numerous times. The following connectors can use cache files:

- Action Request System connector
- Asset Manager connector
- ServiceCenter connector
- LDAP connector
- Database connector
- Lotus Notes connector
- All inventory connectors

In order for a connector to use a cache file instead of connecting to its external application:

1. Select the **Use cache file** option on the **Configure cache** page of the of the **Configure the connector** wizard.
2. Open your connector for the first time so that its cache file contains the description of the document types that it publishes.
   Note: *When you first open the connector, the icon designating the use of the cache does not appear on the connector illustration.*
3. Close, then re-open the connector.
   This time, when you open your connector, it will no longer connect to its external application, but instead it will use the cache file to publish its document types.

Note: *Each time you open a connector that uses its cache file, an icon symbolizing a database will replace the icon of the yellow light bulb.*

Figure 5-10: Connector - Icon indicating the use of a cache file

Deleting the contents of the cache files

To delete the contents of the cache files:

1. Open the connector.
2. Select **Delete the caches** in the **Scenario** menu. You can delete the contents of a single cache file by selecting **Cache > Delete** the cache in the **Tools** menu. The next time you open your connectors, they will connect to their external applications to synchronize the contents of their cache files with the contents of the external applications.

Caution: *You can only synchronize the cache files if the value of the* ***Work offline*** *option is set to* ***No*** *(in the options screen of the Scenario Builder).*

Synchronizing the contents of the cache files with the contents of the external applications

To synchronize the contents of the cache files with the contents of the external applications:

1. Open your scenario's connectors.
2. Select **Synchronize the caches** in the Scenario menu. You can synchronize the contents of a single cache file by selecting **Cache > Synchronize** the cache in the **Tools** menu.
3. Wait for Connect-It to obtain the description of the document types published by the connector. Once the synchronization phase is complete, the document types published by the connector correspond to the contents of the external application.

Caution: *You can only synchronize the cache files if the value of the* ***Work offline*** *option is set to* ***No*** *(in the options screen of the Scenario Builder).*

Working Offline

Working offline enables you to work without needing the scenario connectors to be connected to their external applications.

To work offline, click the online/offline icon after having opened your connectors for the first time. A dialog box informs you that the mode has changed. The off-line mode automatically creates a cache file for the scenario connectors.

When you close and reopen your connectors while the 'work offline' mode is still activated, the connectors will use the contents of their cache files to publish document types.

Note: *Each time you open a connector when working offline, and the connector cache is enabled, an icon representing a database will appear to the side of the switched-off light bulb icon.*

Figure 5-11: Connector icon indicating an offline session

Important: *In an offline session, data cannot be recovered from the source. The source-data previewing function is thus not available in the edit window of produced document types. You cannot use this mode to define a mapping.*

Enabling Test Mode

- If the destination connector supports transactions, then the data will be inserted in test mode. However, a rollback will be performed on this transaction (a return to the initial state before data insertion). This is so you can test document consumption without having to modify the data in the destination application.
- If the destination connector does not support transactions, then the data will not be sent to the destination application. This enables you to test the production and the mapping, but not the consumption.

Note: *A dialog box shows that the test mode is enabled.*

Managing the Tracking of a Scenario Using the Service Console

To manage the tracking of a scenario, use the console to:

- Modify the configuration of your connectors
- Editing your scenario's schedulers
- Consult the Connect-It logs
- Consult a LOG file associated with your documents

Modifying the configuration of your connectors

To modify the configuration of your connectors in a scenario for which you have created a service:

1. Select the service corresponding to your scenario.
2. Click **Configure**.
3. In the list, double click the connector to be configured.
4. Populate the different pages of the **Configure the connector** wizard for each connector, then validate your configuration (**Validate** button).
   After you have finished configuring the last connector, the Scenario Builder automatically closes.

Edit schedulers

To edit the schedulers in a scenario for which you have created a service:

1. Select the service corresponding to your scenario.
2. Click **Scheduling**.
3. Wait for Connect-It to launch and for the **Edit scheduling** window to appear.
4. Click **Edit schedulers** to configure the scenario schedulers.
   Click **Edit scheduling** to define the scheduling associated with each connector.

Consulting the Connect-It logs

You can consult two logs in the Scenario Builder:

- **Connect-It log:** This log describes all actions occurring in Connect-It at the startup of a scenario. For example: the de-serializing of the scenario, the connection of the connectors to their external applications, etc.
- **Document log:** This log enables you to view the detail of documents produced and consumed by the tools in your scenario. It also enables you to identify the root of certain problems that can occur during document processing.

To display the tabs corresponding to these logs in the Scenario Builder:

1. Select the service corresponding to your scenario.
2. Click **Monitors**.

The Scenario Builder is launched with the diagram of your scenario and Manage saved sessions window is displayed. You may not modify the list of sessions, which is read-only.

Consulting the log file

Every time a Connect-It service is launched, a LOG file is available. By default, this file is named after your service (For example: `test.log`).

To consult the log file:

1. Select the service corresponding to your scenario.
2. Click **Log file**.

You may specify another name for the log file of your service (**Log file** field). The information concerning the configuration of the service are saved in the `cit.svc` file (**SvcLogFile** settings).

Optimizing your Scenario's Performances

The Connect-It logs, which you can consult in the graphical interface of the Scenario Builder or in the log files, provide statistics about:

- The time it takes the source connectors to produce documents.
- The time it takes the mapping boxes to transform documents.
- The time it takes the destination connectors to consume documents.
- The number of rejected documents.

For example, the statistics for the Asset Manager connector inform you that the documents corresponding to the records in the Products table were not processed.

To obtain statistics on how a tool processes data:

1. Open a scenario.
2. Configure the monitors (**Monitors > Configure monitors** menu).
3. Open the scenario connectors (**Ctrl + F4**).
4. Select the scenario's source connector.

5. Click (**F5**).
6. Position your pointer on a source connector, a destination connector or a mapping box.
   A contextual window appears containing a **Statistics** section.

Note: *This data is also available in the Connect-It log tab, which is located under the scenario diagram.*

Analyzing the Statistics

The following data, displayed in the Connect-It log, represents the statistics of a scenario using an Action Request System connector as its source, an LDAP connector as its destination, and a mapping box:

```
Statistics for the 'Action Request System (fdcitsrv01)' connector
(session: 26min 57.310s / API: 26min 04.550s)
Document(s) consumed: 7143
Document(s) rejected: 1
Records(s) inserted: 1199
Records(s) updated: 5943
Statistics for the 'LDAP (mail-sd.Hewlett-Packard.com)' connector
(session
: 47.628s / API: 35.765s)
Document(s) produced: 7143
Statistics for the 'Mapping (Basic engine)' connector (Session:
01.404s)
Script(s) analyzed: 14286
Document(s) consumed: 7143
Document(s) produced: 7143
```

The following is an analysis of the produced statistics:

- Document-processing time of the Action Request System connector = 27 minutes, or 4.4 documents per second.
  The processing time breaks down into 26 minutes for the APIs concerned by Action Request System and 1 minute for processing in Connect-It.
  APIs include the network response time, the execution of 'commits', respecting the database integrity rules, etc.
- Document-processing time of the LDAP connector = 48 seconds, or 150 documents per second.
  The processing time breaks down into 36 seconds for the LDAP API and 12 seconds for processing in Connect-It.
- Document-processing time of the mapping box = 2 seconds, or 5100 documents per second.
  This duration corresponds to the document-processing time in Connect-It.

Examples of document-processing speeds

Here are a few examples of different document-processing speeds:

- Database connector
  1500 to 2000 documents/second.
- ServiceCenter connector
  450 documents/second

- Asset Manager connector
  400 documents/second

Improving the Production of Documents

Improving a connector's document production involves obtaining the data from a source application as rapidly as possible. This section explains the different ways you can reduce the time it takes to produce documents.

Optimizing the server of the source data

The production of documents depends largely on the use of the source data's server, as well as its connection.
Connect-It does not use large amounts of resources for production. It does not perform many conversions or data processing during production.

To improve the results, verify:

- The amount of time the server takes to load the source data.
  This amount of time varies depending on the server's technical capacities: processor, available memory, etc.
- The network connection (WAN, LAN).

Checking Queries Executed by the Connector

To check queries executed by the connector:

1. Launch the Scenario Builder.
2. Select the **Edit > Options** menu.
3. Unfold the **Connector** node.
4. Set the option **Show queries in tracking lines** to **Yes**.
5. Click **OK**.

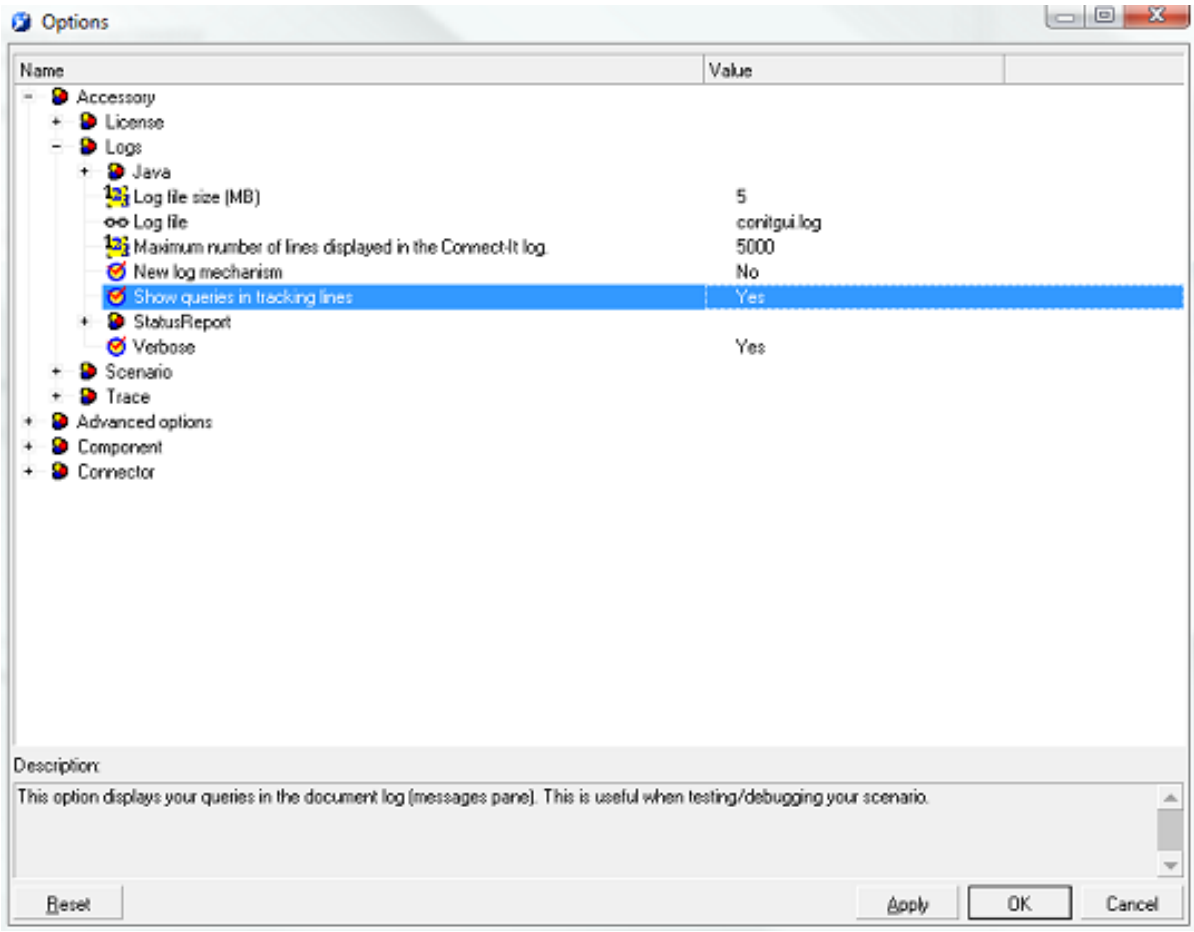


Figure 5-12: Show queries in tracking lines option

After you configure this option, the Document log will display messages corresponding to the queries executed by your scenario's source connectors.

For example:

```
SELECT
AcctCode,AssetTag,BarCode,dDispos,DisposProfit,dtListPriceCv,Field2,FullName
 FROM amAsset
```

This information enables you to:

- Verify that the request is generated by conforming to the defined document type and the entered production directives.
- Relaunch the query using another tool and observe the time it takes to execute it.

Calculating the Number of Documents to Produce

To calculate the number of documents to produce:

1. Launch the Scenario Builder.
2. Select the **Edit > Options** menu.
3. Unfold the **Connector** node.

4. Set the option **Calculate number of documents to be processed** to **Yes**.
5. Click **OK**.
   This option enables you to display a progress bar in the Scenario Builder. This bar will indicate the number of documents processed by the source connector.

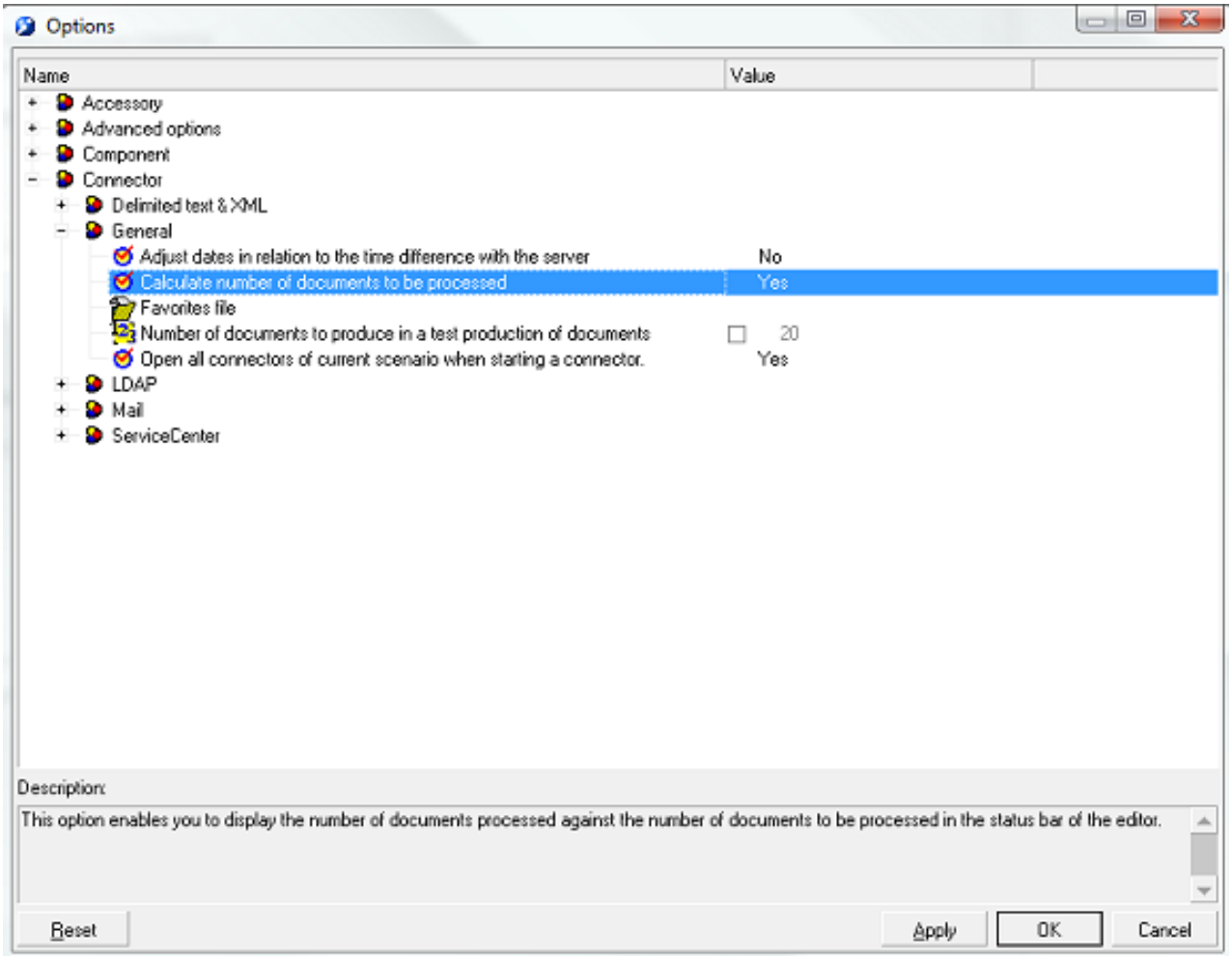


Figure 5-13: Calculate number of documents to be processed option

To an Asset Manager connector, this option triggers a **SELECT COUNT** type query. For example:
`SELECT COUNT(AcctCode) FROM amAsset`

Caution: *You must unselect this option when you put your scenario into production phase, because this query takes a lot of time.*

Using the Connector Cache Option

For Database-type connectors, we recommend that you use a cache for the structure of the published document types (metadata). The cache allows Database-type connectors to open more quickly since the published document-type description (metadata) is loaded locally.

If a connector does not use a cache, it then must obtain a data set corresponding to the source database description every time it opens. For Database-type connectors, this description data includes the:

- List of tables.
- List of fields.
- List of forms.
- List of indexes.
- List of links.
- List of joins.

The more of this data there is, the longer the connector will take to open.

Note: *The time a connector takes to open is also slowed down when the available bandwidth is weak. This is linked to the performance of the network connection (WAN, LAN).*

We recommend using a cache when you put a scenario into production. However, if the description data of the source database changes, you must synchronize your connector's change.

To synchronize a connector's cache:

1. Open the Scenario Builder.
2. Open your scenario.
3. Select the connector whose cache you want to synchronize.
4. Open the connector (`F4`).
5. Select the **Tools > Cache > Synchronize** the cache menu.

After synchronizing the cache, make sure that your mappings do not contain items that no longer exist in the new source database description.

Automatic Reconnection

If you plan on using the connectors whose data source is a remote sever, you must select the automatic server connection option. Automatic reconnection options have an impact on the network's latency: data-packet transmission. For more information about the automatic reconnection option, refer to the Connectors guide.

The reconnection information is displayed in the Connect-It log. An example of the Action Request System connector's attempt to reconnect is as follows:

```
Connecting to the server...
Using the dynamic library 'arapi50.dll'.
(ARS ERROR 90) Cannot establish a network connection with the AR
System server. fcitsrv01: RPC: Name to address translation failed - No
suchhostname
The next attempt to reconnect is in 4 s

Attempting to reconnect...
Using the dynamic library 'arapi50.dll'.
(ARS ERROR 90) Cannot establish a network connection with the AR
System server. fcitsrv01 : RPC: Name to address translation failed -
No such hostname
The next attempt to reconnect is in 8 s
```

```
Attempting to reconnect...
Using the dynamic library 'arapi50.dll'.
(ARS ERROR 90) Cannot establish a network connection with the AR
System server. fcitsrv01 : RPC: Name to address translation failed -
No such hostname
The next attempt to reconnect is in 16 s
```

This can take a long time if you have an unstable connection to the network. You must pay special attention to certain connection configurations such as **Router > Firewall > Server**, which close all connections open longer than a given duration. These parameters should be verified by someone in charge of your local network.

Closing the Connection

This configuration option enables you to close the connection at the end of each scenario session and to reconnect only when you open a new session.

In effect, the less resources the Connect-It server uses, the more rapid the reconnection operations to the server will be.
This option must be unselected if the scenario is executed frequently (example: every five minutes).

Optimizing the Use of the WHERE Clause

The Database-type connectors have production directives that enable you to enter WHERE clauses.

To optimize the use of your WHERE clauses, verify that the fields concerning these clauses are indexed. If a WHERE clause concerns a non-indexed field, then executing this clause will verify all the fields in this table.

Managing Scheduler Pointers

You can use pointers to reduce the quantity of data processed by a scenario. A pointer corresponding to a record's last-modification date enables a connector to only process the records created or modified since the last time the connector was launched.

For example: A source connector only processes the records from an Employees table corresponding to the newly hired employees.

In most cases, the status of a pointer refers to a specific date and time, which you can modify in a scenario's scheduling window (**Scenario > Scheduling** menu).

If the scenario's pointer uses a non-indexed field, it will take a long time to process data. In order to avoid this inconvenience, we recommend indexing the field as your pointer.

Improving the Consumption of Documents

Improving a connector's document consumption involves processing the data to be sent to a destination application as rapidly as possible. This section explains the different ways you can reduce the time it takes to consume documents.

Synchronous processing vs. asynchronous processing - ServiceCenter connector

Each document consumed by a ServiceCenter connector corresponds to a query sent to a destination application.

To improve the time it takes to consume documents, you can choose from:

- Synchronous data processing.
  Each consumed document is sent once the previous document has been processed by the destination application.
- Asynchronous data processing.
  Each consumed document is sent even if the previous document has not been consumed by the destination application.

Choosing Reconciliation Keys

Reconciliation involves matching old and new data. In the case of a Database-type connector (Asset Manager), reconciliation involves defining the fields that enable you to uniquely identify the records in the tables that the connectors create or update.

The field you use as a reconciliation key will greatly influence the consumption of documents by a destination connector.

Consuming documents involves the following two actions:

- Sending a query that uses the fields selected as reconciliation keys to learn if the record exists in the destination application.
- Inserting or updating the record.
  If the fields selected as reconciliation keys are not indexed, it will take longer to consume documents. Example: If the **memo** or **FeatParam** fields are selected as reconciliation keys for the Asset Manager connector, document consumption will be highly inefficient.

Managing the Transaction

By default, the database-type connectors perform a 'commit' each time they consume a document. If the bandwidth you have is not very large, you can perform a 'commit' by group of documents.

To set the number of documents to consume before committing them:

1. Open the Scenario Builder.
2. Open your scenario.
3. Select the connector for which you want to modify the transaction parameters.
4. Launch the connector configuration wizard **(F2)**.
   Verify that you are in the advanced configuration mode (the icon is selected in the toolbar).
5. Click **Next** several times until you come to the Manage transactions page.
6. Select the **Commit by group of documents** option.
7. Indicate how many documents should be consumed before a 'commit' is triggered.

When a large number of documents is consumed, we recommend that you launch the 'commit by group' function and enter the number of documents you are about to have consumed.

Examples of improving performances of the scenario `ldap\ac\complete.scn`:

1. Commit after each document (default option)
   Performance: Four minutes for 6,000 documents, or 25 documents per second.

2. Commit by group of 500 documents
   Performance: Three minutes for 6,000 documents, or 33 documents per second.

Improving Document Processing Times of the Connect-It Engine

This section explains what you can do to reduce the time it takes for the Connect-It engine to process documents.

Configuring the Document Log

Configuring Connect-It's Document log enables you to indicate:

- The error type that you want to obtain in the Document log (Filter field).
- The maximum number of tracking lines that Connect-It saves in memory.
- A text file in which the messages from the Document log will be saved.

To improve the time it takes to process documents:

1. Launch the Scenario Builder.
2. Select **Monitors > Configure monitors > General settings** and disable in order of priority:
   - Database
   - Files
3. Limit the error type that you want to save in the Document log by selecting a sub-options for the **Save documents** option.
4. Limit the number of tracking lines to be saved (**Document log** tab).

Using the Non-graphical Interface

If the Scenario Builder is displayed while the scenario is running, the Connect-It engine will react more slowly each time you choose a command: refresh, consult the document log, enter a new option, etc.

Setting Scheduling

Setting the Connect-It scheduling function involves associating one or more schedulers to document types produced by a scenario. Example: A scheduler 'wakes up' the Asset Manager connector every hour. Each time it wakes up, the connector produces documents corresponding to records in the Asset Manager application it consults.

Each time the connector wakes up, Connect-It calculates how much data needs to be processed and does not stop until all the data has been processed. You must set your schedulers depending on how much data there is to process.

When migrating large database, we recommend that you program your scheduler to wake up the connector during periods of little or no activity (at night, for example). For integration scenarios that will process less data, we recommend using the predefined **Synchronous** scheduler (which wakes up the connector every second).

Launching Parallel Scenarios

When one scenario must migrate large amounts of data, you sometimes need to divide it into several scenarios and launch each one on a different service (Windows) or daemon (Unix).

For example: you need a scenario to import the list of employees recorded in one database to another database.To improve the time it takes to migrate this data, you can create two scenarios:

- The first scenario migrates the list of employees whose name starts with a letter between A and J.
- The second scenario migrates the list of employees whose name starts with a letter between K and Z.

The selection of employees is done when you enter production directives (WHERE clause) for your two scenarios' source connectors.

Improving Performances of a Scenario Using the Asset Manager Connector

Indexing the `dtLastModif` field

In a scenario using the Asset Manager connector, you must add indexes to the **dtLastModif** field in all Asset Manager tables covered by the scenario. This field is also used systematically by Connect-It to verify the records created or modified since the last session.

To create an index on the Assets table (**amAsset**), Products table (**amProduct**) or Employees and Departments table (**amEmplDept**), execute the following command:

```
CREATE INDEX Ast_dtLastModif ON amAsset (dtLastModif)
GO
CREATE INDEX Prod_dtLastModif ON amProduct (dtLastModif)
GO
CREATE INDEX EmplDept_dtLastModif ON amEmplDept (dtLastModif)
GO
```

To verify that the **dtLastModif** fields were all indexed, you can use the **adblog** executable. This executable enables you to verify if the SQL queries that have a filter on the **dtLastModif** field, in the WHERE clause, was executed.

Settings for an Asset Manager database - Sybase ASE engine

If the LOG files indicate that certain queries are taking time because they have numerous tables in the FROM part, we recommend that you use the Sybase Query Optimizer application to reduce this processing time.

Modifying the `amdb.ini` file

To reduce the time it takes to process SQL queries, you must also modify the `amdb.ini` file in your Asset Manager application by adding the following line:

```
PostConnectSql= set forceplan on
```

The following lines show the configuration of the `amdb.ini` file for a database called **DB ASE COPPER**:

```
[DB ASE COPPER]
PostConnectSql=set forceplan on
stmtcache=500
LongDesc=
Engine=Sybase
Location=COPPER
```

```
EngineLogin=itam
Engine-
Password=78C6143D43925F46F924205FBB42F0FED21594428DDCAC641ED76CDAA17
050EA1A124254200200
ReadOnly=0
CacheDir=
CacheSize=5120000
Base=EDS
Owner=
TableSpace=
TableSpaceIndex=
AmApiDll=aamapi35.dll
UseNTSecurity=0
```

These parameters must be configured in the `amdb.ini` file on the Asset Management database server.

If the client part of your Asset Manager application is installed on your Connect-It server, you can establish two different connections linked to the same Sybase database:

- The first connection uses the **PostConnectSql=set forceplan** on and **stmtcache=500** options.
```
[DB ASE ConnectIt]
PostConnectSql=set forceplan on
stmtcache=500
LongDesc=
Engine=Sybase
Location=COPPER
EngineLogin=itam
Engine-
Password=78C6143D43925F46F924205FBB42F0FED21594428DDCAC641ED76CDA
A17050EA1A124254200200
ReadOnly=0
CacheDir=
CacheSize=5120000
Base=EDS
Owner=
TableSpace=
TableSpaceIndex=
AmApiDll=aamapi35.dll
UseNTSecurity=0
```
- The second connection does not use either of these parameters.
```
[DB ASE COPPER ACGUI]
LongDesc=
Engine=Sybase
Location=COPPER
EngineLogin=itam
Engine-
Password=78C6143D43925F46F924205FBB42F0FED21594428DDCAC641ED76CDA
A17050EA1A124254200200
ReadOnly=0
CacheDir=
CacheSize=5120000
```

```
Base=EDS
Owner=
TableSpace=
TableSpaceIndex=
AmApiDll=aamapi35.dll
UseNTSecurity=0
```

For the classic Asset Manager clients (other than the Sybase ASE clients), the **stmtcache=500 option** must not be used.

If you encounter performance problems on the classic Asset Manager clients, try one of the following options:

- PostConnectSql=set forceplan on
- PostConnectSql=set table count 3
- PostConnectSql=set table count 2

Improving Performances of a Scenario Using a Database Type Connector

For the Database type connectors using a native Sybase connection, you can improve the execution of SQL queries by entering the `PostConnectSql=set forceplan on` option in the advanced options.

Chapter 6

Database Administration

The information related to the processing of your data may be saved in a database. Data is backed up according to the parameters that are defined for the monitors. This database must first be created in the form of an empty shell.

Supported DBMSs

- Microsoft SQL Server
- Oracle Workgroup Server
- Sybase Adaptive Server
- IBM DB2 UDB

Steps in configuring the Connect-It database. Adhere to the following steps in order to save your information in a database:

1. Create an empty shell for your database.
2. Declare a connection to this database.
3. Create the Connect-It database.
4. Add the users.

Note: *A demonstration database for Connect-It is available in the* `dbb` *folder of the Connect-It installation folder. The administrator is declared without a password.*
Databases greater than or equal to version 3.5 are compatible with each other.

Creating an Empty Shell

This step depends on the database engine used. Refer to the documentation of your DBMS.

Declaring a Connection

To declare a connection:

1. Declare the connection at the database manager level.
2. Use the database administration console (**Administration > Administer the monitors database**).
3. Populate the **Connection** field with an existing connection from the list.
   If no connection has been declared, you can create one.

Note: *If no connection has been declared, you can create a new one by clicking .*

Creating a Connection

To create a connection:

1. In the **Connection** field, click the create connection icon .
2. In the connections editor, click **New**.
3. Populate the fields required to declare the connection.
4. Click **Create**.

Connection declared at the level of the .ini file or ODBC

When creating a new connection, the information contained in the fields of the **Connection** tab (**Name**, **Description**, **Engine**) are saved in the `citdb.ini` file. This file describes the connections used by Connect-It.

The physical database connection is declared in the **Data source** (or Server), **Database**, **User** and **Owner** fields. If the data source is not in the list of available connections, you can declare a new connection (button).

Note: *When you edit the connection, the password field is emptied. When editing the connection, you must know the password of the ODBC connection.*

System connection

This option enables you to define the behavior of the connection:

- Option selected: The connection is created in the `citdb.ini` file of the Windows folder
- Option not selected: The connection is created in the `citdb.ini` file of the user preferences folder.
  In the case where this option is not selected, the behavior is the following:
  - If a user B uses a scenario used by user A, user A must declare the same connection again because they will not be able to read the user A's `citdb.ini` file because of the user rights
  - When executing a scenario in service mode, a service is declared by default in system mode.With this mode, the service can only read system connections.

    Note: *You may force a service to log on as a given user (Windows Services utility).*

Location of .ini files

All connections created in the database administration window are saved in the `citdb.ini` file. System connections are saved in the `citdb.ini` file of the Windows folder.

The user connection is saved in the `citdb.ini` file in the user preferences folder of Windows.

Note: *For a quick overview of where the `.ini` files are located, refer to the information available for the application (**Help > About** menu, **More** button).*

Creating a Database

Creating a Connect-It database means populating an empty shell with the tables that will hold the information related to the processing of your documents by the connectors.

To create a Connect-It database:

1. Use the database administration console (**Administration > Administer the monitors database**).
2. Click **Create database** and populate the following fields:
   - **Administrator password**: Enter the administrator password of the database..
     Note: *This field is mandatory.*
   - **Confirm administrator password**: Enter the password again
     The database is created, with the administrator as the first user.

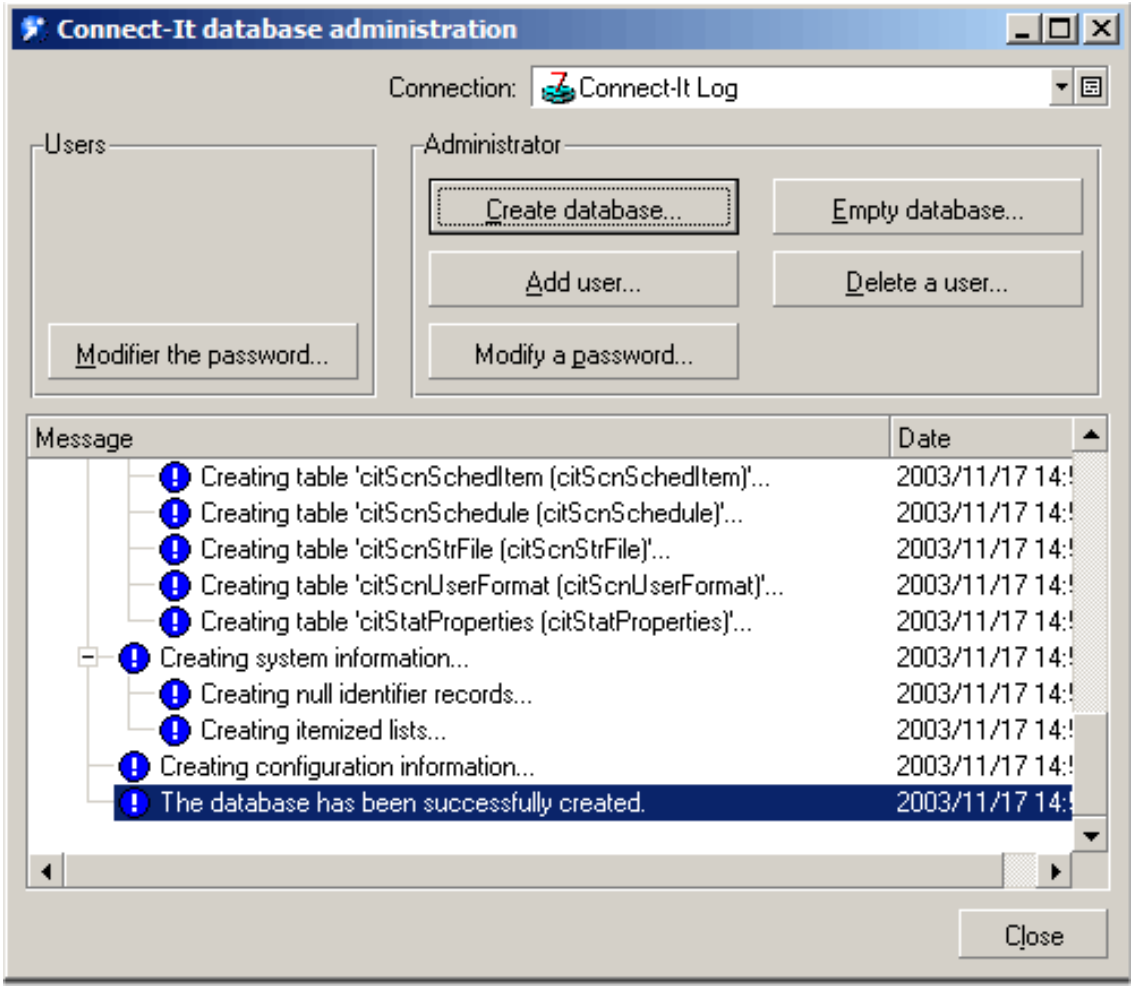


Figure 6-1: Database administration

Administering Users

All operations concerning the database users are performed via the **Administration > Administer the monitors database** menu item.

Adding a user

1. Click **Add user** and populate the following fields:
   - **Administrator password**:
     Enter the password you defined when creating the database.

- **User**:
  Name of the new user.
- **New password**:
  Password for the new user.
- **Confirm password**:
  Confirm the password.

2. Click **Add** to add this user and then click **Close**.
   Note: *The created users do not have administration rights for the database.*

Changing the password of a user

1. Click **Modify password**.
2. Select the user from the list (**User** field).
3. Enter the new password.
4. Confirm the password.
5. Click **Modify**.

Deleting a user

To delete a user:

1. Click **Delete a user**.
2. Enter your administrator password.
3. Select the user from the list (**User** field).
4. Click **Delete**.

Operations performed by a user

Once a user is declared in the database, they can modify their user password.

1. In the **Users** frame, click **Modify password**.
2. Populate the following fields:
   - **User**
   - **Previous password**
   - **New password**
   - **Confirm new password**
3. Click **OK**.

Operations on the Database

Apart from user-administration operations on the Connect-It database, you can also delete all the information in the database. This function may only be used by the database administrator.

To delete the data from the Connect-It database:

1. Click **Empty database**.
2. Enter your administrator password.
   The data is erased.

Chapter 7

Scenario Patches

A patch of a scenario is an xml fie that contains only changes made on a base scenario to get a new one.

Patch uses

Patches can be used to:

- Update a scenario: Add a brand new mapping between unmapped tables, add new connectors (to create a feedback process for example), and update node format datatype.
- Fix a scenario bug: Modify reconciliation keys of an existing mapping and fix scenario mapping scripts.
- Keep a snapshot of a scenario while continuing its development.

Known limitations

Patches are build on scenario diff tool. So some changes will be ignored. For example:

- Monitor changes.
- All scenario external files changes (mapping tables, string tables etc.).

How to use patches

- A scenario patch is composed a least of 2 files near the scenario file:
  `<Scenario Name>.pch` is the main file that contains information on the creation/modification date, a description of what the patch is doing, the associated file `<Scenario Name>.p*` is the file that contains the changes to apply.

To add a patch:

1. In the scenario editor, select the **Patch** tab.
2. Click **Add**.
3. This will create a `.pch` and a `.p*` file.

To save a patch:

In the file menu, select **Save patch**. This will generate the patch file between the current scenario status and the (n-1) active patch. All patches must be active before doing this. Inactive patches will be removed from the patch list.

You can also delete patches, but only the last patch can be deleted.

To add a comment to a patch:

1. In the scenario editor, select the **Patch** tab.
2. Select the patch you want to add a comment.

3. Select the **Comment** column.
4. Set the comment you want and validate the content.

To disable a patch:

1. In the scenario editor, select the **Patch** tab.
2. Select the patch you want to disable.
3. Clear the check box for the patch.
   The scenario will be automatically updated.

To remove a patch:

Note: *Only the last patch can be deleted.*

In the scenario editor, select the 'Patch' tab 2 Select the last patch 3 Then click on the 'Delete' button. This will remove the patch from the patch list and delete permanently the patch file (.p*)

To include all patches inside the base scenario:

Choose **Save** from the menu. This will save the scenario with all active patches. Inactive one will be removed from the patches list. You will not be able to modify the last patch any more.

Chapter 8

Plugins Overview

Plug-ins have been implemented to allow very quick update, hot fixes, new connector addition. So a plug-in can only be added since the result will be the same than a hot fix release or a minor release.

A plug-in is an archive (zip file format) that can contain many files. For example, you can have:

- Configuration files (dsc, bas, str, mpt, wiz etc..)
- Scenarios (scn, bas, str, mpt, etc..)
- Executables for new connectors or connector fixes etc..

A plug-in is identified by its name plus some properties like version, language, build number. The policy used to find out if a plug-in can be installed is:

- The version and the language must be the same than the Connect-It core engine.
- The build number of the plug-in must be greater than the Connect-It core engine build number.
- Each file that compose the plug-in must have a build number greater than already existing files (from previous plug-ins installation).
- A file can be updated only if it is read only. This suppose that the customer has made no changes on these files.

Installing Plugins

For Windows

1. Go to **Tools > Edit plug-in** menu. The editor appears. The upper list show all installed plug-in. The lower part is used to display details of an already installed plug-in or the result of a plug-in analyze.
2. Click **New**.
3. Select the plug-in archive in file selector
4. Check the analyze result. If no comments appear, that means that the plug-in will be installed completely. If some plug-in component do not match the installation policy, you will see it near **Analyze**.
5. To cancel a plug-in installation, click **Cancel**.
6. To validate a plug-in installation, click **Validate**.

   The installation of all plug-ins will be effective when the plug-ins editor will be closed.

Other platforms

1. Check carefully all version of plug-ins you already have installed according to the plugin installation policy.
2. Uncompress the file with folder restoration in the Connect-It installation folder.

3. Restart Connect-It
4. Check Connect-It log in order to detect plug-ins issues.

Chapter 9

Collecting Troubleshooting Information

To help us in our aim to constantly improve our products, we strongly encourage you to contact Hewlett-Packard technical support whenever you have a problem using one of our products. In order to identify and solve these problems in the least amount of time, we will need to collect a certain amount of information that will allow us to reproduce and then solve the problem.

General Information

Functional information

This information enables us to categorize the problem:

- The name of your company.
- The name of the product causing you trouble.
- The functional domain of the problem. For example, the Scenario Builder in Connect-It, or the Procurement management feature in Asset Manager, etc.
- The frequency in which the problem occurs: The problem could occur systematically; it could depend on certain things; it only deals with a certain kind of data, etc.

Technical information

Some essential technical information is directly accessible in our products.

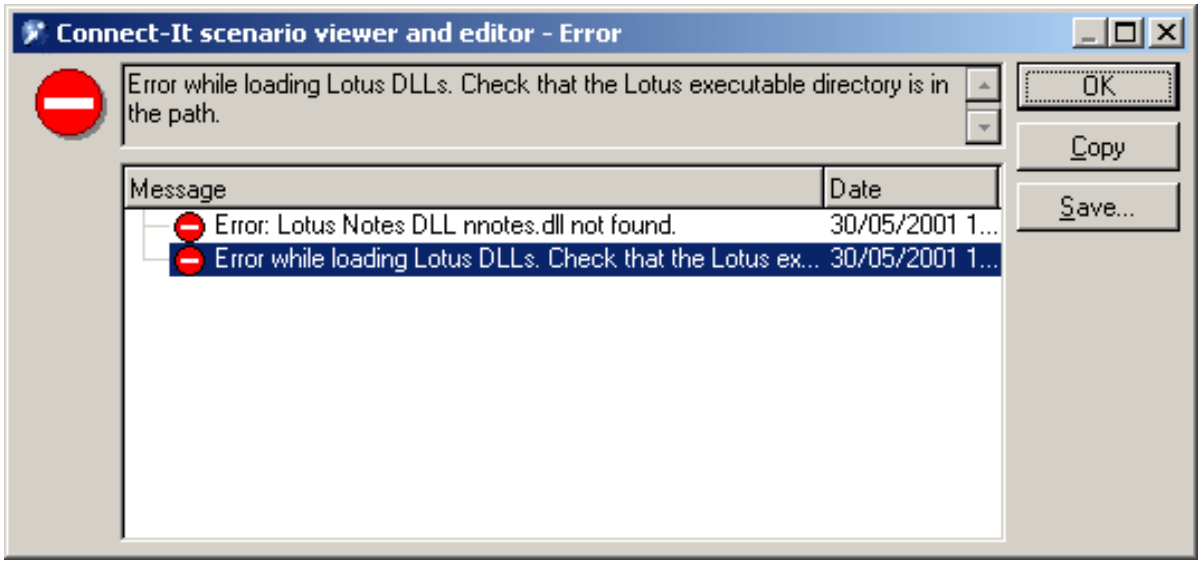


Figure 9-1: Example error message

To find this information:

1. Select the **Help > About** menu in the software.
2. In the dialog box that appears, click **More**. A list of technical information about your system and the product will appear.
3. Click **Copy**. The information will be copied to the Window clipboard.
4. Paste this information in a new file and send it to Hewlett-Packard technical support.
5. If the problem that you are reporting also has an error message that occurs in the software, perform the following steps:
   a. When the error message appears (see the example below), click **Copy**. The information relating to the problem will be copied to the Windows clipboard.
   b. Paste this information in a new file and send it to Hewlett-Packard technical support.

Specific Problem Information

The first thing we need is a contextual list of steps that enable us to reproduce the problem. Since the problem could depend on any number of factors, please be as precise as possible in your description. For example:

1. Select the Hewlett-Packard Prosigma 850 in the Assets table in Asset Manager. This asset is part of the demonstration database provided with the product.
2. Click on the **Acquis** tab of this asset's detail.
3. Click on the **Procurement** sub-tab of the **Acquis** tab.
4. Change the value of the **Purchase value** field to 123.45.
5. Click **Modify**.
6. Etc.

As a general rule, you should describe the problem as thoroughly as possible. If you wish, you can send any additional screen shots or files that might help us identify the problem.

Note: *Do not, however, send extremely large files via e-mail. Try to set a limit of about 500 KB for the attachments. If necessary, our support team can open an FTP access to read files going over 500 KB.*

Here are some tips to limit the size of your files:

- Try using a compression tool. In most cases, we notice a dramatic decrease in the size of files when these tools are used.
- You can reduce the number of colors in your images to 16; the image will then take up less space.

Logs

- Connect-It systematically keeps document logs, application logs and service logs. The information in these files can be very useful in helping to reproduce the problem. These files are stored in the following directories:
  `bin\conitgui.log`: application log file
  `bin\<Name of the service>.log`: Connect-It log file

Try to send us these files along with the scenario file (`.scn`) when you report a problem on Connect-It.

Chapter 10

Notes for Running Connect-It on Windows Server 2008 (64 bit)

This chapter provides important information about running Connect-It on Windows Server 2008 (64 bit) computers.

Configuring ODBC Settings

To modify the ODBC configuration, you must use the configuration interface. You cannot configure ODBC settings by using from Windows **Administrative Tools > Data Sources (ODBC)** because Connect-It is a 32-bit application and it cannot read the default 64-bit data source.

To modify the ODBC configuration, do the following:

1. Go to the following path: `C:\Windows\SysWOW64`.
2. Double-click `odbcad32.exe` and make the modifications on the screen that appears.

Running the Service Console

Only users with Administrator access to the Windows Server 2008 (64 bit) computer can access the Service console. To start the console, right-click the program and select **Run the program as administrator**.

Glossary

The following glossary provides definitions of the main terms used in Connect-It. The glossary also provides a list of terms relating to databases, Basic scripts, Java and external applications.

Connect-It terms

Action after processing

Certain connectors, such as the HP Desktop Discovery connector, can manipulate the data that they have produced. In this case, a connector-configuration wizard page enables you to select post-processing actions for the produced documents.

For example: Delete source data after successful processing in Connect-It.

External application

An external application designates not only the application itself, but also the data source to which the connector connects. Examples: an Asset Manager application, an XML file, a messaging system.

Processing reports

Processing reports are documents that the connectors or the mapping box produce each time they process a document. These reports enable you to know if the document was processed successfully or not, and whether or not any problems were encountered in Connect-It.

Example: The e-mail connector can consume scenario processing reports and send them to the Connect-It administrator in the form of messages.

Authorization certificate

The authorization certificate is a text file that enables you to activate the base connectors, as well as the optional and additional connectors, included in the Connect-It package that you have chosen. The certificate is required in order to use Connect-It.

Tool

A tool (or component) is an element defined in the Scenario Builder. It may be a connector or an internal tool, such as a mapping box or a data generator.

Reconciliation key

Reconciliation consists of defining the fields that enable the unique identification of the records in the tables that a connector creates or updates. Fields used for data reconciliation are identified by marking them with a key, called the reconciliation key.

Connector

A connector enables Connect-It to process information coming from or going to external applications. In order to exchange data between themselves, connectors copy this data into documents that they can product or consume. The connectors are divided up into several categories:

- Inventory connectors
  Inventory connectors process information from databases that scan a company's assets, and more specifically, their IT assets: Intel LanDesk connector, SMS 2003 connector, SCCM 2007 connector, etc.
- HP connectors
  These connectors are specifically designed for HP applications (Asset Manager connector, ServiceCenter connector, HP Desktop Discovery connector, Action Request System...)
- Application connectors
  These connectors are dedicated to specific external applications: Lotus Notes connector, NT Security connector, etc.
- Protocol connectors
  These connectors process data formatted by external applications using a specific protocol: XML connector, Delimited text connector, Database connector, E-mail connector, etc.
- ERP Connectors (Enterprise Resource Planning)
  These connectors enable you to process

data from Enterprise Resource Planning applications.

The role of a connector is to:

Publish document types corresponding to available data containers in the external application to which it is connected. For example,

the e-mail connector (fetching) publishes a document type that corresponds to an e-mail, including such things as a From structure, a Carbon copy collection, and an Attachment collection.

Produce or consume documents.
A connector uses a produced document-type that was created for a specific integration scenario, and from this template, it creates the produced document.

When data comes from an external source application and goes to an externalsource connector and the destination connector. A source connector produces destination application, the connectors involved in the scenario are called the documents, whereas the destination connector consumes them.

Collection

In a document type, a collection represents the relation between one or more elements to several other elements. For example, when a document type corresponding to a database table has a collection, this collection corresponds to another table in the database. A collection implies that the link between these two tables is a 1-n or n-n link.

This type of link means that a record in the first table can be linked to one or more records in the second table, and vice versa. For example, in a document type corresponding to a sent e-mail message, a collection corresponds to the message recipient (a message can have several recipients).

Service Console

The Connect-It console is a graphical user interface that lets you manage your scenarios and create services to link to them.

Consumption

Consumption is the process in which a destination connector writes or sends documents to an external application.

DBK

The DBK files are XML files that correspond to a scenario's documentation. These files conform to the DocBook DTD.

Directives

Directives are pieces of information that the Connect-It tools use to produce and consume documents. The directives are categorized by production directives and consumption directives. For example, for a Database-type connector, the WHERE and ORDERBY clauses, which are used to filter records from a source database, are the consumption directives.

Document and document type

In Connect-It data is exchanged via documents. Each document corresponds to a data container in an external application. Depending on the function of the external application, a data container corresponds to:

- Database tables
- E-mail messages
- Files containing scanned information
- Delimited text files
- XML files
- Security information

When a connector is open in the Scenario Builder, it publishes a list of document types. This list of published document-types corresponds to the different data containers available in the external applications.

Produced and consumed document types

In order for a connector to produce or consume documents, it needs to use produced or consumed document-types. To create a produced or consumed document-type, the Connect-It user selects elements from a document type published by the connector. For example: A document type produced by a

database connector contains the only fields that the user wants to import in the external destination application.

DSC

A description file (file name extension .dsc) describes the way that the text-file data is organized. This data corresponds to the field values in the database tables. The Delimited-text connector publishes document types created in the description file.

For example, a description file specifies that:

- The text file contains data from one single table (Employees table).
- The first line of the file contains the column headers (each column corresponds to a field in a table).
- The "~" is used to separate values.

Documentation

All the information extracted dynamically from a scenario and that can be customized by users.

Scenario Builder

The Scenario Builder is the graphical interface that enables you to create integration scenarios. These scenarios are identifiable by the SCN file extension.

Element

A document type is made of the following elements:

- Structure
- Collection
- Field

This element is the terminal element of a document type. These elements are also called complex elements.

Favorites

Favorites are preconfigured connectors.

Configuration file

Each connector publishes a document type in .xml format which is an interpretation of a database structure. This document is called a configuration file; it can be edited (using the configuration file editor) for any inventory connector and for the database connector.

User formats

User formats are date-type or numeric-type formats that the user can define for use with the mapping scripts. These formats can be used exclusively with the PifUserFmtVarToStr and PifUserFmtStrToVar functions. To use these functions, refer to the Programmer's Reference available online by pressing F1 whenever you write a script in Connect-It.

Data generator

The data generator is a tool for sending statically-defined data to a connector.

History

All the information about the creation and modification of a scenario.

Document log

The Document log is a tab in the Scenario Builder that helps you follow up on all the documents produced and consumed by the connectors and the other Connect-It tools. When a connector rejects a document, the rejected document appears in the Document log along with an icon indicating its status. The Document log also warns you when a the mapping box could not perfectly produce or consume a document.

Mapping

A mapping involves creating correspondences and transformations between elements from a document type that is produced by a source connector and one that is consumed by a destination connector. In Connect-It, a mapping box enables a destination connector to consume documents produced by the source connector. The mapping box is an internal tool that produces and consumes documents like all other connectors, but which does not communicate with external applications.

Monitors

Monitors are surveillance tools associated with a scenario. Monitors activate and manage the forwarding of information and process history data provided by the application and its connectors.

Schedule pointer

The schedule pointer enables you to reduce the amount of data processed by a scenario. A pointer corresponds to the date of a record's last modification. It enables a connector to distinguish data it has already processed in a previous session from the new data. It therefore only processes the records created or updated since the last session. When a scenario is launched in scheduled mode: The status of a document-type's pointer tells the connector to process only those documents that have not been processed since the last session.

Production

Production is the process by which a source connector reads or receives data from an external application in order to transform it into documents.

Scheduler

A scheduler is a timer that you associate with one or several document types produced by your scenario's source connectors. To edit a scenario's schedulers, select the **Scenario > Schedulers** menu.

Two preconfigured schedulers are provided with the Scenario Builder:

- The Once scheduler.
  This scheduler is the one associated by default to all the document types produced by a scenario.
- The Synchronous scheduler.
  This scheduler enables a connector to produce or consume a document every second.

Schedules

Scheduling in Connect-It involves indicating at what moment the source connectors of an integration scenario will produce documents.

Creating a schedule consists of associating produced documents to one or more schedules. Each schedule plays a role of a timer that makes a connector produce documents either at one specific time (October 4, 2002) or in regular intervals (every two hours for a given period of time).

Reconciliation

Reconciliation is the integration of input data coming from a source application that is considered more up-to-date than the already existing data in the destination application.

If the answer is "no", the input data is inserted. If the answer is "yes", the existing data is updated according to the information contained in the input data. The process is based on the following question: "Does the information that I would like to reconcile already exist in the target system?"

When the destination system is empty, this processes is no longer a reconciliation, but an import.

Integration scenario

An integration scenario enables information to be passed between different applications. Writing a scenario consists of:

1. Choosing the source and destination connectors. In principle, you can choose an unlimited number of connectors.
2. Configuring the connectors.
3. Linking the connectors.
4. Creating produced document-types for the source connector and consumed document-types for the destination connector.
5. Creating mappings between the source document-types and destination document-types.
6. Choosing a schedule.

This schedule establishes the intervals at which the scenario's source connectors produce documents. Connect-It is provided with several example scenarios.

For the most part, the example scenarios do not apply to specific user configurations.

Services

A service under Windows provides an application that runs as a background task. .Connect-It lets you create and launch a different service for each of your scenarios.

Statistics

After each session, the Scenario Builder enables you to obtain statistics on the number of documents processed by each tool in a scenario. Example: the number of documents processed by the Asset Manager connector during one session.

To obtain the statistics of each connector, position your pointer on the top part of a connector in the scenario diagram.

Structure

A structure in a document type indicates a 1:1 relation with the node containing this structure.A node that contains a structure can be the document type's root node, the structure or the collection. For example, in a document type that corresponds to a table in a database, each structure corresponds to another table. A structure indicates that the link between the two tables is 1:1. A link of this type means that a record in the first table can only be linked to one record in the other table.

Maptable

A maptable is a table that maps elements from one container to elements of another data container.

Views

Views of a scenario diagram can be created in order to make viewing the scenario easier. Example: In a scenario with a dozen or so different tools, you can create a view where only some of those tools are visible.

Common terms

AQL ("Advanced Query Language") is the query language used by Asset Manager to access the data in the Asset Manager database. It is comparable to SQL. AQL is automatically translated into SQL by the database engine when it's being used for queries.

Blob

Blob-type fields (binary-large-object-type fields) are those fields corresponding to binary data: sound files, video files, image files.

DSE

The DSEs (Directory Entry Services) are the entries making up the hierarchy of the LDAP directory. This information is represented in the form of branches. Each entry in the LDAP directory corresponds to an abstract or real object (a person, material object, parameters, etc.).

JCA

Perfected by Oracle, JCA regroups a set of Java specifications that describe an interface: "Java Connector Architecture". Its main objective is to define a layer of standards enabling a Java server to dialog with applications based on third-party technologies. JCA aims to improve connection interfaces and standard connectors.

XML schema

An XML schema is the definition of the contents used in an XML document. The XML schema is a superset of the DTD, which is itself a standard SGML. Unlike a DTD, the XML schemas are written in XML syntax, which is more verbose than a DTD. The XML schemas can be created with any XML tool.

Transaction

A transaction is an element from the dialog between a computer an a user or between two computers - such as in an information request and the response.

Global variables

A global variable is a variable whose value can be accessed and modified by any program instruction; not just by the module that defined it.

XSL

XSL (eXtensible StyleSheet Language) is a style sheet language developed especially for XML and which can be extended. It is not recognized as an official standard.

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