Perceptive Connect Runtime

Installation and Setup Guide

Version: 1.0.x
Compatible with ImageNow: Version 6.7.x or higher

perceptivesoftware
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Overview

Perceptive Connect Runtime is the connector hub that allows you to create, configure, and enable channels that map data and functionality between Perceptive Software products and your various business applications.

Perceptive Software offers a variety of connectors for use with Perceptive Capture, PeopleSoft, SAP, and more. These connectors provide triggers and actions for use in customizing channels that meet your needs and bridge the gaps between your business applications. For information about available connectors, contact your Perceptive Software representative.

This guide outlines the installation and configuration procedures for Connect Runtime. It also includes basic instructions for creating channels.

Prerequisites

To use Connect Runtime, you must have access to a working installation of the following software.

- Java SE Runtime Environment, version 1.8 (32-bit or 64-bit)
- A supported web browser
    - Google Chrome
    - Microsoft Internet Explorer, version 10 or higher
    - Mozilla Firefox, version 17 or higher

If you want to use Connect Runtime with Perceptive Content, you must have access to working installations of the following products.

- ImageNow Client and Server, version 6.7.x or higher
- Perceptive Content Connector, beta version 0.14.0 or higher
- ImageNow Integration Server, version 6.7 or higher

Overview of the setup process

To set up Connect Runtime, complete the following sections in order.

1. **Install Connect Runtime**
2. **Install connectors**
3. **Create and configure a channel**

Install Connect Runtime

To download the ZIP file and install Connect Runtime, complete the following steps.

1. Go to the Perceptive Software website at **www.perceptivesoftware.com** and log in to the Customer Portal.

2. In the **Product Downloads** page, download the **Perceptive Connect Runtime for Windows ZIP** file.

3. Extract the file to the directory where you want to install Connect Runtime.

4. To install Connect Runtime, complete the following substeps.

    1. Open a command prompt and change the directory to **[*drive*:]\{*Connect Runtime directory*}**.

    2. Type `java –jar connect-runtime-installer-1.0.jar` and press ENTER.

    3. Type `install` and press ENTER. A series of scripts run, installing Connect Runtime and registering the service.

    4. Type `exit` and press ENTER.

5. To install the Content Connector iScript Extension, navigate to **[*drive*:]\{ Connect Runtime directory}\script** and copy **PerceptiveConnectExtensions.js** to the **\script** directory of your Content Server. For example, **[*drive*:]\inserver6\script**.

6. In **Windows Services**, right-click the **Perceptive Connect Runtime** service and click **Start**.

Change your Connect Runtime user name and password

The default user name and password for the Web Console are both `admin`. To change these defaults, complete the following steps.

1. In the **Perceptive Connect Runtime Dashboard**, click **Open the Web Console** and enter the Web Console user name and password.

2. Click **Perceptive Connect > View Configuration**.

3. In the **View Configuration** page, under **General**, click **Apache Felix OSGi Management Console**.

4. In the **User Name** and **Password** fields, enter a new user name and password.

5. Click **Save**.

About the Connect Runtime Dashboard

The Connect Runtime Dashboard includes links to the channel creation page and the Web Console where you configure connector bundles. Locate the dashboard at http://{*Connect Runtime host name*}:{*port*}. For example, http://localhost:80.

The default user name and password for the Web Console are both `admin`. To change these defaults, refer to the Apache Felix website for more information.

Note The Connect Runtime service runs on port 80 by default. To configure the port number refer to **Configure the Connect Runtime port setting and path**.

Install connectors

Connectors are provided as Java archive (JAR) files that you install in Connect Runtime to enable the triggers and actions they define. For installation and configuration instructions specific to the connectors you want to install, refer to the individual connector documentation.

To install a connector, complete the following steps.

1. In the **Perceptive Connect Runtime Dashboard**, click **Open the Web Console** and enter the Web Console user name and password.

2. In **Perceptive Connect Runtime Web Console**, click **Perceptive Connect** > **View Bundles**.

3. On the **Perceptive Connect Runtime Web Console Bundles** page, click **Install/Update**.

4. In the **Upload/Install Bundles** dialog box, select the **Start Bundle** and **Refresh Packages** check boxes. The **Start Level** remains at the default value.

5. Click **Choose Files**, select the JAR files for the connector you want to install, and then click **Open**.

6. Click **Install or Update.**

After you install the connector, you can configure it in the **View Configuration** page of the **Perceptive Connect Runtime Web Console**.

Create and configure a channel

A channel consists of a trigger, an action, and output mapping for the resultant data. To create a channel, complete the following steps.

1. In the **Perceptive Connect Runtime Dashboard**, click **Create a channel**.

2. In the **Select a trigger** list, select a trigger, enter the data required for the trigger, and click **Next**.

3. In the **Select an action** list, select an action.

   Note If you do not want the channel to perform an action, select the **No Action** option. For example, if your channel only moves data using readers and writers, you want to select **No Action**.

4. Update the input data mapping XML for the action in the **Configure input mapping** box that appears and then click **Next**.

   Connect Runtime performs validation checks on both the input and output data mapping XML. Any errors in the XML display in the **Validation results** message under the text box.

5. In the **Configure output mapping** box, update the output data mapping XML and click **Save Channel**.

6. Click **OK** in the pop-up window if you want to enable the channel. Click **Cancel** to save the channel without enabling it.

After you enable a channel, you cannot update it from the Connect Runtime Dashboard.

Appendix A: Upgrade connectors

Before upgrading a connector, it is recommended that you back up your current installation of Connect Runtime. This saves a snapshot of your current connector configurations that you can revert to if you encounter issues with the upgrade.

To create a backup of your Connect Runtime installation, complete the following steps.

1. Open a command prompt and change the directory to **[*drive*:]\{*Connect Runtime directory*}**.

2. Type `java -jar connect-runtime-installer-1.0.jar` and press ENTER.

3. Type `backup` and press ENTER. The Connect Runtime installer creates a folder called Backup in **[*drive*:]\{*Connect Runtime directory*}** where it stores the backup snapshot you created.

4. Type `exit` and press ENTER.

To upgrade a connector that is already installed, complete the procedure outlined in **Install connectors**, choosing the updated connector files to install. When you update the bundles, the existing connector is overwritten with the new connector.

Roll back upgrades

If you need to undo an upgrade of a connector and return to a previous installation and configuration of Connect Runtime, complete the following steps.

1. Open a command prompt and change the directory to **[*drive*:]\{*Connect Runtime directory*}**.

2. Type `java -jar connect-runtime-installer-1.0.jar` and press ENTER.

3. Type `rollback` and press ENTER.

4. Type the numeral of the backup snapshot that you want to rollback to, shown in the list, and then press ENTER.

5. Type `exit` and press ENTER.

Appendix B: Troubleshooting Connect Runtime

Use the methods in the following sections to troubleshoot Connect Runtime.

Configure Connect Runtime logging

You use the Connect Runtime Web Console to configure the logging level and log directory. To access the console logging, complete the following steps.

1. In **Perceptive Connect Runtime Web Console**, click **Perceptive Connect** > **View Configuration**.

2. In the **Name** column, under **General**, click **PIF Logger**.

3. Set the **Log Level** and **Log Directory**, then click **Save**.

Note You do not need to restart Connect Runtime to implement the settings.
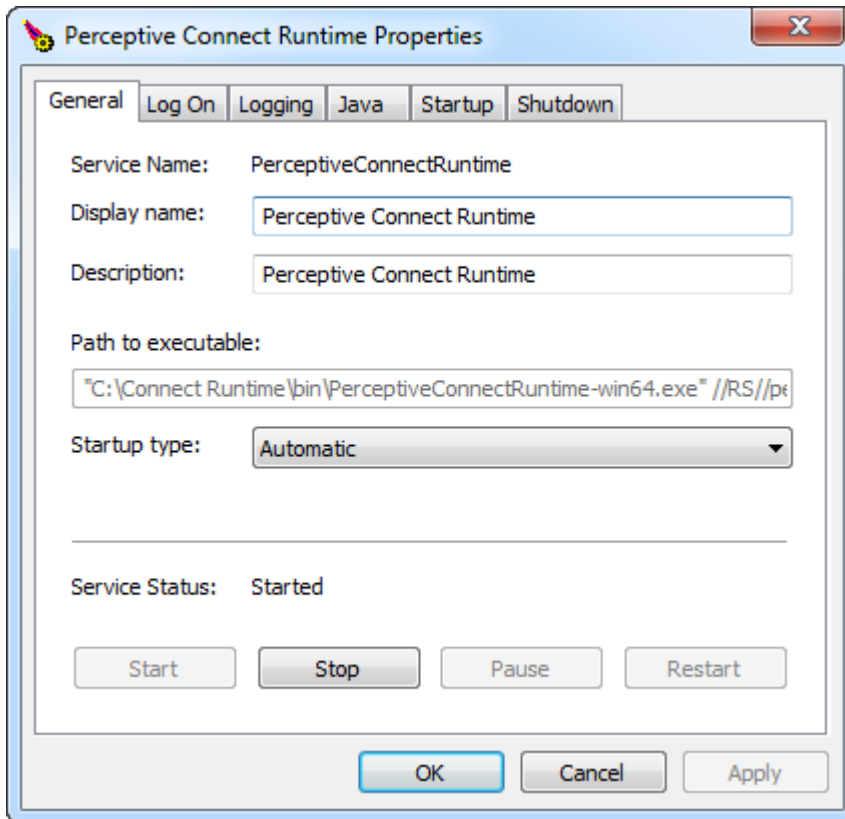
Run the Connect Runtime service monitor program

You use the Connect Runtime service monitor program to view the Connect Runtime properties.

To start the monitor program, navigate to the [*drive*:]\{*Connect Runtime directory*}\bin directory and run PerceptiveConnectRuntimew.exe. You can view the properties in each tab of the program menu. To implement changes, restart the Connect Runtime service.

- **General** Indicates the install path and the Startup type. Also shows whether the service is running. You can stop or start the service from this tab.

- **Log On** Indicates the account settings.

- **Logging** Indicates the logging level, the log path, and the log prefix. You can change the location of the log file from this tab. If specified, the log directory setting in the Connect Runtime Web Console overwrites this log path.

- **Java** Indicates the path of the Java Virtual Machine, the path of the Java Classpath, the port, the mapping path of the Connect Runtime service, memory settings, and stack size. To change the port setting or the mapping path, refer to **Configure the Connect Runtime port setting and path** section. The memory settings and stack size should remain blank.

- **Startup** Optional. Indicates the Connect Runtime working path. Other settings in this box should remain blank.

- **Shutdown** Optional. Settings in this box should remain blank.

The following example shows the Connect Runtime service monitor program dialog box.

Configure the Connect Runtime port setting and path

With the Connect Runtime service monitor program, you can configure the Connect Runtime port settings and paths. To launch the monitor program for a Connect Runtime instance, navigate to the [*drive*:]\{*Connect Runtime directory*}\bin directory and run PerceptiveConnectRuntimew.exe.

Configure the port settings

The Connect Runtime service runs on port 80 by default. To configure a Connect Runtime instance port number, use the monitor program.

1. In the **Perceptive Connect Runtime Properties** dialog box, on the **Java** tab, in the **Java Options** box, change the value of **Dorg.osgi.service.http.port** to your port number. For example, if the port is 7000, the setting is:

```
–Dorg.osgi.service.http.port=7000
```

2. Click **OK**.

Configure the path

In the monitor program, in the Java Options box, the second line is the path to the mapping folder. If the location of your Connect Runtime directory is not the default, you can change the path location. To change the path location, complete the following steps.

1. In the **Perceptive Connect Runtime Properties** dialog box, on the **Java** tab, in the **Java Options** box, on the second line, change the value of **Dpie.mapping.path** to your path location, similar to the following example.

   ```
   -Dpie.mapping.path=C:\Program Files\Perceptive Connect\mapping
   ```

2. Click **OK**.

Configure Connect Runtime performance metrics tracking

Perceptive Connect Web Console tracks key performance metrics for Connect Runtime. Metrics tracking is enabled by default and configured to collect for all categories. To configure the performance metrics tracking, complete the following steps.

1. In the **Perceptive Connect Runtime Dashboard**, click **Open the Web Console** and enter the Web Console user name and password.

2. In **Perceptive Connect Runtime Web Console**, click **Perceptive Connect** > **View Configuration.**

3. In the **Name** column, under **General**, click **PIF Metrics**.

4. In the **PIF Metrics** page, complete the following substeps.

   1. In **Metrics Directory**, set the directory path where Perceptive Integration Framework metrics are saved. The default directory is **[*drive*:]\{*Connect Runtime directory*}\metrics**.

   2. In **Metrics Categories**, select one or more categories for which to track metrics. To collect selected categories continuously, select the **Continuous Collection** check box.

5. To set the collection interval, complete the following substeps.

   1. In **Interval Period**, enter the interval period for recording metrics data.

   2. In **Interval Period Unit**, enter a unit of time for the interval period.

      For example, entering an Interval Period of "1" and an Interval Period Unit of "Hours" causes Perceptive Connect Web Console to collect metrics every hour.

6. To set the collection period, complete the following substeps.

   1. In **Collection Period**, enter the collection period for recording metrics data.

   2. In **Collection Period Unit**, enter the unit of time for the collection period.

      For example, entering a collection period of "4" and a Collection Period Unit of "Hours" causes Perceptive Connect Web Console to collect metrics over a four-hour period.

Disable performance metrics tracking

To disable performance metrics tracking, complete the following steps.

1. In the **Perceptive Connect Runtime Dashboard**, click **Open the Web Console** and enter the Web Console user name and password.

2. In **Perceptive Connect Runtime Web Console**, click **Perceptive Connect** > **View Configuration.**

3. In the **Name** column, under **General**, click **PIF Metrics**.

4. In the **View Configuration** page, click **Unbind**.

Uninstall Connect Runtime

If you need to uninstall Connect Runtime, complete the following steps.

1. Open a command prompt and change the directory to **[*drive***:]\{***Connect Runtime directory}**.

2. Type `java –jar connect-runtime-installer-1.0.jar` and press ENTER.

3. Type `uninstall` and press ENTER.

4. Type `exit` and press ENTER.

The uninstall action removes the Connect Runtime service from Windows services. Note that it does not delete the installation directory.

Appendix C: Actions

An action is a connector-defined task configured in the channel. The action executes when the channel is triggered.

Perceptive Connect Runtime provides the ability, by default, to select No Act**ion** as an option for any connector you install on Connect Runtime. This interface is available for use in connector channels where you only use readers and writers. It does not perform any logic.

For more information about other channel actions, refer to the installation guide for any Perceptive connector.

Appendix D: Readers

Readers are components you use to configure connector channels to retrieve values from other applications. The channel uses these values in the data context during its execution. You use readers to configure the action input mapping. Input mappings allow a channel to have the required data to execute the action. You can invoke readers using specific XML tags, which Perceptive Connect defines per reader.

Note The channel data context refers to the data from various sources that is available in the channel for action input and results output configuration. The data available in the context depends on the trigger the channel uses as well as the connectors that are installed in Connect Runtime.

Perceptive Connect Runtime provides the following readers for use with any connector.

Literal reader

The Literal reader reads a literal string and then stores the value in the data context for further use.

To use the Literal reader, enter the following XML within a parameter.

```
<c:literal></c:literal>
```

Example

```
<c:parameter>
      <c:name>eFormName</c:name>
      <c:literal>AP Invoice</c:literal>
</c:parameter>
```

In this example, the Literal reader reads and stores the value `AP Invoice` under the name `eFormName`. You can reference `eFormName` later in the data context, as needed, to retrieve the value `AP Invoice`.

Trigger reader

The Trigger reader reads values in the data context that were provided as outputs by the channel's trigger.

To use the Trigger reader, enter the following XML.

```
<c:trigger></c:trigger>
```

For example, the Perceptive Intelligent Capture Connector provides the Export trigger. This trigger provides the Content document ID as an output called `DocumentId`. To read that output value and store it in the data context for further use with the reference `DocId`, enter the following XML.

```
<c:parameter>
      <c:name>DocId</c:name>
      <c:trigger>DocumentId</c:trigger>
</c:parameter>
```

XML reader

The XML reader reads values from an XML document. The reader processes repeating elements and single elements. The XML reader provides the following configuration fields.

- **reference** A configuration field specifying the data context value that contains the XML document. If the `xmlRowSource` node is not nested under another `xmlRowSource` node, you must use this field. Otherwise, it is optional.

- **context** A configuration field specifying the parent element. If the `xmlRowSource` node is nested inside another `xmlRowSource` node, you must use this field. Otherwise, it is optional.

  Note You must use either the **reference** or **context** field in each `<c:xmlSource>` or `<c:xmlRowSource>` instance.

- **id** A configuration field setting a unique value for `xmlSource` and `xmlRowSource` children to use when specifying their `context` element.

- **xpath** A field that specifies the Xpath location, in the XML document, of the values to read.

To read repeating elements, you would use an `xmlRowSource` node and the `reference` or `context`, `id`, and `xpath` fields. Use the following XML format.

```
<c:xmlRowSource>
      <c:reference></c:reference> OR <c:context></c:context>
      <c:id></c:id>
      <c:xpath></c:xpath>
</c:xmlRowSource>
```

To read a single element from an XML document, you use an `xmlSource` node and the `reference` or `context` and `xpath` fields. Use the following XML format.

```
<c:xmlSource>
      <c:reference></c:reference> OR <c:context></c:context>
      <c:xpath></c:xpath>
</c:xmlSource>
```

The following examples assume there is a trigger that provides an XML document. The Trigger reader names the provided document "XMLDoc" in the data context. Then this component reads the value at "IntelligentCaptureDocument/InvHeader/INVOICE_Number" from the referenced XML document.

Single element

```
<c:parameter>
    <c:name>XMLDoc</c:name>
    <c:trigger>XmlDocument</c:trigger>
</c:parameter>
<c:parameter>
    <c:name>InvNum</c:name>
    <c:xmlSource>
        <c:reference>XMLDoc</c:reference>
        <c:xpath>IntelligentCaptureDocument/InvHeader/INVOICE_NUMBER</c:xpath>
    </c:xmlSource>
</c:parameter>
```

Repeating elements

```
<c:parameter>
    <c:name>XMLDoc</c:name>
    <c:trigger>XmlDocument</c:trigger>
</c:parameter>
<c:rowset>
    <c:name>page</c:name>
    <c:xmlRowSource>
        <c:reference>XMLDoc</c:reference>
        <c:id>Root</c:id>
        <c:xpath>/IntelligentCaptureDocument</c:xpath>
    </c:xmlRowSource>
    <c:mapping>
        <c:parameter>
            <c:name>InvNumber</c:name>
```

```
            <c:xmlSource>
                <c:context>Root</c:context>
                <c:xpath>InvHeader/INVOICE_NUMBER</c:xpath>
            </c:xmlSource>
        </c:parameter>
    </c:mapping>
</c:rowset>
```

Appendix E: Transformers

A transformer is a specialized reader that takes a set of data and transforms it. You can configure a transformer in the input mapping for a channel.

XML transformer

The XML transformer takes a set of data and transforms it into a provided XML template or schema. The XML transformer provides the following three configuration fields.

- **data** A reference to a `ContextList` in the data context. The value used in the data field needs to be a rowset of values from the **XML reader**.

- **template** The XML document into which the XML transformer writes and saves the data. Any repeating elements in the template only need to have one instance or the exact number of instances found in `data`. Otherwise, the component does not work.

- **mapping** A list of key and value pairs that override the transformation location of some values in the `data` element.

To use the XML transformer, use the following XML format.

```
<c:xmlTransform>
    <c:data></c:data>
    <c:template></c:template>
    <c:mapping>
        <c:entry>
            <c:key></c:key>
            <c:value></c:value>
        </c:entry>
        ...
    </c:mapping>
</c:xmlTransform>
```

For a complete example of how to use the XML transformer in your channel, refer to the XML example provided with your connector.