


BI xPress Best Practices Analyzer

Last Modified on 09 February 2022

EOL: BI xPress will reach its [end of life](#) date on June 15, 2022. See the [Solarwinds End of Life Policy](#) for more information.

Introduction

Icon	Description
	The Best Practices Analyzer inspects components (packages, reports, settings, etc.) of SSIS, SQL Server, SSAS, and SSRS. It then displays recommendations based on best practices .

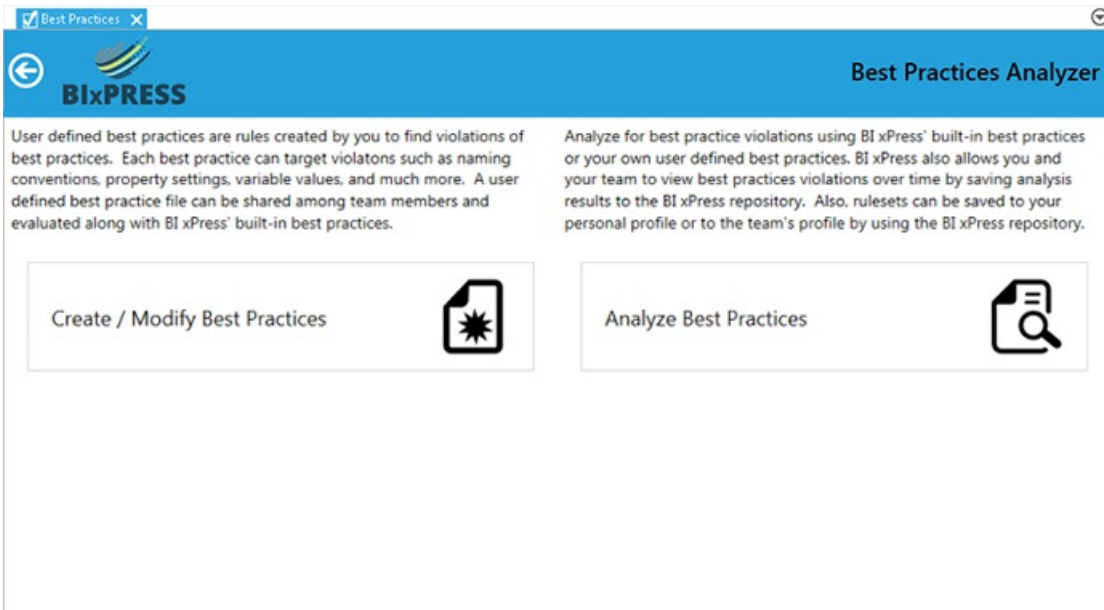
Feature Highlights

- Checks for adherence to best practices ad hoc and in batch mode.
- Store the results of the best practices analysis within the BI xPress database for later analysis.
- Store the results of the best practices analysis within an XML file using the command line.
- Determine package performance issues and potential bottlenecks when using predefined best practices.

Note: You have to use the SentryOne Workbench to analyze SSIS packages on a machine that only contains SSDT for Visual Studio 2015.

Note: If your selected technology type doesn't display when using the BI xPress Best Practices Analyzer, your machine might not meet the system requirements for the specific provider. Open the [System Requirements](#) to make sure your system meets all of the requirements for the provider.

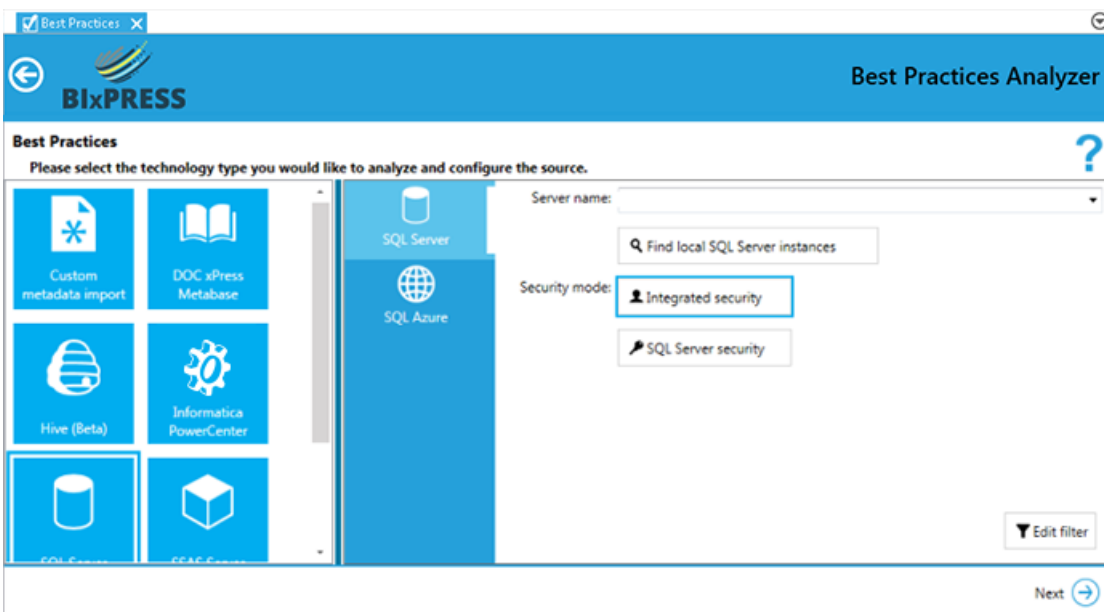
Analyze Best Practices



Note: For SQL Server Data Tools 2015 and above, you can analyze your packages directly from SSDT by right clicking your package or highlighting a number of packages from the solution explorer, and then selecting **Analyze for Best Practices**. This option opens each package within SSDT and analyzes them.

Select Best Practices in the SentryOne Workbench to open the Best Practices Dashboard. From the dashboard you can Create / Modify Best Practices, or Analyze Best Practices. Select **Analyze Best Practices** to open the **Connection** page.

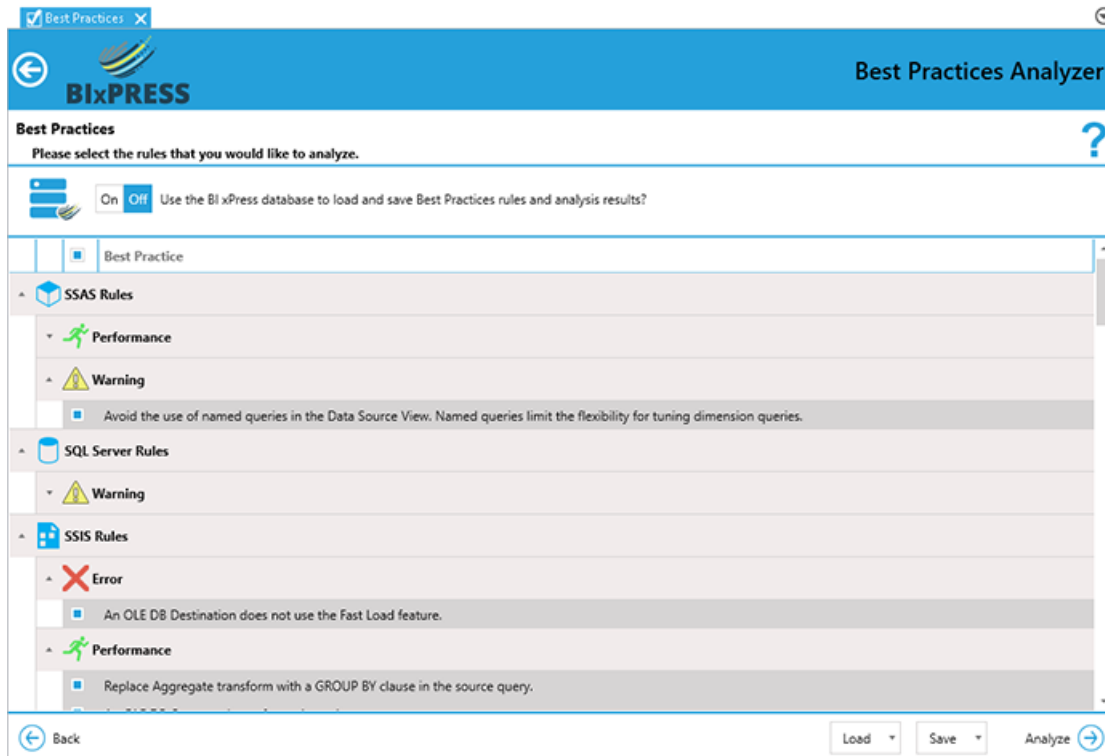
Select the Technology type to Analyze



Select the Technology type you want to analyze from the available technology providers on the left side of the screen. Enter your selected technology credentials, and then select **Next** to open the Rules page.

Note: If the source type you want to use doesn't display, you may not meet the system requirements for that provider. For more information about system requirements, see the [System Requirements](#) article.

Select Rules



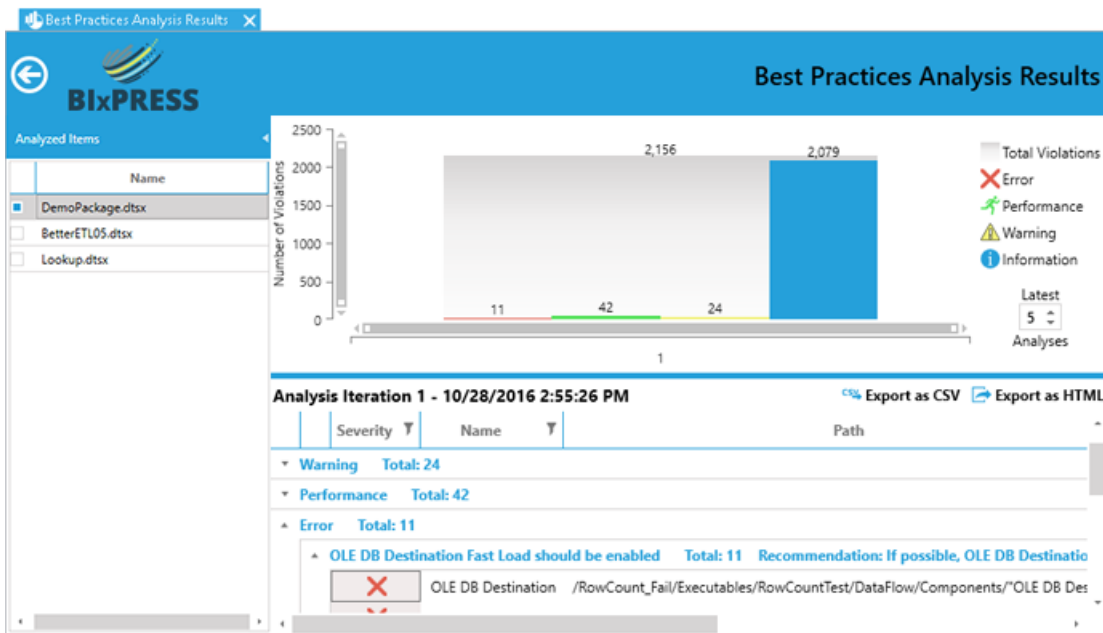
Set the **Use BI xPress database to load and save Best Practices rules and analysis results** toggle to **On** to store the results of your analysis on your BI xPress database for review at a later time or to compare changes over time.

Note: You can connect to any BI xPress database using either Windows Integrated security or SQL Server Authentication.

Select the rules that you want to run against your package from the rules list. Select **Analyze** to begin analyzing your package(s).

Note: If you have previously saved rules, select **Load** and then select the desired load option to load your rules. Select **Save** and then select the desired save option to save your current rule set.

Best Practices Analysis Results



The package is analyzed using the rule set you created or selected on the rules page. The results of your analysis are displayed in the results interface. Open the Best Practice Analysis Results at any time through the Monitoring Dashboards add-in or by analyzing a new package.

Note: If you did not select to have your results saved in the database, the analysis will not be available after closing BI xPress.

BI xPress Best Practices Analyzer Command Line

Use the BI xPress Best Practices Analyzer command line tool to analyze an SSIS Package against a personal rule set, or the shared rule set specified within the BI xPress Database. The BI xPress Best Practice Analyzer command line tool uses the **PWBestPractices.exe** located within the SentryOne Workbench directory.

Note: The SentryOne Workbench directory is set to the following location by default:

- C:\Program Files (x86)\Pragmatic Works\Pragmatic Workbench\PWBestPractices.exe

Any framework (such as Scheduled Tasks, TFS Build Server, Microsoft Systems Center) that is capable of starting an application and passing parameters using command line arguments is capable of using the Best Practice Analyzer command line tool to analyze personal or shared rule sets against SSIS Package(s).

```
PWBestPractices.exe { | } [ ] [ ] [ ]
```

Switch Arguments

Use -- followed immediately by the parameter switch or - followed by the short form version of the parameter

switch to introduce a parameter argument to the **PWBestPractices.exe**. If the switch requires a value, use an = (equal) to separate the parameter argument. Use "" (double-quotes) around the parameter value if the value contains a space or special character(s). The following is a list of parameter arguments and their purpose in BI xPress command line:

Argument Name	Description	Switch	Short Form
Help	Displays the help message that gives you further clarification on using the Best Practice Analyzer's Command Line tool.	--HELP	-H or -?
Item Value	<p>The fully qualified location(s) of the package(s). This must include the full package name including the file extension.</p> <p>If specifying multiple targets, all items must be separated using spaces in between values, for example:</p> <p>PWBestPractices.exe "C:\SSIS\MasterPackage.dtsx" "C:\SSIS\ChildPackages\ETLPackage.dtsx"</p>	"values" [...n]	"values" [...n]
Item Version	Specifies the SSIS Version of all packages you are attempting to analyze. You can specify the following values:	--VERSION="value"	-N="value"
Shared Rule Set	Specifies that you want to use the shared rule set when analyzing the targeted SSIS Package. If you are using the Shared rule set switch, connection information switches are required.	--SHARED	-S
Personal Rule Set	Specifies that you want to use a personal rule set stored on the file system. If you are using the Personal rule set, the Shared rule set option cannot be specified.	--PERSONAL	-P
Connection Information Connection String	Used along side the Shared rule set option to specify a valid SQL Server connection string that connects to the BI xPress database with the shared rule set.	--CONNECTIONSTRING="value"	-C="value"
	Used along side the Shared rule set option to specify that you want to		

Argument Name	Description	Switch	Short Form
Connection Information Output	output the results to the BI xPress database; specified within the Connection String option. Either the XMLOutput or DBOutput option must be specified. If using the DBOutput option, the XMLOutput option cannot be specified and the Connection String option is required.	--DBOUTPUT	-D
Options Password	The package password to apply to all SSIS packages specified.	--PASSWORD="value"	-W="value"
Options Verbose	The Verbose switch provides you with additional information within the specified output option.	--VERBOSE	-V
Options XML output	Species the file path location where the Best Practices Command Line tool outputs the results. The XMLOutput or DBOutput option must be specified. If using the XMLOutput option, the DBOutput option cannot be specified.	--XMLOUTPUT="value"	-X="value"

Command Line Examples

This example analyzes the **MasterPackage.dtsx** file against the Shared rules set within the BI xPress database on localhost and outputs the results to the same database.

```
PWBestPractices.exe "C:\SSIS\MasterPackage.dtsx" --VERSION="2012" --SHARED --CONNECTIONSTRING="Data Source=LOCALHOST;Initial Catalog=BlxPress;Integrated Security=True;" --DBOUTPUT
```

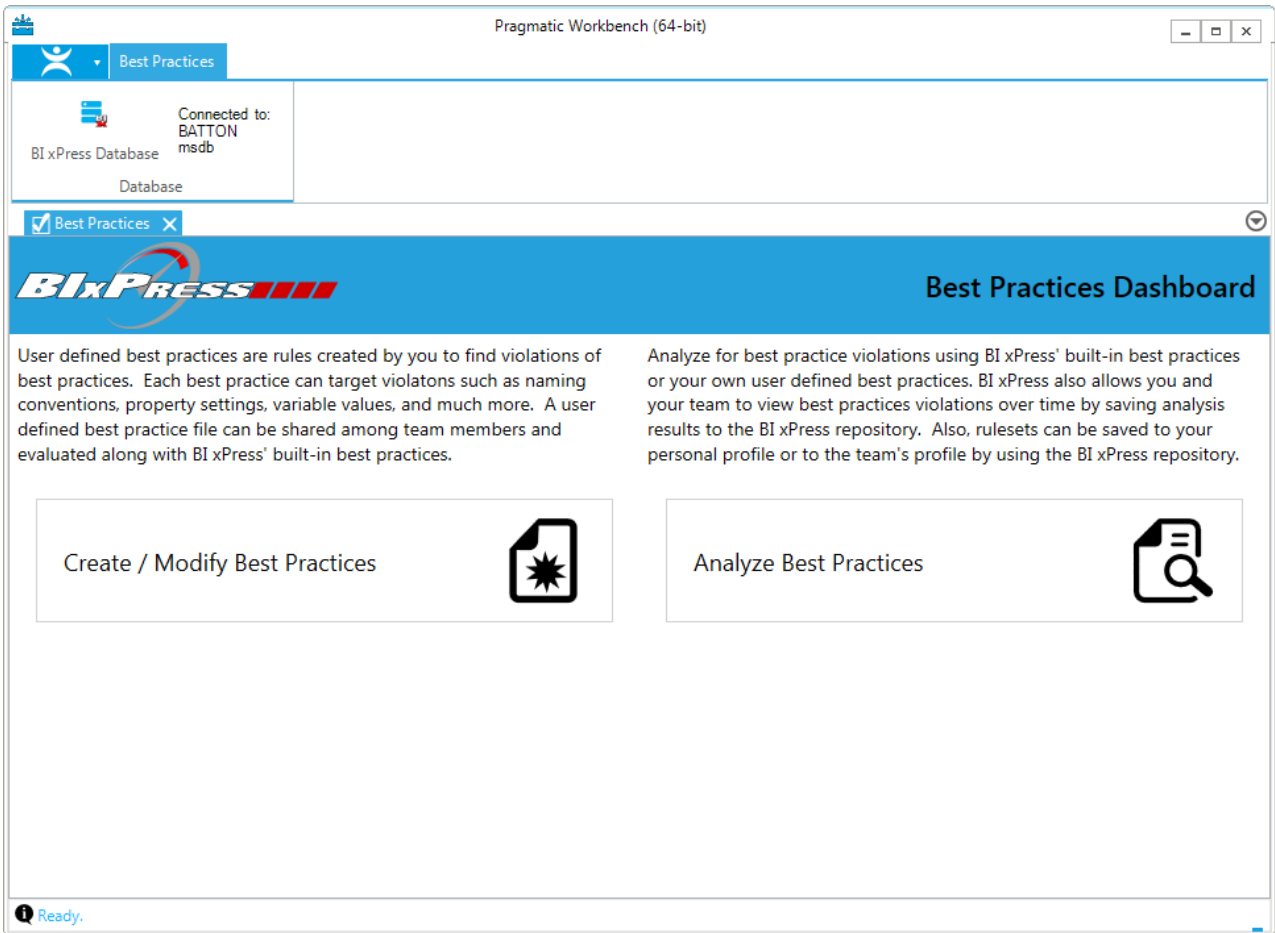
This example analyzes the **MasterPackage.dtsx** file against the user's personal rule set and outputs the results to the MasterPackageResults.xml file with verbose output.

```
PWBestPractices.exe "C:\SSIS\MasterPackage.dtsx" --VERSION="2005" -PERSONAL -XMLOUTPUT="C:\SSIS\Analysis\MasterPackageResults.xml" --VERBOSE
```

This example applies the password **PackagePassword** to both **MasterPackage.dtsx** and **ETLPackage.dts** and then analyzes them against the user's personal rule set and outputs the results to the ETLResults.xml file with verbose output.

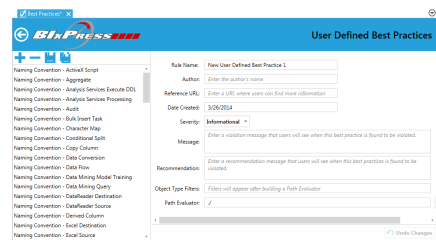
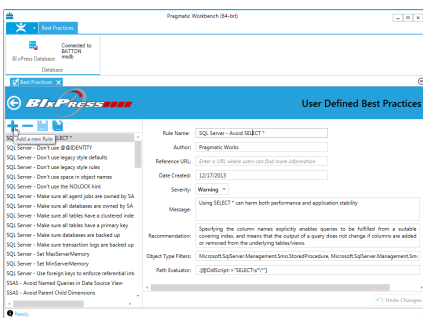
```
PWBestPractices.exe "C:\SSIS\MasterPackage.dtsx" "C:\SSIS\Child\ETLPackage.dtsx" -N="2014" -P -W="PackagePassword" -N="2012" -X="C:\SSIS\Analysis\ETLResults.xml"
```

Create / Modify Best Practices



Select Best Practices in the SentryOne Workbench to open the Best Practices Dashboard. From the dashboard you can Create / Modify Best Practices, or Analyze Best Practices. Select **Create / Modify Best Practices** to open the User Defined Best Practices page.

User Defined Best Practices



Use the User Defined Best Practices page to manage existing rules, and to create new rules. Select the + button to add a new rule, and complete the following fields:

Rule Option	Description
Rule Name	<p>Enter a name for your rule.</p> <p>Note: When you save your rule for the first time, the rule name will be used as a suggestion for the file name. If the rule name has invalid characters for the file name, you will need to use a different file name.</p>

Rule Option	Description
Author	Enter the name of the user or team that created the rule.
Reference URL	Enter a link to an external or internal website that includes detailed instructions for resolving the best practice violation.
Date Created	The date the rule was created. Note: This field populates automatically.
Severity	Select rule severity from the following options: <ul style="list-style-type: none"> • Error • Warning • Informational • Performance Note: The rule severity dictates the category where the rule displays in the Best Practices Analyzer.
Message	Enter a message for the rule. The message that displays in the Best Practice Analyzer's rule selection page.
Recommendation	Enter a description for correcting the violation. The Recommendation displays as a tool tip on the Best Practice Analyzer's Rule Selection page, and as a column on the Results page.
Object Type Filters	Enter the desired filters. The filters that you select display after building a path evaluator.
Path Evaluator	Select a path evaluator. Note: Select the Path Builder button to build a path.

Once you have completed the rule form, select the **Save** toolbar button to save your rule.

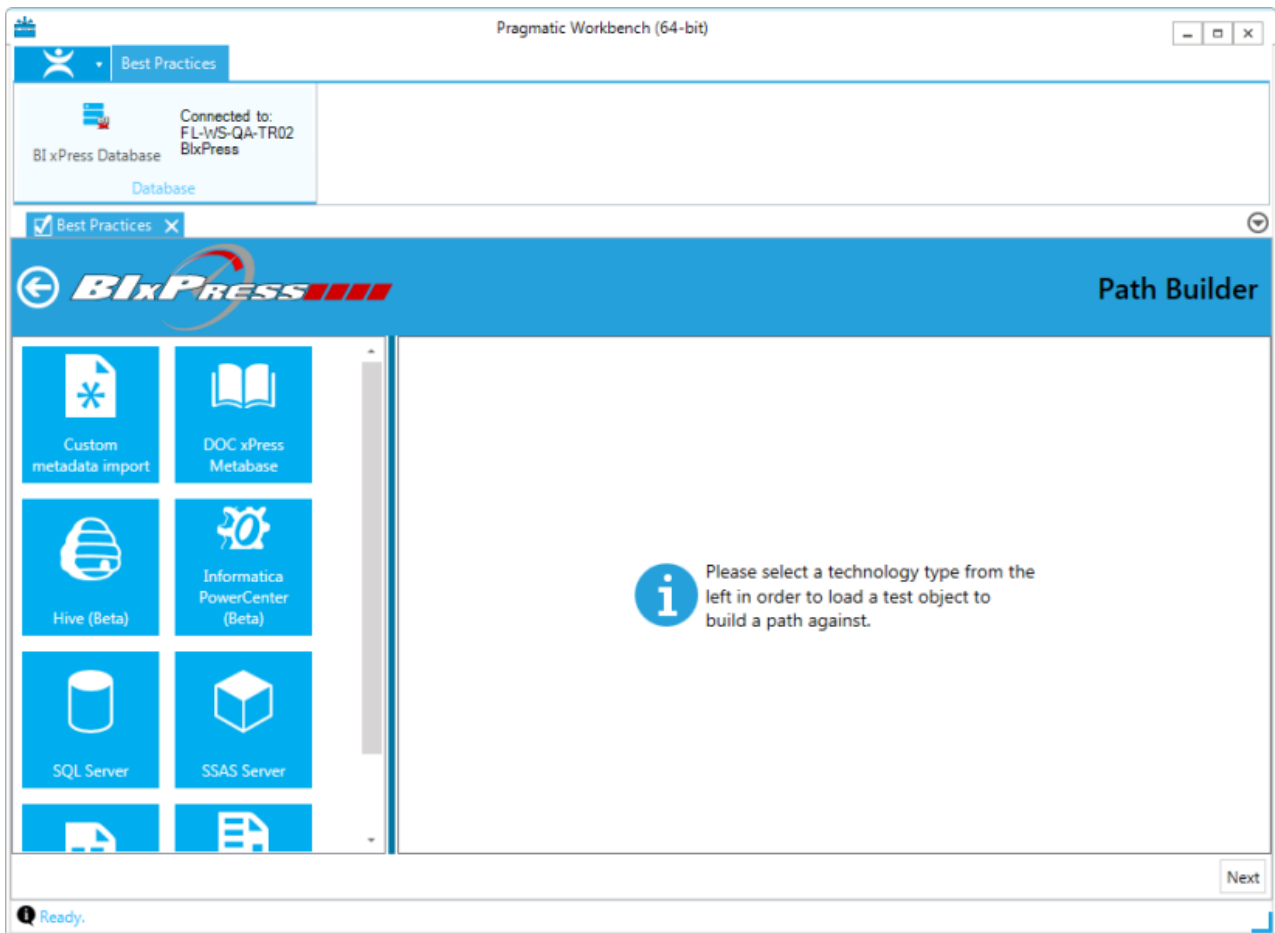
Note: Manage the rules you have created from the User Defined Best Practices page. Deleting a rule from this page removes it from the rules list, but does not delete it from the file system.

If you saved a rule to the **Shared Rule set**, the rule is saved to your BI xPress database.

Using the Path Builder

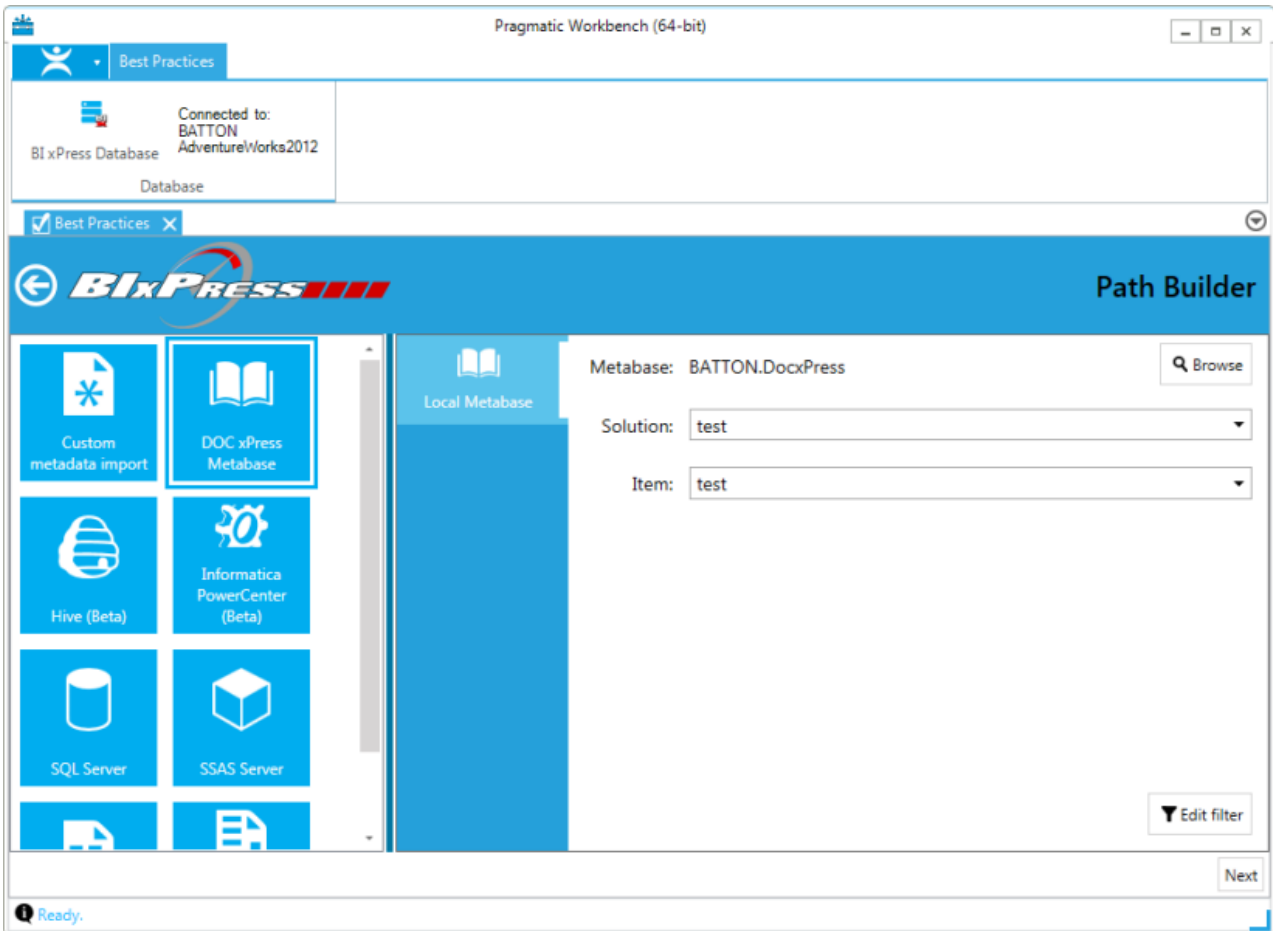
The Path Builder creates the actual definition for your best practice. The Path Builder uses the SentryOne Workbench Path language to create a true or false path. The path can be analyzed in any SSIS package and verify that the created rule applies. In the following example, we create a rule that checks to make sure the user did not enter the value "Description" for a connection's Description property:

1. Open the User-Defined Best Practices page (Select Best Practices > Create/Modify Best Practices), and then select Path Builder to open the Path Builder page.

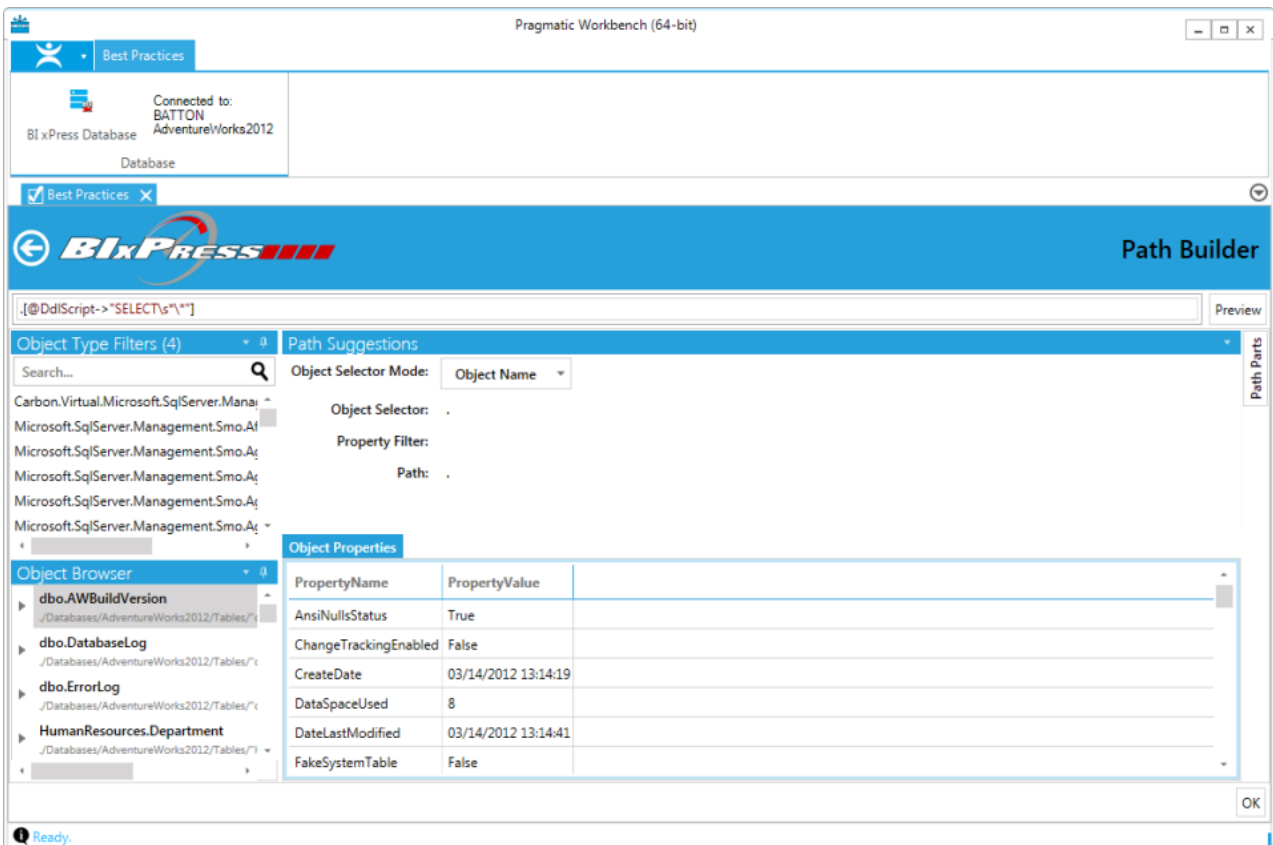


Note: The text box at the top contains the field for your path. You have a list of operators, selectors, and other commands to choose from. To reset your selections, select Reset.

2. Select a technology type from the provider list to open that technology's configuration options. Enter the applicable information to specify your Solution item(s). Select **Next** to continue.



3. Select the desired **Object Type Filter(s)** and then select the type of rule you want to create in the **Object Browser**.



Note: Making a selection in the Object Browser section populates the middle field with that object's properties and path. In this example, we have selected the package itself from the Object Type Filters and a Flat File Connection from the Object Browser. This populates the middle pane with the path and properties of the connection manager.

4. Select the property that you want to check to generate the path. Drag the path into the Path Text Box and remove the name.

Microsoft.SqlServer.Dts.Runtime.Package

Carbon.Virtual.Ssis.DiagramAnnotationCollection

A.cc670bab057cfbcc2fac7672c64acfab

Microsoft.SqlServer.Dts.Runtime.LoggingOptions

Microsoft.SqlServer.Dts.Runtime.SelectedLogProviders

Microsoft.SqlServer.Dts.Runtime.Variables

Microsoft.SqlServer.Dts.Runtime.LogEntryInfos

Microsoft.SqlServer.Dts.Runtime.LogEntryInfo

Microsoft.SqlServer.Dts.Runtime.DtsEventHandlers

Object Browser

OleDbDestinationFastLoadEnabled

Configurations

./Configurations

Connections

./Connections

Flat File Connection Manager

./Connections/'Flat File Connection Manager'

Object Selector Mode: Object Name

Object Selector: /Connections/'Flat File Connection Manager'

Property Filter: @Description.value] == "Description"

Path: /Connections/'Flat File Connection Manager'[@Description.value] == "Description"

	PropertyType	PropertyValue
Delimiters	System.Boolean	True
	System.Int32	1252
DataRow	System.Boolean	True
	System.String	C:\SSISTesting\EmployeeList.txt
	System.String	FLATFILE
	System.Int32	0
	System.String	Description
	System.Object	0
	System.String	Delimited
	System.String	
	System.Int32	0
	System.String	{334EE7C0-0A31-4D23-8017-34E36838B2CC}

Operators

- Logical Operators
- Comparison Operators
- Selectors
 - Object Selectors
 - Property Selectors
- Miscellaneous
 - "" - Escape A String
 - () - Group Elements
 - [] - Conditional

Note: In this example, we selected the Description property.

5. Select **Preview** to make sure that your rule validates against the current package.

`/Connections/"Flat File Connection Manager"[@Description.value() == "Description"]` Reload Preview Close Preview

Property Name	Property Type	Property Value
AlwaysCheckForRowDelimiters	System.Boolean	True
CodePage	System.Int32	1252
ColumnNamesInFirstDataRow	System.Boolean	True
ConnectionString	System.String	C:\SSISTesting\EmployeeList.txt
CreationName	System.String	FLATFILE
DataRowstoSkip	System.Int32	0
Description	System.String	Description
FileUsageType	System.Object	0
Format	System.String	Delimited
HeaderRowDelimiter	System.String	
HeaderRowsToSkip	System.Int32	0
ID	System.String	{334EE7C0-0A31-4D23-8017-34E36838B2CC}
LocaleID	System.Int32	1033
Name	System.String	Flat File Connection Manager
ProtectionLevel	System.Object	1
RowDelimiter	System.String	
Scope	System.Object	0
SupportsDTCTransactions	System.Boolean	False

Note: Your rule should validate true for it to throw a violation of the best practice. For our purposes, our rule looks for connections where the description has a value of Description.

6. Select the back arrow to review your Object Type Filter and Rule Path in the User-Defined Best Practice creator.

User Defined Best Practices

Connection Description Rule *

Rule Id: 8a59b593-7831-440d-87e5-df85bc7dba7d
 Rule Name: Connection Description Rule
 Author: Pragmatic Works
 Date Created: 09/10/2013
 Severity: Informational
 Message: Do not enter the value "Description" for a connection's description property.
 Recommendation: Open the package and edit the description of this connection to give it a more meaningful value.
 Reference Url:
 Object Type Filters: Microsoft.SqlServer.Dts.Runtime.Package
 Path Evaluator: /Connections/[@Description.value() == "Description"]

Cancel