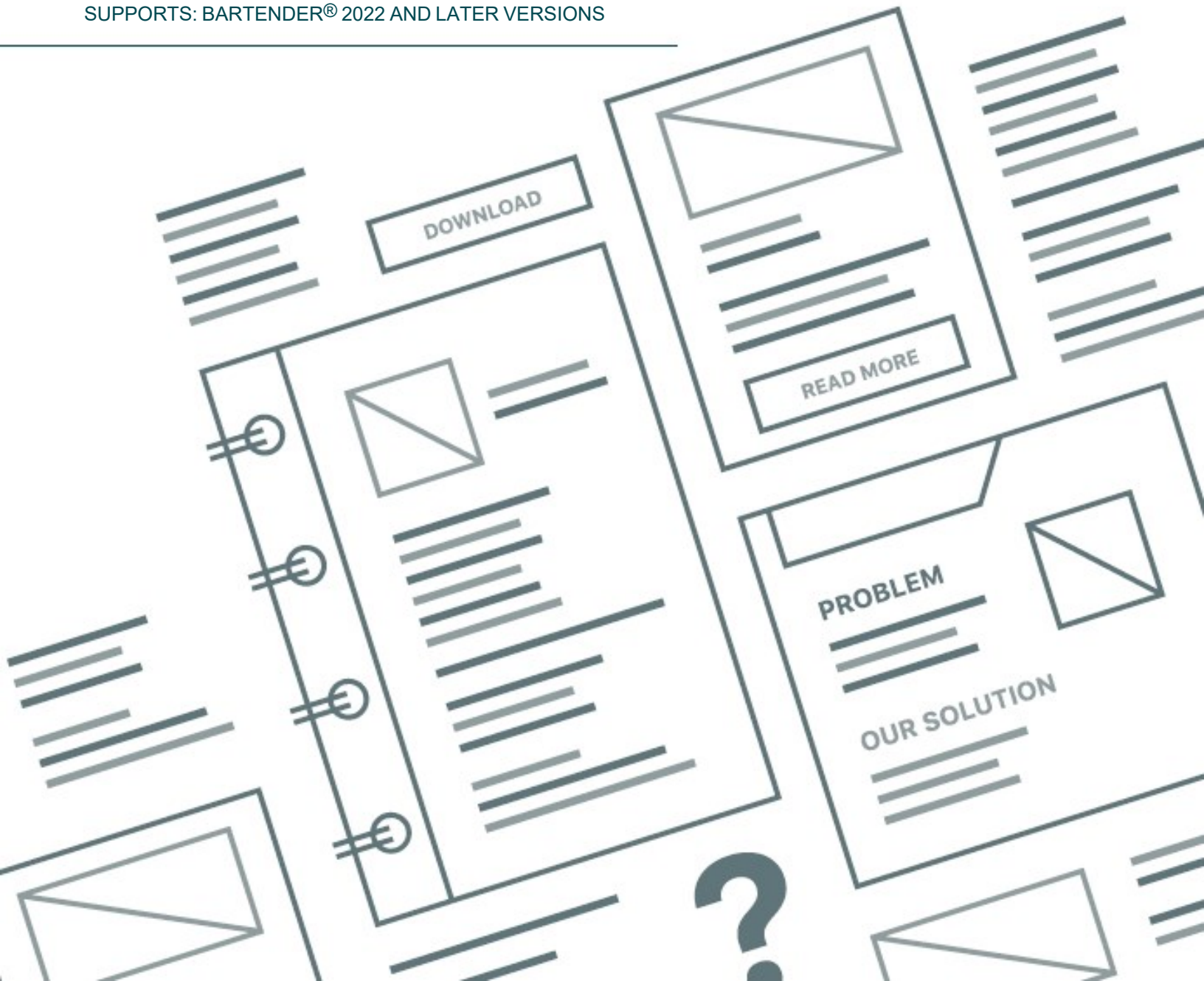
BarTender
BY SEAGULL SCIENTIFIC

Technical Document
English

Integrating with BarTender Integration Builder

INTEGRATING BARTENDER® WITH YOUR ENTERPRISE OPERATIONS

SUPPORTS: BARTENDER® 2022 AND LATER VERSIONS



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Overview

You can use BarTender to implement a sophisticated printing system that integrates directly with a wide variety of business systems, including SAP and Oracle.

By using BarTender Integration Builder, you can create highly customizable integrations that seamlessly connect the printing capabilities of BarTender to virtually any enterprise business operation. When you create an integration, you define a trigger event that you want the BarTender Integration Service to monitor for, and then when the event occurs, the service runs the actions that you specify.

By using integrations, you can import data from external systems and run tasks automatically without ever needing to start BarTender or any other application.

The BarTender native integration platform consists of two user applications (Administration Console and Integration Builder) that operate together with two Windows-based services (BarTender Integration Service and BarTender Print Scheduler Service) to ensure that your printing operation runs smoothly at all times. You can use this flexible and powerful platform to perform enterprise-level tasks, such as the following:

- Start a print job automatically when a trigger event occurs, such as receiving an email message, saving a file or modifying a database.
- Connect to and communicate with clients via TCP/IP, UDP or HTTP.
- Perform basic file operations, such as move, rename, delete or copy.
- Integrate with enterprise resource planning (ERP) systems by taking advantage of the support for SAP, Oracle and IBM WebSphere connectivity that BarTender offers.

For example, suppose your ERP system routinely drops a data file to a specific network folder location or to a cloud data store. By using Integration Builder, you can create an integration that monitors the location where the file is regularly dropped and that automatically performs one or more actions when a new file is dropped in that location. Actions can include transforming data, printing documents, sending email messages, and many others.

All print jobs that result from an integration are sent to the printers via the Print Scheduler Service. This service intelligently assigns jobs to print engines to maximize performance while maintaining print order and any required serialization.

Understanding the BarTender Native Integration Platform

BarTender provides many ways to integrate with other business systems. By using the following tools, you can create, configure, deploy and manage your integrations:

- Integration Builder
- Administration Console

Additionally, behind the scenes, the following Windows-based services run your integrations and automate your enterprise environment:

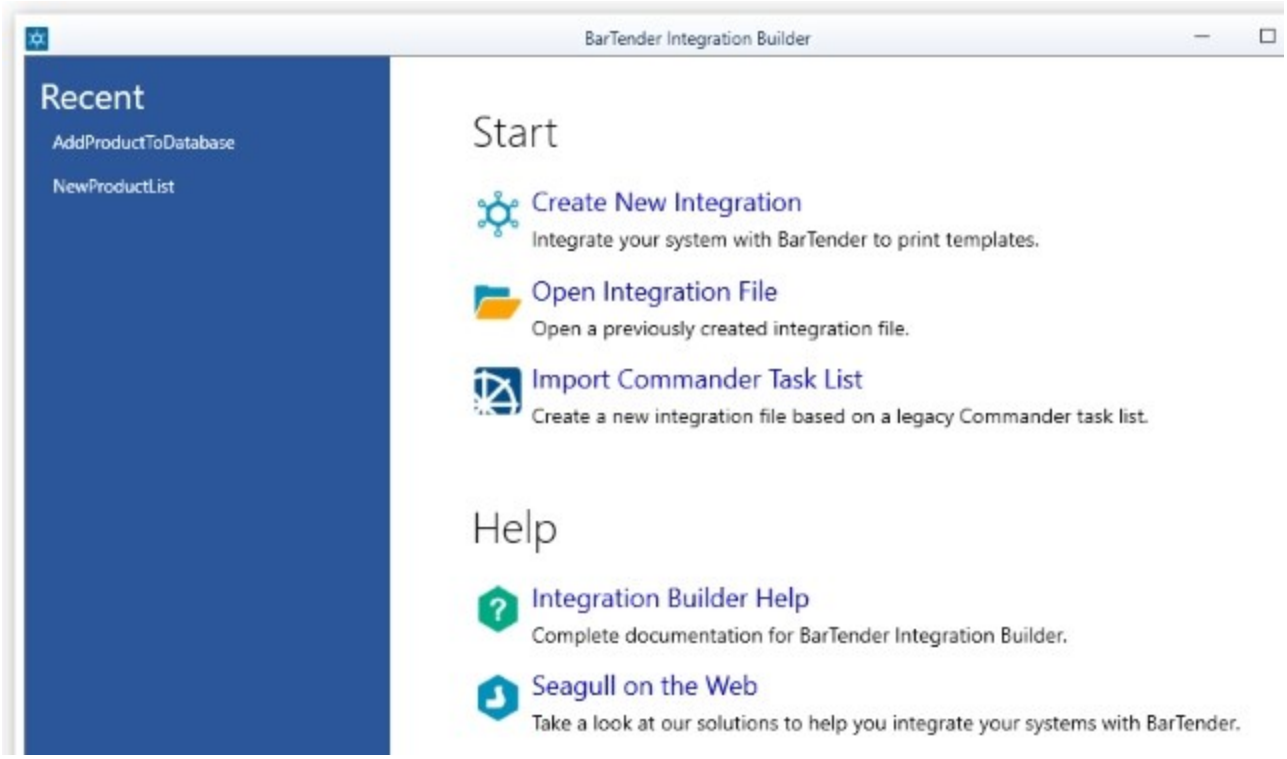
- BarTender Integration Service
- BarTender Print Scheduler Service

This document describes these services so that you can better understand how BarTender runs integrations and ensures that your printing operation runs smoothly at all times, but typically, you never have to interact with either of these services.

Integration Builder

Integration Builder makes it easy to create your own integration files. An *integration file* is a proprietary XML document that defines one or more integrations. Each integration consists of a trigger event and one or more actions. (To monitor for more than one trigger event, you create a separate integration for each event.)

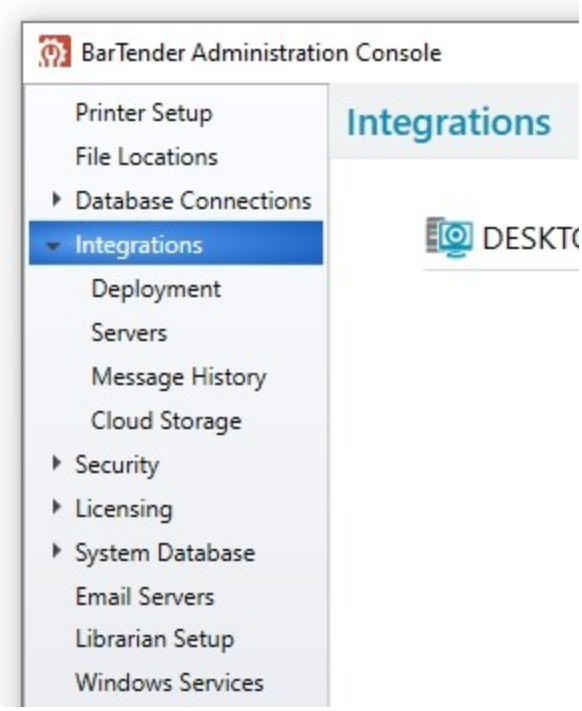
You can also use Integration Builder to edit and test the integration files and deploy them to the Integration Service. After you deploy the integration file, the Integration Service begins to monitor for the trigger events that you specified.



Administration Console

Use the **Integrations** section of Administration Console to deploy and monitor integrations that are running on a server. At any time, you can monitor the integration's logged messages as the Integration Service detects the trigger event and runs its actions.

Use the **Windows Services** section of Administration Console to start and stop both the Integration Service and the Print Scheduler Service.



BarTender Integration Service

The Integration Service monitors for integration trigger events. When it detects a trigger event, it runs actions in response, such as transforming data and printing a BarTender document with that data. In the case of a file event, the data to be processed might be gathered from the file itself. In the case of a TCP/IP request or a serial port event, the data might be gathered from what is sent over that connection.

The action that the Integration Service might process can be as simple as sending a print command for a BarTender document to the Print Scheduler Service. However, many more (and more complex) actions are supported, as described in Appendix B: Available Actions.

The Integration Service can host any number of integration files. You can deploy a new or updated integration file without affecting other integrations that are already running.

BarTender Print Scheduler Service

The Print Scheduler Service manages BarTender print engines and intelligently assigns jobs to them while maximizing performance and maintaining print order and any serialization. It uses a single pool of print engines so that resources are used efficiently. The Print Scheduler Service ensures the following:

- Jobs that are printed to a specific printer always come out of that printer in the order the requests were received.
- When documents contain embedded data that can change, such as serialized counters, they are bound to a single print engine to ensure that they are printed in the correct order.

Building Integrations

Use Integration Builder to create an integration file that includes one or more custom integrations. Each integration in the integration file includes the following:

- A trigger event that the Integration Service monitors for
- One or more actions that the Integration Service runs when the trigger event is detected

For example, a simple integration in an integration file might resemble the following:

- **Trigger event**: A new file is created.
- **Actions**: Print a BarTender document that uses the data that the file contains, and then send a "Print Complete" message to the message log.

In this example, each time that a new file is saved in a monitored directory, a BarTender document is automatically printed, and a message is logged on the computer. By using an integration such as this, a company implements a basic auditing mechanism together with their automatic printing operation.

For more information about how to create an integration file, refer to the Integration Builder section of the BarTender help system.

Integrations

An integration can specify only one trigger event for the Integration Service to monitor.

Typically, an integration contains data or information that the Integration Service reads and acts on. For example, an integration that contains print-time data can not only trigger the print job but also send the data that it contains along with the print command, so that the data can be read into the document and then printed. Such integrations can also contain Print Command script or BarTender XML (BTXML) script for BarTender to run or variables that can specify certain values at the time the action runs.

An integration need not contain data or information, however. For example, you can configure an empty file to drop into a specific location, where its presence (not its content) directs the Integration Service to begin running the specified actions.

For a complete list of available integration types, refer to Appendix A: Available Integration Types.

Actions

Each integration can specify only one event to be monitored, but multiple actions can occur in response to the event. In addition to actions that print BarTender documents (including BarTender process files, BTXML scripts or Print Command scripts), Integration Builder offers a wide variety of other types of actions to meet your needs. For example, you may need to transform data (perhaps from XML to XSLT or from SAP AII to BTXML), send a message to a message log, or create a While loop that continues to run a set of actions until a specified condition is met. Integration Builder actions support these requirements and many more.

For a complete list of available actions, refer to Appendix B: Available Actions.

Testing Integrations

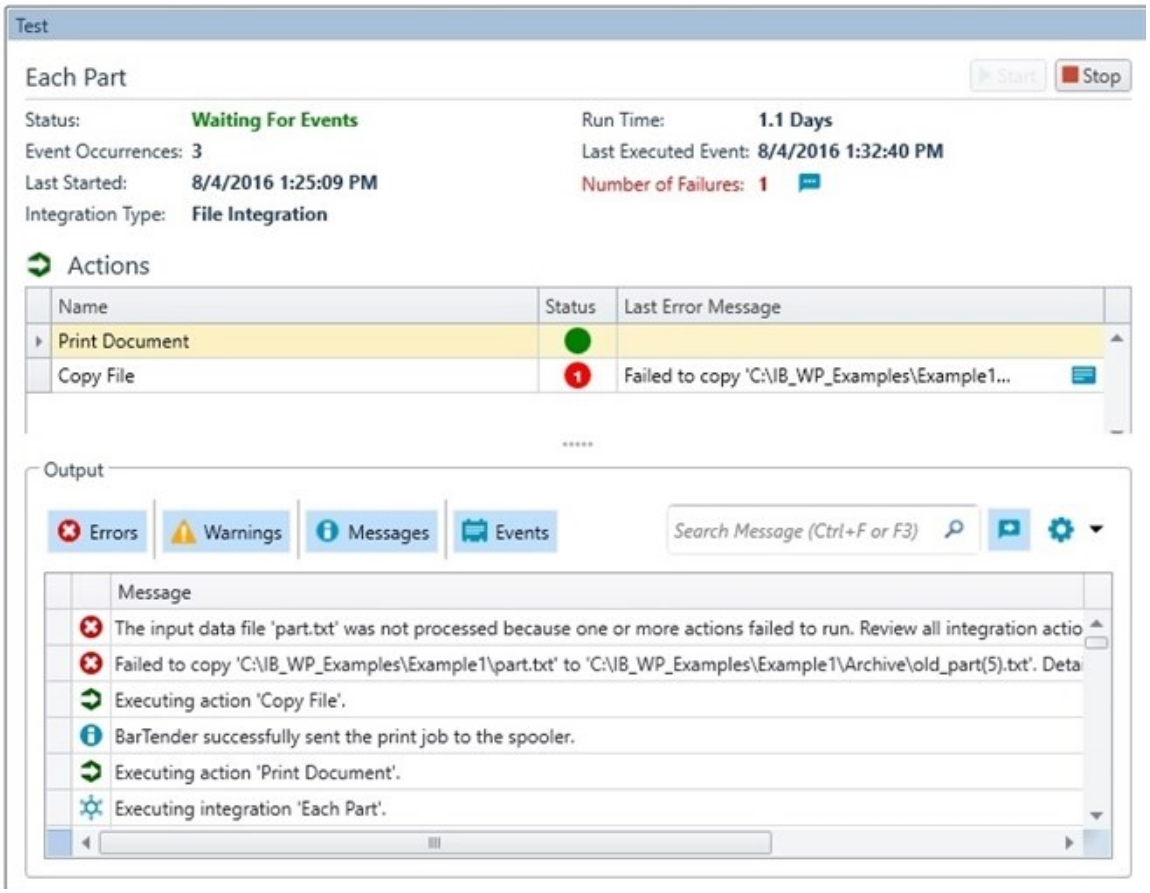
Before you use your integration in a live environment, you should test it to make sure that it works as designed. By using Integration Builder, you can test each integration that is part of the integration file and individually test each action that each integration runs.

> The BarTender System Service must be running so that you can receive any messages that result from the test.

Testing a Selected Integration

To test a selected integration, click the **Test** tab, and then click **Start** to instruct the Integration Service to begin monitoring for the integration trigger event. Then, implement the trigger event. When you do this, the **Integration** pane and **Actions** pane display a summary of the test results.

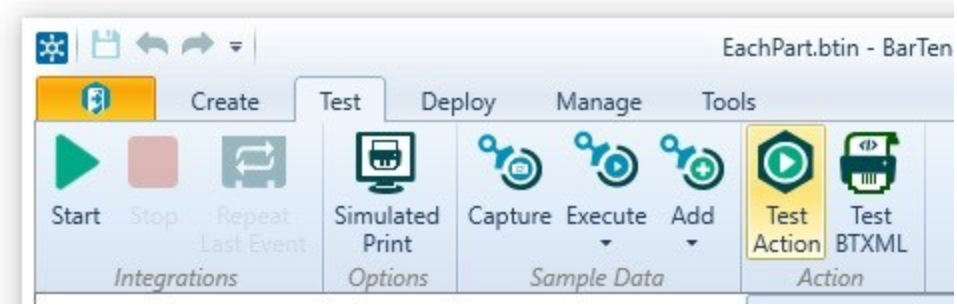
The output pane at the bottom of the property page lists the errors, warnings, and messages that were generated by the integration and its actions. If the integration or any of the actions fail, you can review these messages to determine the cause.



When the integration passes testing, it is ready to be deployed.

Testing Actions

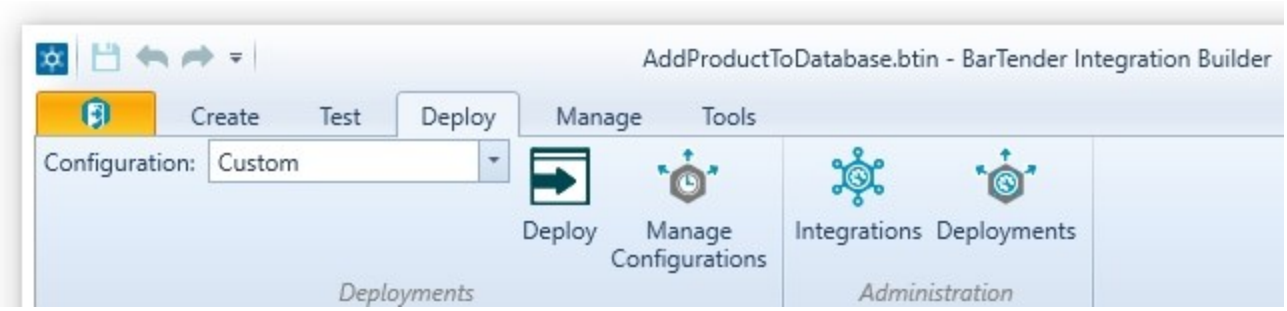
After you configure an action for an integration, you can test it individually. To do this, select the action in the left navigation pane in Integration Builder, click the **Test** tab, and then click **Test Action**.



Deploying Integrations

To deploy an integration means to save it to a server location where it is available to the BarTender Integration Service.

To deploy your integration file, click the **Deploy** tab in the Integration Builder toolbar, and then click **Deploy**.



This operation starts the Deploy Integration File wizard, which you use to select the deployment location and to schedule when the deployment occurs.

When you click **Finish**, the wizard closes, and the integration file is deployed to the selected server according to the schedule that you specified. Additionally, Administration Console opens to the **Integrations** or **Deployment** page (depending on the deployment schedule) so that you can view the progress of the deployment.

Appendix A: Available Integration Types

The following integration types are available in Integration Builder.

Integration	Description
File	The Integration Service monitors a specified file system or location for a new file to arrive. File systems or locations that can be monitored include a path that is relative to the folder that contains the integration file, a temporary storage folder, a local file system or network share, Librarian, or a supported cloud storage location.
Web Service	The Integration Service monitors for a web service request to arrive.
Database	The Integration Service monitors for a database change. The service polls the specified database at timed intervals, and when a new record is detected, it extracts that data and then uses it to print a job.
Email	The Integration Service monitors for an email message to be received.
Network Socket	The Integration Service monitors for TCP or UDP socket data to arrive.
Serial Port	The Integration Service monitors a serial port for data to arrive.
Message Queue	The Integration Service monitors for a Microsoft Message Queuing (MSMQ) message to arrive.
Time Schedule	The Integration Service monitors for a specified time schedule or recurrence interval to occur (for example, every five minutes) and runs the integration according to that schedule or interval. This type of integration is useful for running periodic scripts.

Appendix B: Available Actions

The following actions are available in Integration Builder.

Print Actions

Action	Description
Print BTXML Script	Sends BarTender XML (BTXML) script to BarTender to process the code and complete the tasks that the code defines.
Print Command Script	Parses and runs a Print Command script, which is a combination of commands and data that the Integration Service can read and run.
Print Document	Prints a BarTender document each time the integration runs.

Transform Actions

Action	Description
BTXML Print Response to IBM WebSphere Sensor Events	Transforms the print result of a BTXML script into the format that an IBM WebSphere Sensor Event web server can accept. The result is saved in a variable that can subsequently be uploaded by a Send Web Service Request action.
IBM WebSphere Sensor Events to BTXML	Transforms the sensor event's generated XML print request into BTXML script.
IBM WebSphere Sensor Events to BTXML with Print Status	Transforms the sensor event's generated XML print request into BTXML script that contains the print status. This action is used with a sensor event that specifies a bidirectional printing interface so that after the job is complete, the job status can be reported back to the calling application.
Insert After End of Source Text	Opens a specified source and then inserts the provided text or characters at the end of the source text.
Insert Before Start of Source Text	Opens a specified source and then inserts the provided text or characters at the beginning of the source text.
Oracle WMS and MSCA Print Request to BTXML	Transforms Oracle WMS and MSCA print requests into BTXML script.
SAP AII to BTXML	Transforms a SAP AII data packet into BTXML script.
Search and Delete	Searches for and deletes text or characters in a specified source.
Search and Delete Everything After	Searches for text or characters in a specified source and then deletes all the data after the found string.
Search and Delete Everything Before	Searches for text or characters in a specified source and then deletes all the data before the found string.
Search and Insert After	Searches for text or characters in a specified source and then inserts the provided content directly after it.
Search and Insert Before	Searches for text or characters in a specified source and then inserts the provided content directly before it.

Search and Replace	Searches for text or characters in a specified source and then replaces it with the provided content.
Transform Text to Record Set	Transforms a source of text into a record set that is defined by a sample text database and then saves that record set as a variable that can be used by subsequent actions.
Transform XML using XSLT	Uses an XSLT stylesheet to transform another application's output XML from its original XML format into another XML format. The reformatted XML is then placed into an output variable.

Input Actions

Action	Description
Read File	Directs the Integration Service to read a file's content on any supported file system.
Read from Network Socket	Directs the Integration Service to read from a TCP or UDP socket for incoming data.
Read from Serial Port	Directs the Integration Service to read from a serial port for incoming data.
Wait for File	Directs the Integration Service to monitor a specified folder for a specified file or file type to arrive. When the file is detected, the action runs.

Output Actions

Action	Description
Send Email	Sends an email message to the email accounts that you specify.
Send to Message Queue	Writes a message to MSMQ.
Send to Network Socket	Sends information over a TCP or UDP socket.
Send to Serial Port	Writes data to a serial port.
Send Web Service Request	Sends an HTTP request to a web service (REST or SOAP).
Write File	Writes content to a file.
Write Message to Log	Sends information to the message log.

Execute Actions

Action	Description
BarTender Command Line	Prints a BarTender document by using the command-line interface.
BarTender Process	Prints multiple BarTender documents in a Process Builder process file or a legacy Batch Maker batch file.
Decrement Variable	Specifies a variable whose value you want to decrement each time the action is run.

For Each Database Record	Runs a database query and runs actions for each record.
For Each File in Archive	Runs an action or group of actions for each file in an archive.
For Each File in Folder	Runs an action or group of actions for each file in a folder.
For Loop	Specifies an action or group of actions that the Integration Service continues to run sequentially until a specified value is reached by either incrementing or decrementing an assigned variable value with each loop iteration.
Go To	Instructs the Integration Service to jump to one of the following locations: • Any designated action within the integration, whether or not it is in the same action group. • The next iteration of a **While Loop** or **For Loop** action. • The end of the current action group. Any actions that follow the group are then run.
Group	Specifies a subgroup of actions for an integration. The actions in the group can be run repeatedly in sequence or in parallel.
Increment Variable	Specifies a variable whose value you want to increment each time the action is run.
Power Shell Command	Runs a Microsoft PowerShell command.
Print BTXML Script	Sends BTXML script to BarTender to process the code and complete the tasks that the code defines.
Print Command Script	Parses and runs a Print Command script, which is a combination of commands and data that the Integration Service can read and run.
Print Document	Prints a BarTender document each time the integration runs.
Select Case	Runs the actions for one of the specified cases according to their conditions.
Set Multiple Variables	Sets the values of one or more variables, including existing variables or new variables that you specify.
Set Variable	Sets the value for an existing variable or a new variable that you specify.
Shell Command	Runs a shell command that can be used to run operating system commands or third-party utilities.
Stop	Stops all actions for the integration in which it is running. This action does not stop actions that are running under any other integration in the integration file.
Wait	Instructs the integration to wait for a specified time period to elapse before it completes. This action creates a pause in sequential actions.
Wait for File	Directs the Integration Service to monitor a specified folder for a specified file or file type to arrive. When the file is detected, the action runs.
While Loop	Specifies an action or group of actions that the Integration Service continues to run sequentially as long as the specified condition continues to be met.
Workflow Transition	Causes a Librarian file that is assigned to a workflow to transition from one workflow state to another.

File Actions

Action	Description
Add Files to Archive	Adds files to an archive.
Copy File	Copies a file to another location.
Copy Folder	Copies a folder to another location.
Create Folder	Creates a folder.
Delete File	Deletes a file.
Delete Folder	Deletes a folder.
Extract Files from Archive	Extracts files from an archive to the specified folder.
For Each File in Archive	Runs an action or group of actions for each file in an archive.
For Each File in Folder	Runs an action or group of actions for each file in a folder.
Move File	Moves a file to another location.
Move Folder	Moves a folder to another location.
Read File	Directs the Integration Service to monitor a specified folder for a defined file type and then read the data in that file and save it to a variable.
Rename File	Renames a file.
Rename Folder	Renames a folder.
Workflow Transition	Causes a Librarian file that is assigned to a workflow to transition from one workflow state to another.
Write File	Writes content to a file.

Database Actions

Action	Description
Delete Database Record	Deletes one or more database records.
Execute SQL	Run a sequence of Structured Query Language (SQL) commands.
For Each Database Record	Runs a database query and runs actions for each record.
Insert Database Record	Inserts a database record.
Transform Text to Record Set	Transforms a source of text into a record set that is defined by a sample text database and then saves that record set as a variable that can be used by subsequent actions.
Update Database Records	Updates one or more database records.

Appendix C: Transitioning from Commander

Integration Builder completely replaces the legacy Commander companion application. Compared to Commander, Integration Builder has expanded capabilities for communicating with your company's software applications and increased printing efficiency. For more information, refer to the *Transitioning from Commander to Integration Builder* technical document:

https://www.seagullscientific.com/resources/white-papers/

Related Documentation

Technical Documents

- *BarTender Integration Methods*
- *Transitioning from Commander to Integration Builder*
- *Administration Console*

To view and download technical documents, visit:

https://www.seagullscientific.com/resources/white-papers/

User Guides

- *Getting Started with BarTender*
  https://support.seagullscientific.com/hc/categories/200267887

BarTender Help System

- Integration Builder
- Administration Console: Integrations

Other Resources

Please visit the BarTender website at *https://www.seagullscientific.com*.

For integration examples, please visit the BarTender online Support Center at *https://support.seagullscientific.com/*.

- *Integration* (WEB)
  https://support.seagullscientific.com/hc/en-us/categories/204151647-Integration

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