

WebFOCUS

WebFOCUS New Features
Release 8.2 Version 03

June 10, 2020

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What's New In WebFOCUS Release 8.2 Version 03

WebFOCUS includes key features and enhancements across the product line.

Through continued innovation and the expansion of our unyielding commitments to support our customers, Information Builders will work in partnership to help ensure your success with WebFOCUS and beyond.

In this chapter:

- ❑ [WebFOCUS 8.2.03 Key Features Summary](#)

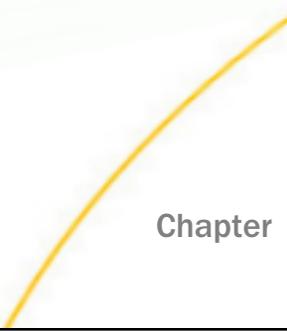
WebFOCUS 8.2.03 Key Features Summary

Use the table below for descriptions of the key features for WebFOCUS Release 8.2 Version 03.

Category	Feature
Search	Using WebFOCUS InfoSearch on page 13.
Development	Auto Linking Enhancements on page 25.
	Adaptive Dashboard on page 26.
	Using the New App Studio Welcome Screen on page 15.
Data Management	Manage Your Data Using the Enhanced Wizard Workflows on page 47.
	Simplified Statistical Functions on page 36.
	Data Profiling Enhancement - Forecast and Distribution Charts on page 80.
Geographic Information Systems	Drawing Lines on an Esri Map on page 57.
	Support for International Boundaries on page 51.
Visualization and Analytics	Using Insight Save to Preserve Procedures on page 59.
	Adapter for Rserve Integration on page 74.

Category	Feature
Adapters	Adapter for Apache Spark on page 66.
	Adapter for Microsoft SQL Server Azure Data Warehouse on page 70.
	Adapter for Hyperledger Fabric on page 74.
	Adapter for Amazon Athena on page 66.
	Support for SAP S/4 HANA, the Next Generation of ERP Business Suite From SAP Replaces SAP ECC/ERP on page 71.
	Adapter for Oracle: Support for System-Versioned Temporal Tables on page 68.
	Adapter for Salesforce.com: Extended Bulk Load Now Available on page 71.
	Adapter for SQL Server: Azure SQL Database Support on page 70.

Category	Feature
Server	Modern Design of Server Web Console on page 94.
	Applications Page Redesign on page 93.
	Redesign of Connect to Data Page on page 82.
	Modern Design of the Data Management Console on page 79.
	Debugging a Dialogue Manager Procedure on page 98.
	Turning a Configured Server Into a Docker Container on page 96.
	Git Integration With the WebFOCUS Reporting Server on page 99.
	Kerberos Support for JDBC-Based Data Sources on page 99.
	Cluster Manager Available for DataMigrator Scheduler on page 79.
	Reporting Server on z/OS 64-Bit Version on page 99.



Chapter 2

Search

WebFOCUS search capabilities enable you to index and search structured or unstructured data, regardless of its source or location. In addition, you can leverage new capabilities that expand and define Repository searches.

This topic highlights the new capabilities that are available for search in this release of WebFOCUS.

In this chapter:

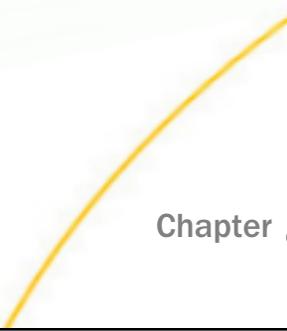
- ❑ [Using WebFOCUS InfoSearch](#)
-

Using WebFOCUS InfoSearch

With the new WebFOCUS InfoSearch, you can define and enhance your Repository searches to include reports, dashboards, and more, as well as create a *dimensional index* to maximize your ability to explore old and new data. Use voice search to request information about specific data values, and compare the statistics of multiple data values simultaneously. Combine WebFOCUS InfoSearch with existing WebFOCUS technologies to improve your ability to analyze information and generate insights.

Magnify Search allows you to easily index and search any structured or unstructured data, regardless of its source or location. Magnify Search allows users to leverage a familiar and intuitive Google-like interface to instantly access detailed records, unstructured documents, aggregate summaries, and more.

For more information, see [Enabling InfoSearch](#) on page 62 and [Displaying Ask WebFOCUS Menu \(opInfoSearch\)](#) on page 62.



Chapter 3

Development

Learn about the new features in App Studio, InfoAssist, WebFOCUS Home Page, WebFOCUS Designer, and Active Technologies. These tools allow you to create, design, and interact with your content in an easy and intuitive way. Additionally, find out about the improvements to the Reporting Language catalog.

In this chapter:

- [App Studio Development Enhancements](#)
 - [Auto Linking Enhancements](#)
 - [In-Document Analytics \(Active Technologies\) Enhancements](#)
 - [InfoAssist Development Enhancements](#)
 - [Reporting Language Enhancements](#)
 - [WebFOCUS Designer Enhancements](#)
 - [WebFOCUS Embedded Business Intelligence](#)
 - [WebFOCUS Home Page Enhancements](#)
-

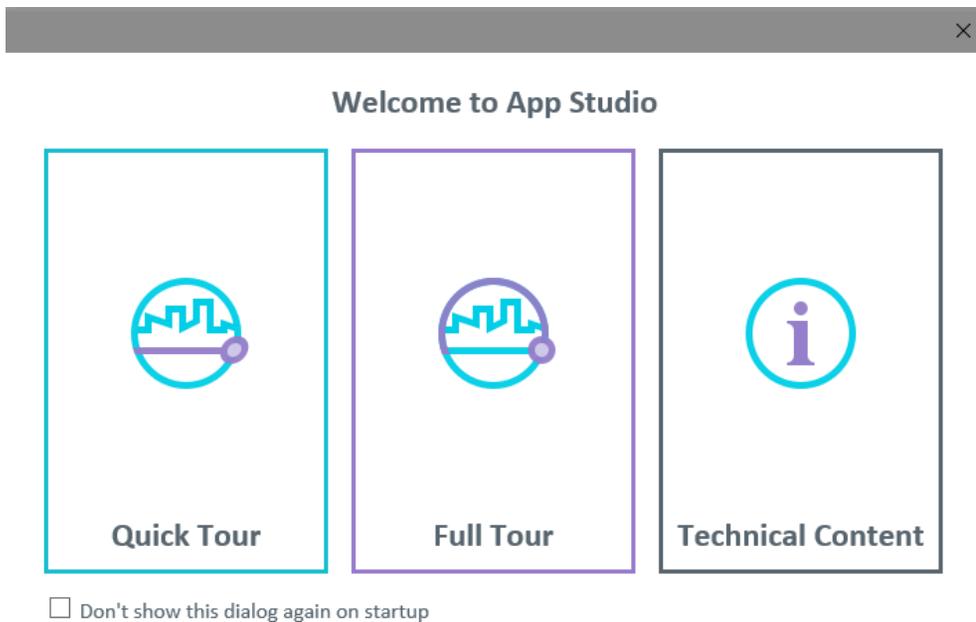
App Studio Development Enhancements

App Studio is a Windows-based GUI development environment for creating WebFOCUS applications. App Studio provides innovative features and functions that simplify development, thereby allowing you to concentrate on interface design, business logic, and data manipulation. Features include data visualization, color exception reporting, intelligent drilldowns, and the ability to generate HTML pages without writing code.

Using the New App Studio Welcome Screen

You can now access the Getting Started video and a suite of technical how-to videos directly in the App Studio Welcome screen window. The new, modern layout provides access to video resources, so you can learn about App Studio visually, as you develop content. It also provides a direct link to the App Studio resources that are available on the WebFOCUS 8.2.x Information Center.

The new App Studio Welcome screen is shown in the following image.

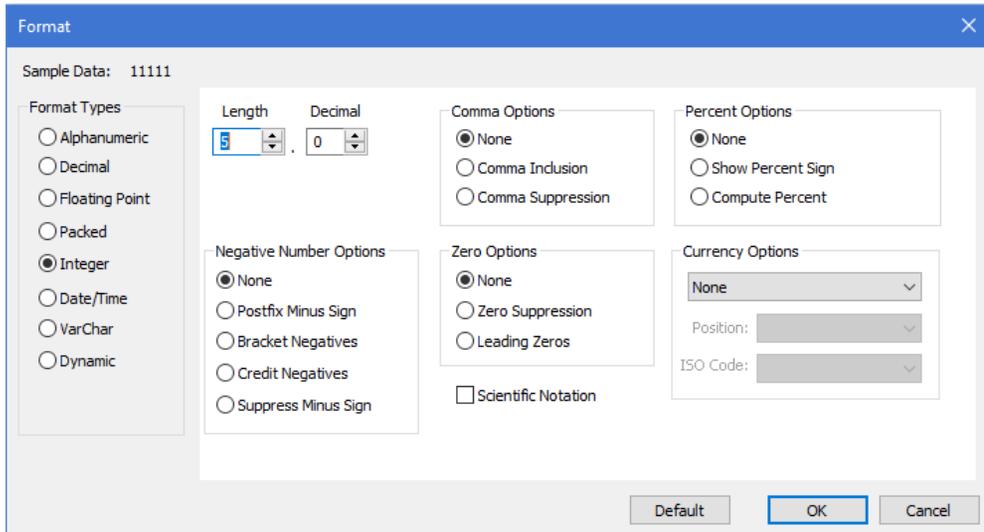


Learn More

For more information about the App Studio Welcome screen, see the *WebFOCUS App Studio User's Manual*.

Using the Enhanced Format Dialog Box

The Format dialog box in the Report canvas has been enhanced to make it easier to select formats and options for columns in a report. The Format dialog box is shown in the following image.



From the Format dialog box, you can implement options to display percentage and localized currency values. Both of these features enable you to customize your report output and your target audience.

Procedure: How to Format Percentages

- Using the wf_retail file, create a report in the Report canvas and add the following columns to your report.
 - Cost of Goods
 - Revenue
 - Gross Profit
- Sort the report by Product Category.
- Create a COMPUTE command to determine the profit margin for each product, for example:


```
ProfitMargin=Gross Profit/Revenue
```
- Run the report.

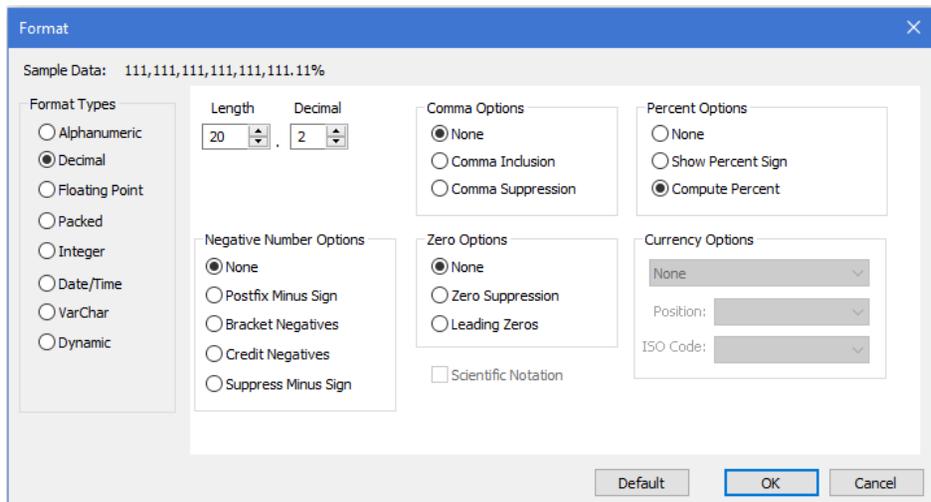
Notice that all values in the ProfitMargin column are decimal values, less than one (1), as shown in the following output.

Product Category	Cost of Goods	Revenue	Gross Profit	ProfitMargin
Accessories	\$89,753,898.00	\$129,608,338.53	\$39,854,440.53	.31
Camcorder	\$104,866,857.00	\$154,465,702.24	\$49,598,845.24	.32
Computers	\$69,807,664.00	\$103,316,482.12	\$33,508,818.12	.32
Media Player	\$190,240,481.00	\$246,073,059.36	\$55,832,578.36	.23
Stereo Systems	\$205,113,863.00	\$291,294,933.52	\$86,181,070.52	.30
Televisions	\$61,551,109.00	\$78,381,132.81	\$16,830,023.81	.21
Video Production	\$40,105,657.00	\$58,053,276.62	\$17,947,619.62	.31

- To change the ProfitMargin values from a decimal to a percentage, you can use the Compute Percent option. This format option automatically multiplies the decimal value by 100 and then adds a percent symbol.

To redisplay the ProfitMargin values as percentages, instead of decimals, you can either:

- Select the *ProfitMargin* column in the report and then select *Computed Percentage* from the % menu in the Appearance tab.
- Right-click the *ProfitMargin* column, click *Format*, and then select *Compute Percent* in the Format dialog box, as shown in the following image.



- Click *OK*.

7. Run the report.

Now that the Compute Percent option is enabled, our report output shows percentages for the ProfitMargin column, as shown in the following output.

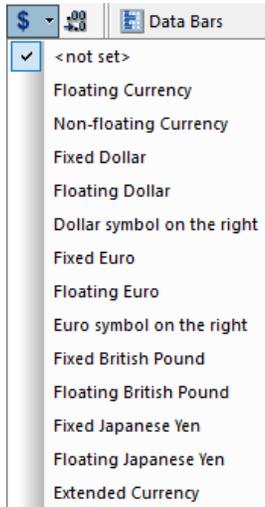
Product Category	Cost of Goods	Revenue	Gross Profit	ProfitMargin
Accessories	\$89,753,898.00	\$129,608,338.53	\$39,854,440.53	30.75%
Camcorder	\$104,866,857.00	\$154,465,702.24	\$49,598,845.24	32.11%
Computers	\$69,807,664.00	\$103,316,482.12	\$33,508,818.12	32.43%
Media Player	\$190,240,481.00	\$246,073,059.36	\$55,832,578.36	22.69%
Stereo Systems	\$205,113,863.00	\$291,294,933.52	\$86,181,070.52	29.59%
Televisions	\$61,551,109.00	\$78,381,132.81	\$16,830,023.81	21.47%
Video Production	\$40,105,657.00	\$58,053,276.62	\$17,947,619.62	30.92%

Note: Compute Percent multiplies the value by 100 before adding the percent symbol, so if your data is already a percentage, you will want to use the Percentage option in the Appearance tab or the Show Percent option in the Format dialog box.

Procedure: How to Customize Currency Values

You can easily apply currency formatting to any numeric column. When you select a numeric column, the Appearance tab includes a currency symbol menu that includes basic currency formatting options.

1. Using the same report created in [How to Format Percentages](#) on page 17, click the *Revenue* column and open the currency menu, as shown in the following image.



You can select from dollar, euro, pound, and yen symbols, or use the default currency symbol for the code page that you are using. You can also choose whether the symbol is:

- Floating, which appears next to each value in the column.
 - Fixed, which appears only in the first row of each column.
 - Appears on the right for euro and dollar values.
2. Select *Fixed Dollar*.
- Note:** You can access the same currency format options by right-clicking the column, clicking *Format*, and using the Currency Options drop-down menus in the Format dialog box.
3. To access additional currency codes and symbols, you must access the Format dialog box from the Computed Field Creator. For example, to show the revenue in Brazilian real, create a COMPUTE command containing Revenue and multiply it by the exchange rate, which is 3.21.

```
RevenueReal = Revenue * 3.21
```

- Click *Format*, and then, from the Currency Options menu, select *Locale options*.

You can choose any currency for which there is an ISO code available. You can also set the position of the currency symbol.

- Select *BRL* from the ISO Code list and accept the default position, as shown in the following image.

The screenshot shows the 'Format' dialog box with the following settings:

- Sample Data:** R\$1,111,111,111.11
- Format Types:** Decimal (selected)
- Length:** 12
- Decimal:** 2
- Comma Options:** None (selected)
- Percent Options:** None (selected)
- Negative Number Options:** None (selected)
- Zero Options:** None (selected)
- Currency Options:**
 - Locale options (selected)
 - Position: Default
 - ISO Code: BRL - Brazil

Buttons at the bottom: Reset, Default, OK, Cancel.

- Run the report.

The RevenueReal column displays the values with the real symbol (R\$), as shown in the following output.

Product Category	Cost of Goods	RevenueReal	Revenue	Gross Profit	ProfitMargin
Accessories	\$89,753,898.00	R\$416,042,766.68	\$ 129,608,338.53	\$39,854,440.53	30.75%
Camcorder	\$104,866,857.00	R\$495,834,904.19	154,465,702.24	\$49,598,845.24	32.11%
Computers	\$69,807,664.00	R\$331,645,907.60	103,316,482.12	\$33,508,818.12	32.43%
Media Player	\$190,240,481.00	R\$789,894,520.55	246,073,059.36	\$55,832,578.36	22.69%
Stereo Systems	\$205,113,863.00	R\$935,056,736.60	291,294,933.52	\$86,181,070.52	29.59%
Televisions	\$61,551,109.00	R\$251,603,436.32	78,381,132.81	\$16,830,023.81	21.47%
Video Production	\$40,105,657.00	R\$186,351,017.95	58,053,276.62	\$17,947,619.62	30.92%

Brazilian Portuguese Language Support

App Studio Release 8.2 Version 03 provides support for Brazilian Portuguese during the installation process of the App Studio product. The languages presented during the installation process depend on the system locale of your machine. When the locale is set to English or Brazilian Portuguese, then Brazilian Portuguese is available from the Language drop-down list. When Brazilian Portuguese is selected, the App Studio user interface is configured to be in Brazilian Portuguese. You can update the language App Studio uses post-installation, using the Language selection drop-down list on the General tab of the App Studio Options dialog box.

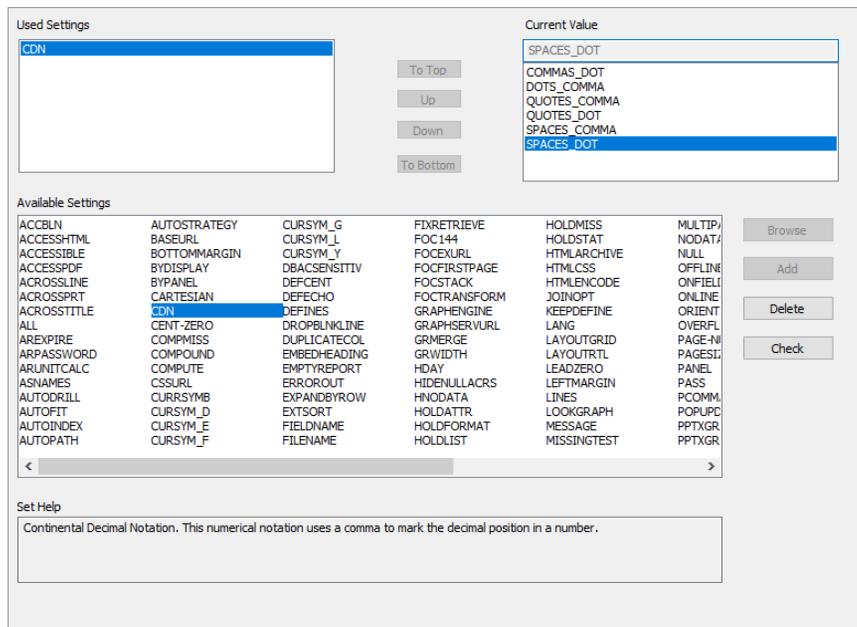
Learn More

For more information, see the *WebFOCUS App Studio Installation and Configuration Guide* in the Technical Library.

Continental Decimal Notation SPACES_DOT Option

The SET CDN command specifies punctuation used in numeric notation. Continental Decimal Notation is supported for output in report requests. It is not supported in DEFINE or COMPUTE commands. The CDN parameter has a new option, SPACES_DOT or SPACEP, that displays a space as the thousands separator and a period as the decimal separator.

The SPACES_DOT option has been added to the Set canvas, as shown in the following image.



Possible values are:

- COMMAS_DOT** or **OFF** sets the decimal separator as a period and the thousands separator as a comma.
- DOTS_COMMA** or **ON** sets the decimal separator as a comma and the thousands separator as a period.
- QUOTES_COMMA** or **QUOTE** sets the decimal point as a comma and the thousands separator as an apostrophe.
- QUOTES_DOT** or **QUOTE** sets the decimal point as a period and the thousands separator as an apostrophe.
- SPACES_COMMA** or **SPACE** sets the decimal point as a comma, and the thousands separator as a space.
- SPACES_DOT** or **SPACE** sets the decimal point as a period, and the thousands separator as a space.

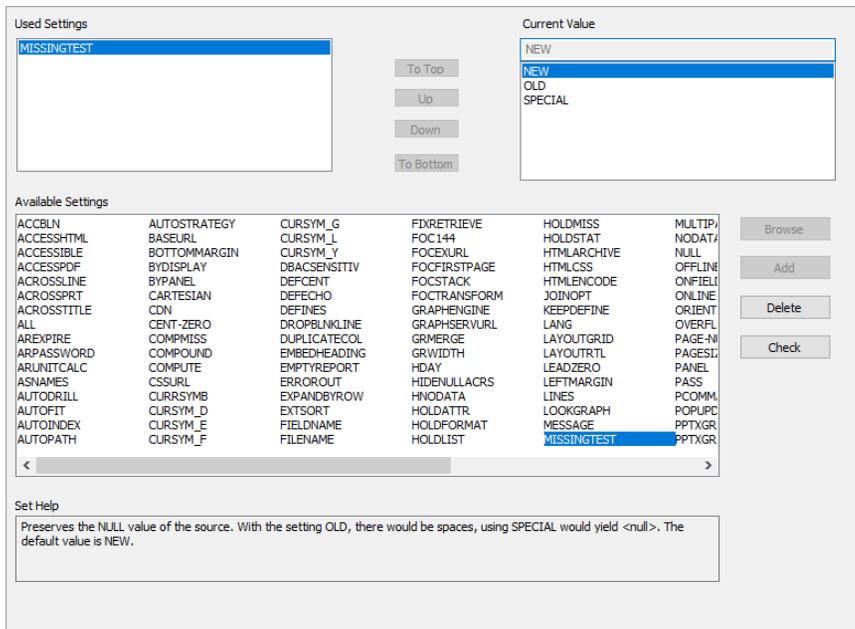
Learn More

For more information on SET commands, see the *Developing Reporting Applications* technical content in the Technical Library.

SET MISSINGTEST Command

You can use the SET MISSINGTEST command to eliminate the missing test for an IF expression so that either the THEN expression or the ELSE expression will be evaluated and returned as the result. The MISSINGTEST parameter has a new option, NEW, which is the default value. In previous releases, OLD was the default value.

The MISSINGTEST parameter has been added to the Set canvas, as shown in the following image.



Possible values are:

- NEW** excludes the IF expression from the missing values evaluation so that it results in either true or false, not MISSING. If it evaluates to true, the THEN expression is used to calculate the result. If it evaluates to false, the ELSE expression is used to calculate the result. This is the default value.
- OLD** includes the IF expression in the missing values evaluation. If the IF expression evaluates to MISSING, the result is also MISSING, if the missing field only needs some missing values.
- SPECIAL** is required to pass parameters to RStat functions.

Learn More

For more information on the SET MISSINGTEST command and other SET commands, see the *Creating Reports With WebFOCUS Language* and the *Developing Reporting Applications* technical content in the Technical Library.

Auto Linking Enhancements

Auto Linking makes it easy to connect reports and charts in your development environment, expanding the reporting capabilities of your organization. Using Auto Linking, you can dynamically link HTML reports, active reports, and HTML5 charts with a single report or chart of any format, based on their common sort (BY) fields and parameters referenced in any filters.

You can Auto Link enable as many reports and charts as you want, and Auto Link Targets can be enabled to have their own targets. These charts and reports must have filters with parameters to match the selected sort field and sort fields preceding it in the Auto Link enabled report.

Learn More

For more information, see *Using the Auto Linking Feature to Link Content* in the *InfoAssist* technical content.

Evaluation of Optional Parameters

Auto Link Target reports that have optional filter parameters are now included in the Auto Link target report evaluation, so that all possible combinations of run-time parameters are evaluated and available as links to you as you run the request. This may produce additional reports or charts in your list of available Auto Link targets, offering you access to an expanded network of related content.

Carry All Filter Values from Each Drilldown Level to Subsequent Drilldowns

When using Auto Linking, each drilldown selected will receive the filter parameter values from the prior drilldown so that the Auto Link target report being drilled down to is within the same scope of content.

Exclude Recursive Auto Link Target Reports

When using Auto Linking, if you are drilling down through a list of Auto Link target reports, a previously selected Auto Link target report will be excluded so that the available Auto Link targets are reports that you have not yet viewed.

In-Document Analytics (Active Technologies) Enhancements

WebFOCUS Active Technologies reports and dashboards provide business intelligence (BI) for any computer or mobile device running a web browser. Active Technologies present data with a variety of interactive analytic capabilities in a single portable document, deliverable to any type of mobile device. Users of rich interactive applications created with Active Technologies can easily manipulate the data, intuitively explore information, and uncover critical trends and patterns using device-specific user interface characteristics and gestures for multi-touch screens.

With Active Technologies, you can quickly develop completely portable BI applications, deliver interactive reports and dashboards to any user, and reduce the load on the database and server systems by allowing users to work in disconnected mode. The built-in analytics include sorting, filtering, performing data calculations, charting, and much more.

Adaptive Dashboard

Release 8.2 Version 03 introduces the Adaptive Dashboard, a feature that provides a mobile view with a fixed layout that will make dashboards easier to use while navigating on mobile devices. These include the dashboard bar at the top of the screen which contains the page layout tabs, circles at the bottom of the screen which indicate the number of report or chart components available on the selected tab, navigation arrows at the bottom of the screen that allow you to move between components with ease, and a hamburger menu which displays available filter controls.

You can enable the Adaptive Dashboard option on new or existing In-Document Analytic documents in InfoAssist by clicking the *Adaptive Dashboard* button on the Layout tab of the ribbon, under the Page Setup group.

InfoAssist Development Enhancements

InfoAssist is a powerful report generation tool that enables business users to leverage ad hoc functionality. With InfoAssist, you can generate highly complex reports, charts, and documents from any enterprise information source without IT intervention. You can also analyze multiple reports and charts simultaneously and output report data in a variety of formats.

Using Adaptive Dashboard to Navigate Easily on Mobile Devices

Available in Document mode, Adaptive Dashboard allows you to create responsive content within a fixed layout designed to make the dashboard easier to use while navigating on mobile devices.

Learn More

For more information, see *How to Create an Adaptive Dashboard* in the *InfoAssist* technical content.

Downloading InfoAssist Data in CSV Format

You can now download data from InfoAssist in CSV format. This feature makes it easy to create a report and capture the data for use with any external program that utilizes comma-delimited data, including Microsoft® Excel®. With this feature, you can generate data extracts and pass your data between systems with ease.

This feature introduces a new option on the Excel (xlsx) Output File Format list. Once you have selected this new option, Excel (csv), and data has been added to your report, simply click **Run** to generate a CSV output file. Similar to the other Excel output formats, the generated file will be passed to your browser and presented using the standard download options for your browser. You can then open or save the file to a local directory.

Note: The CSV file can be reviewed in any text editor.

Using Enhanced HTML Features

Two HTML features, HFREEZE and the Accordion by Row Report, have been upgraded to work well in the new responsive portal and other web components. In each feature, we have focused on making the output smarter and more cognizant of the browser environment in which they are presented. These can now work as valuable content integrated into your web pages.

Both of these key HTML features give you additional navigational capabilities while respecting the content around them.

The Freeze option allows you to define a scroll area within the data of your report. It locks the headings and footings in place and allows you to scroll through the data within the container.

Accordion By Row reports places your data into a tree control in which the sort field values and their corresponding aggregated measures rolled up with the highest level sort field and the grand totals at the top of the report. Within the tree control, each dimension can be opened to view the associated aggregated values.

Multiple Separators Available for Date Formats in the Field Format Dialog Box

When working with Date formats in InfoAssist, you can now change the separator to enhance the format of your data. The default separator is / (slash), but you can select . (period), - (hyphen), (space), or None. The separator can be changed for any date field placed in the Sum field container using the Edit Format option on the shortcut menu of the Query pane. In addition, if you are creating a Define or Compute, you can select the Date format option on the Field Format Options dialog box to access these options and specify a separator.

Changing the Order or Dependency of Define Fields in InfoAssist

If the order or dependencies within your DEFINE fields changes, InfoAssist will now automatically reorder these fields to ensure they can be correctly processed. For example, you may have created multiple Defines in a procedure. In editing the Define, you can assign a value to something else that is defined later in the procedure. When you change the original Define to reference a Define that was created later, they will need to be reordered to provide the correct answer. InfoAssist will now automatically ensure this order will be correct.

For example, you could create the following defines in order: Costs equal to Retail_Cost, New_Costs equal to Dealer_Cost. Then, you could decide to change the definition of Costs to equal New_Costs. In the order you have entered these fields New_Costs will not have been instantiated before it is assigned to Costs. To remedy this, InfoAssist will automatically move New_Costs DEFINE to before the Costs Define to allow the value to be available.

Any revisions in the order of the fields will not change how they are presented in the field tree, but can be verified using the View Code option on the Quick Access toolbar or by editing the procedure on the WebFOCUS Home Page.

Sorting Dynamic Prompts in Ascending or Descending Order

The Dynamic Prompt functionality has been enhanced to allow you to sort values that display at run time within dynamic prompts in either ascending or descending order. This is particularly useful, for example, for numeric values to place the highest or lowest values at the top of the selection list and for dates to choose whether the date values will be presented with the most recent at the top or at the bottom of the list. You can also specify sorting for categorical values with ease using Dynamic Prompts.

Prompts are created using the filtering functionality in InfoAssist. The dynamic parameters that you specify become the prompts that are used at run time. When creating a dynamic parameter, you specify the field to provide the values for selection within the filter at run time, whether the values should be single or multiselect and the sort order for the list. The sorting on the prompt values is set to ascending order, by default, however you can select descending to reverse the order.

Reporting Language Enhancements

WebFOCUS is a complete information control system with comprehensive features for retrieving and analyzing data. It enables you to create reports quickly and easily. It also provides facilities for creating highly complex reports, but its strength lies in the simplicity of the request language. You can begin with simple queries and progress to complex reports as you learn about additional facilities.

Accordion By Row Enhanced Interface

Accordion By Row reports are HTML reports that offer an interactive interface to data aggregated at multiple levels, by presenting the sort fields within an expandable tree. By default, the report will present the highest dimension or sort field (BY value) and the aggregated measures associated with each value. The tree control can be used to open or close each dimension and view the associated aggregated values. Clicking the plus or minus sign or the arrow next to a sort field value opens new rows that display the next lower level sort field values and subtotals. The lowest level sort field, when expanded, displays the aggregated data values.

Using the Accordion By Row enhanced interface, navigation is easier when working with wide and large reports in a portal page, the data automatically resizes to fit the size of the container, and the column widths automatically adjust based on the largest data value or column title, whichever is larger. The SET EXPANDBYROWTREE=ON command in a procedure enables the enhanced Accordion By Row feature.

For more information on Accordion By Row reports, see the *Creating Reports With WebFOCUS Language* technical content.

OpenType Fonts Embedded in PDF Output Files

In addition to Type 1 fonts, you can add and configure OpenType fonts to be embedded in PDF output files. OpenType fonts enable more flexibility in customizing PDF files, such as support for expanded character sets and layout features, and cross-platform compatibility.

The font extension for OpenType fonts is .OTF. You can only use OTF fonts with content in Compact Font Format (CFF).

Learn More

For more information on WebFOCUS font support, see the *Creating Reports With WebFOCUS Language* technical content.

Two-Part Names Support in ? DEFINE

If a DEFINE command is issued using a two-part name (apname/filename), the output from the ? DEFINE query command will show the two-part name.

Example: Returning a Two-Part Name From the ? DEFINE Command

The following DEFINE command is issued using a two-part name.

```
DEFINE FILE ibisamp/GGSALES
DIFF = DOLLARS-BUDDOLLARS;
END
```

Issuing the ? DEFINE ibisamp/GGSALES command returns the following output.

FILE NAME	FIELD NAME	FORMAT	SEGMENT
IBISAMP/GGSALES	DIFF	D12.2	1

Stacking Duplicate Columns in Multi-Verb Requests Based on AS Names

You can use the SET DUPLICATECOL command to reformat report requests that use multiple display commands, placing aggregated fields in the same column above the displayed field.

By default, each new display command in a request generates additional sort field and display field columns. With DUPLICATECOL set to OFF, each field occupies only one column in the request, with the values from each display command stacked under the values for the previous display command.

In prior releases, the duplicate columns were matched based on field names. Now, fields can also be matched based on AS names. An AS name will not be matched to a field name. When a field has an AS name, it will only be matched to other fields that have the same AS name.

Example: Stacking Duplicate Columns in Multi-Verb Requests Based on AS Names

The following request has three display commands. The first sums the CURR_SAL field. The second sums the SALARY field by department. The third prints the GROSS field by department and last name. Each field is assigned the same AS name, even the CURR_SAL field.

```
TABLE FILE EMPLOYEE
SUM CURR_SAL AS CURR_SAL ED_HRS
SUM SALARY AS CURR_SAL ED_HRS BY DEPARTMENT AS 'DEPT'
PRINT FIRST_NAME GROSS AS CURR_SAL ED_HRS BY DEPARTMENT BY LAST_NAME
ON TABLE SET DUPLICATECOL OFF
ON TABLE SET PAGE NOLEAD
ON TABLE SET STYLE *
GRID=OFF, SIZE=10, $
VERBSET=1, COLOR=RED,$
VERBSET=2, COLOR=BLUE,$
VERBSET=3, COLOR=BLACK,$
ENDSTYLE
END
```

The partial output is shown in the following image.

<u>DEPT</u>	<u>LAST_NAME</u>	<u>FIRST_NAME</u>	<u>CURR_SAL</u>	<u>ED_HRS</u>
			\$222,284.00	351.00
MIS			\$160,177.00	231.00
	BLACKWOOD	ROSEMARIE	\$1,815.00	75.00
		ROSEMARIE	\$1,815.00	75.00
		ROSEMARIE	\$1,815.00	75.00
		ROSEMARIE	\$1,815.00	75.00
		ROSEMARIE	\$1,815.00	75.00
	CROSS	BARBARA	\$2,255.00	45.00
		BARBARA	\$2,255.00	45.00
		BARBARA	\$2,255.00	45.00
		BARBARA	\$2,255.00	45.00
		BARBARA	\$2,255.00	45.00
		BARBARA	\$2,147.75	45.00
		BARBARA	\$2,147.75	45.00
		BARBARA	\$2,147.75	45.00
		BARBARA	\$2,147.75	45.00
		BARBARA	\$2,147.75	45.00
		BARBARA	\$2,147.75	45.00
	GREENSPAN	MARY	\$750.00	25.00
		MARY	\$750.00	25.00
		MARY	\$750.00	25.00
		MARY	\$720.84	25.00
	JONES	DIANE	\$1,540.00	50.00
		DIANE	\$1,540.00	50.00
		DIANE	\$1,540.00	50.00
		DIANE	\$1,479.50	50.00
	MCCOY	JOHN	\$1,540.00	.00
	SMITH	MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00
		MARY	\$1,100.00	36.00

Enhancements to Error Messages

Many error messages have been simplified and unnecessary messages have been eliminated.

Two lines have been added to error messages related to parsing a Master File. The line that triggered the message is displayed below a line with a pointer to the position of the error. The pointer consists of a series of dashes and a down arrow (—v) that identifies the location of the error in the line.

For example, in the WF_RETAIL_LITE Master File, the DEFINE command for SHIPMENT_UNITY has been edited to have an extra equal sign (=).

```
FILENAME=WF_RETAIL_LITE, TRANS_FILE=_EDAHOME/NLS/dt,
REMARKS='Lite Cluster Join of Fact Tables Sales and Shipments for Demo
Database', BV_NAMESPACE=OFF, $
  SEGMENT=WF_RETAIL_SALES, PARENT=., CRFILE=retail8203/facts/
wf_retail_sales, CRINCLUDE=ALL,
  DESCRIPTION='Sales Fact', $
  DEFINE SALE_UNITY/I9C WITH ID_SALES=1;
  TITLE='Sale Unit(s)', DESCRIPTION='Unity Value (1) for each Sales
Fact', $
  SEGMENT=WF_RETAIL_SHIPMENTS, PARENT=., CRFILE=retail8203/facts/
wf_retail_shipments, CRINCLUDE=ALL,
  DESCRIPTION='Shipments Fact', $
  DEFINE = SHIPMENT_UNITY/I9C WITH ID_SHIPFACT=1;
  TITLE='Shipment Unit(s)', DESCRIPTION='Unity Value (1) for each
Shipment Fact', $
```

Running a request against this Master File produces the following messages.

(FOC03601) ERROR AT OR NEAR LINE 10 IN APP01/WF_RETAIL_LITE

(FOC1822) Invalid symbol in MFD parser: >=<

—v

DEFINE = SHIPMENT_UNITY/I9C WITH ID_SHIPFACT=1;

DTIME: Extracting Time Components From a Date-Time Value

Given a date-time value and time component keyword as input, DTIME returns the value of all of the time components up to and including the requested component. The remaining time components in the value are set to zero. The field to which the time component is returned must have a time format that supports the component being returned.

EDAPRINT: Inserting a Custom Message in the EDAPRINT Log File

The EDAPRINT function enables you to add a text message into the EDAPRINT log file and assign it a message type. The returned value of the function is zero (0).

Using FORECAST in a COMPUTE Command

The FORECAST feature in prior releases was implemented for use in a RECAP command. However, the use of RECAP imposed limitations on placement of the FORECAST field in the output and use of sort fields.

Implementing FORECAST in a COMPUTE command eliminates these limitations and enables you to place the FORECAST calculation in a Master File. For the COMPUTE version of FORECAST, each type of calculation has its own version of the FORECAST function.

The calculations you can make to identify trends and forecast values are:

- ❑ **Simple moving average (FORECAST_MOVAVE).** Calculates a series of arithmetic means using a specified number of values from a field.
- ❑ **Exponential moving average.** Calculates a weighted average between the previously calculated value of the average and the next data point. There are three methods for using an exponential moving average:
 - ❑ **Single exponential smoothing (FORECAST_EXPAVE).** Calculates an average that allows you to choose weights to apply to newer and older values.
 - ❑ **Double exponential smoothing (FORECAST_DOUBLEXP).** Accounts for the tendency of data to either increase or decrease over time without repeating.
 - ❑ **Triple exponential smoothing (FORECAST_SEASONAL).** Accounts for the tendency of data to repeat itself in intervals over time.
- ❑ **Linear regression analysis (FORECAST_LINEAR).** Derives the coefficients of a straight line that best fits the data points and uses this linear equation to estimate values.

For more information, see the *Creating Reports With WebFOCUS Language* technical content.

PATTERNS: Returning a Pattern That Represents the Structure of the Input String

PATTERNS returns a string that represents the structure of the input argument. The returned pattern includes the following characters:

- ❑ **A** is returned for any position in the input string that has an uppercase letter.
- ❑ **a** is returned for any position in the input string that has a lowercase letter.
- ❑ **9** is returned for any position in the input string that has a digit.

Note that special characters (for example, +/=%) are returned exactly as they were in the input string.

The output is returned as variable length alphanumeric.

Syntax: **How to Return a String That Represents the Pattern Profile of the Input Argument**

```
PATTERNS(string)
```

where:

```
string
```

Alphanumeric

Is a string whose pattern will be returned.

Example: **Returning a Pattern Representing an Input String**

The following request returns patterns that represent customer addresses.

```
DEFINE FILE WF_RETAIL_LITE
Address_Pattern/A40V = PATTERNS(ADDRESS_LINE_1);
END

TABLE FILE WF_RETAIL_LITE
PRINT FST.ADDRESS_LINE_1 OVER
Address_Pattern
BY ADDRESS_LINE_1 NOPRINT SKIP-LINE
WHERE COUNTRY_NAME EQ 'United States'
WHERE CITY_NAME EQ 'Houston' OR 'Indianapolis' OR 'Chapel Hill' OR 'Bronx'
ON TABLE SET PAGE NOLEAD
ON TABLE SET STYLE *
GRID=OFF,$
ENDSTYLE
END
```

The partial output is shown in the following image. Note that the special characters (#,.) in an address are represented in the pattern as is.

FST Customer Address Line 1	1010 Milam St # Ifp-2352
Address_Pattern	9999 Aaaaa Aa # Aaa-9999
FST Customer Address Line 1	10700 Richmond Ave
Address_Pattern	99999 Aaaaaaaaa Aaa
FST Customer Address Line 1	10777 North Fwy
Address_Pattern	99999 Aaaaa Aaa
FST Customer Address Line 1	11 E Greenway Plz Ste 100
Address_Pattern	99 A Aaaaaaaaa Aaa Aaa 999
FST Customer Address Line 1	111 Monument Cir
Address_Pattern	999 Aaaaaaaaa Aaa
FST Customer Address Line 1	111 Monument Circle - Ste 2100
Address_Pattern	999 Aaaaaaaaa Aaaaaa - Aaa 9999
FST Customer Address Line 1	1205 Dart St, Rm 219
Address_Pattern	9999 Aaaa Aa, Aa 999

Simplified Statistical Functions

The following simplified statistical functions have been added.

- CORRELATION, which returns the degree of correlation between two independent sets of data.
- KMEANS_CLUSTER, which partitions n observations into k clusters in which each observation belongs to the cluster with the nearest mean.
- STDDEV, which quantifies the amount of variation or dispersion of a set of data values.

- ❑ MULTIREGRESS, which derives a linear equation that best fits the data values of one or more numeric fields, and uses this equation to create a new column in the report output.
- ❑ RSERVE, which runs an R script that returns vector output.

These functions can be called in a COMPUTE command and operate on the internal matrix that is generated during TABLE request processing. The STDDEV and CORRELATION functions can also be called as a verb object in a display command.

For more information, see the *Using Functions* technical content.

Displaying a Caret Symbol (<) in Heading Objects

The caret or less than symbol (<) signals that the next item in a heading object is a field name. Using it in a heading object without a field name produces an error message similar to the following, and the request is not run.

```
(FOC804) REFERENCED OBJECT <item> IS NOT FOUND IN MFD <master_file>
```

In order to display the caret symbol in a heading object, use two consecutive caret symbols (<<).

Example: Displaying a Less Than Symbol in a Heading

The following request computes the difference between REVENUE_US and COGS_US and displays those rows in which the difference is less than 100,000.

```
TABLE FILE WF_RETAIL_LITE
HEADING CENTER
" Difference << 100,000"
" "
SUM COGS_US REVENUE_US
COMPUTE Difference/D20.2 = REVENUE_US - COGS_US;
BY PRODUCT_CATEGORY
WHERE TOTAL Difference LT 100000
ON TABLE SET PAGE NOLEAD
ON TABLE SET STYLE *
GRID=OFF,$
ENDSTYLE
END
```

The heading displays the text *Difference < 100,000*, as shown in the following image.

<i>Difference < 100,000</i>			
<u>Product</u>			
<u>Category</u>	<u>Cost of Goods</u>	<u>Revenue</u>	<u>Difference</u>
Computers	\$109,281.00	\$179,761.46	70,480.46
Televisions	\$227,820.00	\$286,160.68	58,340.68
Video Production	\$180,540.00	\$259,179.84	78,639.84

Displaying Syntax Components in Heading Objects

You can automatically display syntax components from your report or chart request in heading objects by adding one or more of the following attributes:

- <REQUEST.FILTERS.** Lists the WHERE and IF conditions in the request.
- <REQUEST.VERB_OBJECTS.** Lists the display fields referenced in the request.
- <REQUEST.SORT_KEYS.** Lists all sort fields in the request.
- <REQUEST.BYKEYS.** Lists all BY sort fields in the request.
- <REQUEST.ACROSSKEYS.** Lists all ACROSS sort fields in the request.
- <REQUEST.VERB_OBJECTS_CONTEXT.** Lists the display command syntax used for each display field.
- <REQUEST.SORT_KEYS_CONTEXT.** Lists all sort phrases in the request.

Note: The syntax component breaks onto multiple lines if the heading line length extends beyond the width of the report or chart container.

Example: Displaying Report Syntax Components

The following request displays all available syntax components from the report request in the heading. The spot markers (<+0>) are used to separate heading items so they can be styled separately in the StyleSheet.

```
TABLE FILE WF_RETAIL_LITE
HEADING
"Display Objects: <+0> <REQUEST.VERB_OBJECTS"
"Sort Fields: <+0> <REQUEST.SORT_KEYS"
"BY Fields: <+0> <REQUEST.BYKEYS"
"ACROSS Fields: <+0> <REQUEST.ACROSSKEYS"
"Filters: <+0> <REQUEST.FILTERS"
" "
"Display Commands: <+0> <REQUEST.VERB_OBJECTS_CONTEXT"
"Sort Phrases: <+0> <REQUEST.SORT_KEYS_CONTEXT"
" "
" "
SUM COGS_US REVENUE_US
COMPUTE RATIO/D12.2=REVENUE_US/COGS_US;
BY PRODUCT_CATEGORY SUBTOTAL COGS_US
ACROSS BUSINESS_REGION ACROSS-TOTAL
WHERE BUSINESS_REGION NE 'Oceania'
ON TABLE SET PAGE NOLEAD
ON TABLE SET STYLE *
TYPE=REPORT, COLOR = BLUE, SIZE=10, GRID=OFF,$
TYPE=HEADING, ITEM=1, OBJECT=TEXT, FONT=Courier, COLOR=BLUE, STYLE=BOLD,$
TYPE=HEADING, ITEM=2, FONT=Courier, COLOR=TEAL, STYLE=ITALIC,$
TYPE=TITLE, FONT=ARIAL, STYLE=BOLD, COLOR=NAVY,$
TYPE=ACROSSTITLE, FONT=ARIAL, STYLE=BOLD, COLOR=NAVY,$
TYPE=ACROSSVALUE, FONT=ARIAL, STYLE=ITALIC, COLOR=NAVY, SIZE=10,$
ENDSTYLE
END
```

The output is shown in the following image.

```

Display Objects: 'Cost of Goods' Revenue
Sort Fields: 'Product,Category' 'Customer,Business,Region'
By Fields: 'Product,Category'
ACROSS Fields: 'Customer,Business,Region'
Filters: WHERE 'Customer,Business,Region' NE 'Oceania';

Display Commands: WRITE 'Cost of Goods' Revenue
Sort Phrases: BY 'Product,Category' SUBTOTAL COGS_US ACROSS 'Customer,Business,Region' ACROSS-TOTAL
    
```

Product Category	Customer,Business,Region EMEA			North America			South America			TOTAL		
	Cost of Goods	Revenue	RATIO	Cost of Goods	Revenue	RATIO	Cost of Goods	Revenue	RATIO	Cost of Goods	Revenue	RATIO
Accessories	\$143,987.00	\$211,477.99	1.47	\$171,306.00	\$249,935.10	1.46	\$25,723.00	\$35,445.49	1.38	\$341,016.00	\$496,838.58	4.31
*TOTAL Accessories	\$143,987.00			\$171,306.00			\$25,723.00			\$341,016.00		
Camcorder	\$187,000.00	\$280,235.28	1.50	\$242,967.00	\$349,755.15	1.44	\$22,686.00	\$36,276.20	1.60	\$452,653.00	\$666,266.63	4.54
*TOTAL Camcorder	\$187,000.00			\$242,967.00			\$22,686.00			\$452,653.00		
Computers	\$47,616.00	\$78,240.81	1.64	\$53,329.00	\$87,843.34	1.65	\$7,845.00	\$12,869.35	1.64	\$108,790.00	\$178,955.50	4.93
*TOTAL Computers	\$47,616.00			\$53,329.00			\$7,845.00			\$108,790.00		
Media Player	\$328,401.00	\$424,907.47	1.29	\$386,681.00	\$501,551.53	1.30	\$60,183.00	\$77,727.74	1.29	\$775,265.00	\$1,004,186.74	3.88
*TOTAL Media Player	\$328,401.00			\$386,681.00			\$60,183.00			\$775,265.00		
Stereo Systems	\$361,756.00	\$514,689.93	1.42	\$412,036.00	\$585,129.52	1.42	\$81,823.00	\$114,226.95	1.40	\$855,615.00	\$1,214,046.40	4.24
*TOTAL Stereo Systems	\$361,756.00			\$412,036.00			\$81,823.00			\$855,615.00		
Televisions	\$100,443.00	\$123,921.37	1.23	\$101,212.00	\$128,882.05	1.27	\$25,800.00	\$33,057.86	1.28	\$227,455.00	\$285,861.28	3.79
*TOTAL Televisions	\$100,443.00			\$101,212.00			\$25,800.00			\$227,455.00		
Video Production	\$78,722.00	\$112,141.72	1.42	\$89,489.00	\$129,247.23	1.44	\$11,740.00	\$16,872.90	1.44	\$179,951.00	\$258,261.85	4.31
*TOTAL Video Production	\$78,722.00			\$89,489.00			\$11,740.00			\$179,951.00		
TOTAL	\$1,247,925.00			\$1,457,020.00			\$235,800.00			\$2,940,745.00		

Representing a Null String

In prior releases, two consecutive single quotation marks represented a string with one blank character. For example:

```
FIELD1/A1 = ' ';
```

Starting in this release, two consecutive single quotation marks will represent a null value with format A1V and an actual length of 0 (zero), when the field has MISSING ON. For example:

```
FIELD1/A1 MISSING ON = ' ';
```

If you want a blank character, add a blank between the single quotation marks. For example:

```
FIELD1/A1 = ' ';
```

Enhancements to the BYDISPLAY Parameter

By default, a sort field value displays only on the first row or column of the set of detail rows or columns generated for that sort field value. You can control this behavior using the BYDISPLAY parameter. In prior releases, BYDISPLAY was only supported for styled output formats and only for BY sort fields. However, it now applies to all output formats and can control display of ACROSS values as well as BY values.

Enhancement to SET COUNTWIDTH

You can now specify an integer value for the width of a COUNT column on report output. The syntax is:

```
SET COUNTWIDTH = {OFF|ON|n}
```

where:

OFF

Makes the format of the COUNT field I5. This is the default value.

ON

Makes the format of the COUNT field I9.

n

Enables you to specify a width for the COUNT field up to the maximum integer format supported in your operating environment.

Setting MISSING ON Behavior for DEFINE and COMPUTE

When a virtual field or calculated value can have missing values, you can specify whether all or some of the field values used in the expression that creates the DEFINE or COMPUTE field must be missing to make the result field missing. If you do not specify ALL or SOME for a DEFINE or COMPUTE with MISSING ON, the default value is SOME.

The SET parameter MISS_ON enables you to specify whether SOME or ALL should be used for MISSING ON in a DEFINE or COMPUTE that does not specify which to use.

Change to Default Value for SET MISSINGTEST

The MISSINGTEST parameter now has three values, OLD, SPECIAL, and NEW. The value NEW has been added and is the default value.

In prior releases, by default, when an IF-THEN-ELSE expression was used to calculate a result and the IF expression evaluated to zero (for numeric expressions) or blank (for alphanumeric expressions), the left hand side was checked to see if it had MISSING ON. If it did, and only some values were needed (NEEDS SOME), the result of the IF expression was MISSING, not true or false. The outcome returned was also MISSING, not the result of evaluating the THEN or ELSE expression. The SET MISSINGTEST = NEW command eliminates the missing test for the IF expression so that either the THEN expression or the ELSE expression will be evaluated and returned as the result. This is the new default behavior.

New Punctuation Option for Numbers Using SET CDN

The CDN parameter has a new option, SPACES_DOT or SPACEP, that displays a space as the thousands separator and a period as the decimal separator.

Enhancement to the SUMPREFIX Parameter

The SUMPREFIX parameter allows you to specify which value will be displayed when aggregating an alphanumeric or smart date field in the absence of any prefix operator. The default value is LST, which will return the physical last value within the sort group. FST has been available, which will return the first physical value in the sort group. The setting has been enhanced to include MIN and MAX to return either the minimum value or maximum value within the sort group.

MIN and MAX correspond to the SQL MIN and MAX functions and can be easily converted to SQL when optimizing a request against a relational database.

Enhancements to Sort Performance

The sorting procedure has been enhanced to analyze the request being processed and the amount of sort memory available in order to reduce the amount of disk I/O. The sort strategy is controlled by the specifics of the request and the values of the SORTMATRIX and SORTMEMORY parameters.

STRING Data Type

Certain relational data sources support a data type called STRING to store alphanumeric data that has an unlimited length. This type of data can be mapped to the TX data type. However, text fields have limitations on their use in WebFOCUS sort and selection phrases.

The format specification for a STRING field has no length specification. The length is determined on retrieval. For example:

```
FIELD1/STRING
```

The STRING data type has all of the functionality of alphanumeric data types in WebFOCUS. The limit to a STRING field value length is 2 GB. It can be propagated to relational data sources that have the STRING data type and to delimited HOLD files, where both the USAGE and ACTUAL formats are generated as STRING.

WebFOCUS Designer Enhancements

WebFOCUS Designer is a web-based development tool that you can use to create interactive, responsive pages and meaningful InfoApps, using content that you or other members of your organization create. This content (reports, charts, documents, and more) can be added to a page using drag-and-drop actions. Using the interactive grid canvas, you can resize and rearrange resources with ease. The enhanced filtering functionality enables you to drill down into your data further.

Using Global Name to Synchronize Filter Controls

You can use the Global Name property to quickly synchronize filter control values between different pages. The Global Name property is a powerful tool that you configure on the Settings tab of the Properties panel for a filter control. Once enabled, it allows you to match your filter selections across multiple pages at run time within the same browser session.

Using a JavaScript Function to Navigate to a Panel

You can use a JavaScript function to pass parameters from content in one panel to the content in other panels. This makes it possible to create an interactive page where the user can explore the data in different ways.

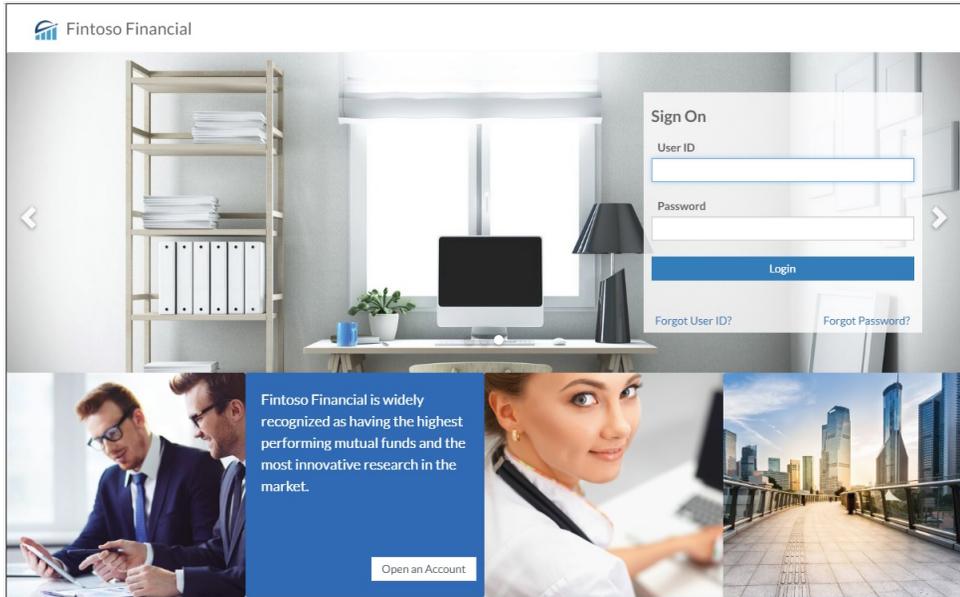
WebFOCUS Embedded Business Intelligence

Embedded Business Intelligence (BI) provides the capability of incorporating WebFOCUS content and functionality (features) into an external application. There are several approaches and techniques that can be used to embed BI, including:

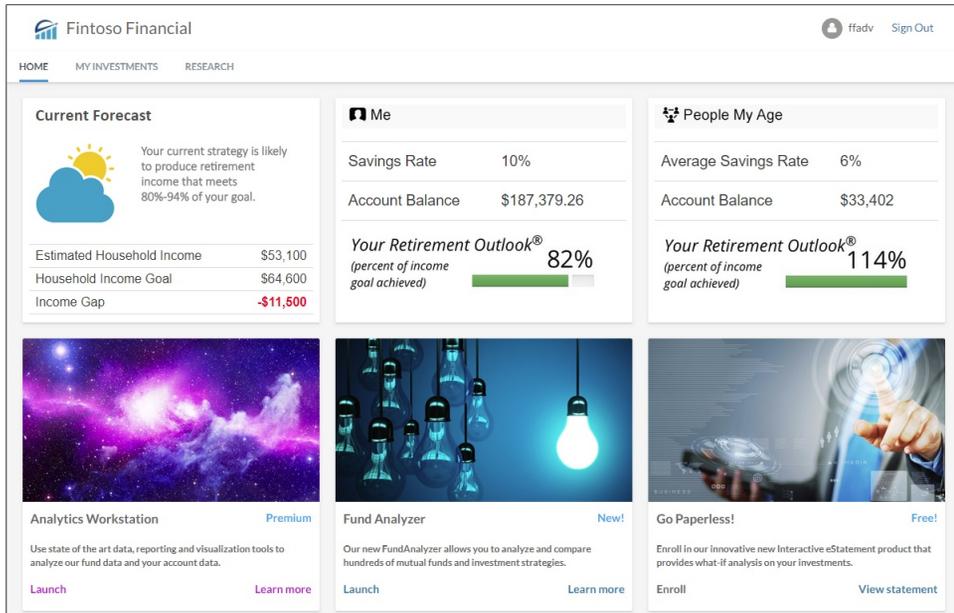
1. Embedding WebFOCUS BI Portal pages or other WebFOCUS content into an HTML iframe.
2. Using WebFOCUS web services to embed content into the application.
3. Launching WebFOCUS tools such as InfoAssist from the application.
4. Using WebFOCUS Open Portal Services to embed content (specifically, WebFOCUS portlets) in a JSR 286-compliant portal environment (for example, Microsoft SharePoint).

In prior WebFOCUS releases, the embedded BI demonstration (“demo”) application was branded *ABC Company*, which represented a fictitious business organization, and used WF RETAIL as its primary data source.

As of WebFOCUS Release 8.2 Version 03, the new embedded BI demo is called *Fintoso Financial* and is modeled on a typical online banking application, which most users and customers can easily relate to.



For example, logging into most personal online banking applications as a customer will usually present you with information related to your accounts, such as savings, checking, investments, and even retirement portfolio.



Providing a similar experience for users is the goal of the new Fintoso Financial embedded BI demo.

For improved performance and quicker deployment, a new financial data set has been packaged with the Fintoso Financial embedded BI demo. You are no longer required to build WF RETAIL as a data source for the embedded demo application. Instead, a set of FTM files representing sample financial data is included with the new Change Management package. As a result, simply deploying the new Change Management package will also deploy all of the required data that is used by the new embedded BI demo at the same time.

The Fintoso Financial embedded BI demo application files are located in the following folder of your WebFOCUS installation:

`<drive>:\ibi\WebFOCUS82\samples\embedded_demo`

For more information on installing and using the new Fintoso Financial embedded BI demo that is packaged with WebFOCUS, see the *WebFOCUS Embedded Business Intelligence User's Guide* in the *Embedded Business Intelligence Technical Library*.

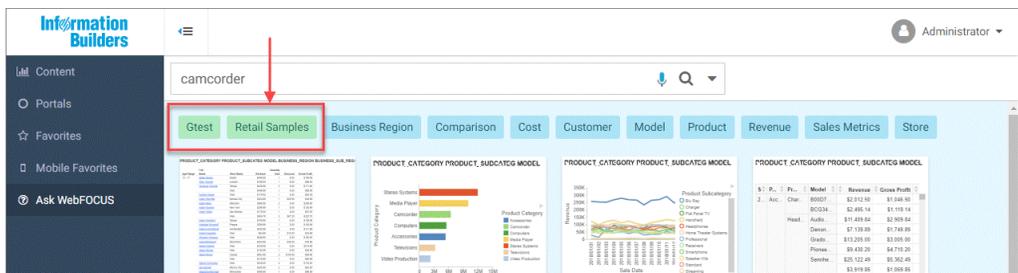
WebFOCUS Home Page Enhancements

The WebFOCUS Home Page provides visual access to the tools, functions, properties, and features that WebFOCUS offers. This modern, mobile-friendly design features an innovative user interface and intuitive layout, so that you can quickly view, sort, and edit your resources on any device.

WebFOCUS Home Page User Experience Improvements

In Release 8.2 Version 03, you can manage aliases for collaborative portals and share content items from the WebFOCUS Home Page. The new sharing interface allows you to select users and groups more easily and displays your sharing choices in a clear and convenient view.

Among other improvements is the enhanced behavior of tags. Tags are no longer selected by default, and the new type of green tags is added to mark items inside domains and simplify navigation, as shown in the following image.



Data Management

WebFOCUS allows you to upload Excel or CSV files to a target environment using the Upload wizard. You can also configure adapters to various data sources, and create synonyms and cluster synonyms, using the Connect to Data wizard. During the upload and connect processes, you can access options to perform data profiling and statistical analysis, and transform your data beyond the default settings.

This topic highlights the new capabilities that are available for data preparation and management in this release of WebFOCUS.

In this chapter:

- [Manage Your Data Using the Enhanced Wizard Workflows](#)
-

Manage Your Data Using the Enhanced Wizard Workflows

Upload and connect to your data using the enhanced user interface and workflows of the Upload and Connect to Data wizards. The updated ribbon-based interface allows you to modify the structure of your selected data, and implement numerous data preparation techniques, prior to uploading your file or saving your synonym.

Enhanced Upload Wizard

With the Upload wizard you can preview data and make any required changes to spreadsheets or delimited data files before you upload them into a target data Source.

After you upload a new file, you can append it by adding new data to an existing synonym, without changing the structure. This option is useful when you are working with a complex or heavily edited synonym, by allowing you to retain all previous edits and data transformations. You can also merge a file with your data and enhance the existing structure.

The following image shows an example of the enhanced Upload Wizard user interface.

The screenshot displays the 'Upload Wizard' interface for a dataset named 'sales_orders'. The interface includes a top navigation bar with various tool icons and a main workspace divided into a 'Business View' tree on the left and a data table on the right. The data table shows columns for Revenue, Quantity, Cost of Goods Sold, Gross Profit, Order Nbr, and Order Date, with rows representing individual sales orders.

Revenue	Quantity	Cost of Goods Sold	Gross Profit	Order Nbr	Order Date
1,500.01	1	1,500.00	499.01	28003	10/17/2017
689.00	1	500.00	189.00	28003	10/17/2017
239.00	1	110.00	129.00	28003	10/17/2017
48.00	1	20.00	29.00	28003	10/17/2017
69.00	1	30.00	39.00	28003	10/17/2017
499.00	1	250.00	249.00	28004	10/22/2017
1,999.00	1	1,300.00	699.00	28004	10/22/2017
129.00	1	60.00	69.00	28004	10/22/2017
199.00	1	150.00	49.00	28004	10/22/2017
1,499.00	1	1,200.00	299.00	28004	10/22/2017
229.00	1	180.00	49.00	28004	10/22/2017
2,587.00	13	1,300.00	1,287.00	28005	10/11/2017
3,887.00	13	1,950.00	1,937.00	28005	10/11/2017
2,587.00	13	1,950.00	637.00	28005	10/11/2017
54,431.00	79	39,500.00	14,931.00	28005	10/11/2017
157,921.00	79	118,500.00	39,421.00	28005	10/11/2017
89,001.00	99	49,500.00	39,501.00	28006	12/19/2017
39,501.00	99	10,990.00	28,511.00	28006	12/19/2017
177,762.00	258	129,000.00	48,762.00	28006	12/19/2017
52,142.00	58	34,800.00	17,342.00	28006	12/19/2017
12,642.00	258	5,160.00	7,482.00	28006	12/19/2017
5,031.00	39	2,340.00	2,691.00	28008	10/25/2017
84,143.00	305	64,050.00	24,093.00	28008	10/25/2017
26,871.00	39	19,500.00	7,371.00	28008	10/25/2017
14,245.00	55	7,150.00	7,095.00	28008	10/25/2017
2,691.00	39	1,170.00	1,521.00	28008	10/25/2017
296,901.00	99	198,000.00	98,901.00	28010	01/12/2017
478,181.00	319	382,800.00	95,381.00	28010	01/12/2017
73,051.00	319	57,420.00	15,631.00	28010	01/12/2017
30,591.00	99	22,770.00	7,821.00	28010	01/12/2017
197,901.00	99	148,500.00	49,401.00	28010	01/12/2017
15,721.00	79	7,900.00	7,821.00	28011	10/11/2017
19,487.00	13	15,600.00	3,887.00	28011	10/11/2017
4,017.00	13	2,990.00	1,027.00	28011	10/11/2017
203,391.00	279	181,350.00	22,041.00	28011	10/11/2017
12,987.00	13	11,050.00	1,937.00	28011	10/11/2017
20,421.00	79	21,600.00	7,821.00	28012	10/17/2017
334,521.00	279	223,200.00	111,321.00	28012	10/17/2017
5,187.00	13	3,900.00	1,287.00	28012	10/17/2017
2,977.00	13	2,340.00	637.00	28012	10/17/2017
2,587.00	13	1,560.00	1,027.00	28012	10/17/2017

Learn More

For more information on the Upload wizard, see the *Working with Data* topic of the *Business Intelligence Portal* technical content.

Redesigned Connect to Data Wizard

The Connect to Data wizard connects to your choice of data sources that you can use to build reports, charts, and visualizations. Use the Redesigned Connect to Data wizard to configure adapters and create synonyms.

You can now choose to create Base synonyms or Cluster Synonyms from a single environment, by selecting the appropriate drop-down option. Create a base synonym for one or more data objects. Create a cluster synonym for select objects assigned as facts or dimensions.

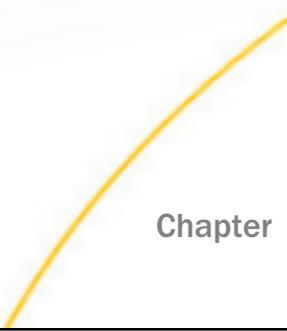
The following image shows an example of a Cluster Synonym with BV, in the Connect to Data wizard.

The screenshot displays the 'Connect to Data' wizard interface. The 'Business View' pane on the left shows a tree structure of filters and variables for the 'baseapp\wrld_wfl_retail_sales_cis' table. The main workspace shows a diagram where the 'Sales Fact' table is connected to five dimension tables: 'Customer Dimens', 'Product Dimens', 'Store Dimens', 'Currency Dimens', and 'Discount Dimens'. Each dimension table has its own configuration pane with fields for ID, Name, and other attributes. At the bottom, a data table shows the results of the query, with columns for 'ID Sales', 'Cost of Goods', 'Discount', and 'Gross Profit'.

ID Sales	Cost of Goods	Discount	Gross Profit
1	234.00	0.00	165.00
2	46.00	20.00	13.99
3	380.00	49.00	60.99
4	374.00	0.00	225.98
5	310.00	0.00	79.99
6	83.00	0.00	44.59
7	312.00	71.70	94.30
8	548.00	0.00	238.50

Learn More

For more information on the Connect to Data wizard, see the *Working with Data* topic of the *Business Intelligence Portal* technical content.



Chapter 5

Geographic Information Systems

WebFOCUS Location Intelligence provides tools that a data analyst or BI Developer can use to create content with InfoAssist or App Studio.

This topic highlights the new capabilities that are available for Geographic Information Systems in this release of WebFOCUS.

In this chapter:

- [App Studio Geographic Information Systems Enhancements](#)
 - [InfoAssist Geographic Information Systems Enhancements](#)
-

App Studio Geographic Information Systems Enhancements

Geographic Information Systems (GIS) captures, stores, analyzes, manages, and presents data linked to a location. In App Studio, GIS enables you to integrate reports with maps and leverage location-based information. When working with maps, the concept of location intelligence is important to understand. Location intelligence is the process of analyzing data to make better business decisions. It combines GIS and BI/Analytics to allow the recognition of patterns in your data, including the visualization and discovery of geospatial outliers, which would not be easily discovered if you use the technology independently and separately.

Support for International Boundaries

In addition to configuring standard Esri map services, the Reporting Server now hosts and configures geographic boundaries for 58 World Administrative regions. You can use these files to generate Esri maps in App Studio. To support using these administrative boundaries in maps that can show geographic locations down to the postal code level, the list of geographic roles has been simplified and unified.

The server provides a Geographic Configuration Editor tool for uploading and configuring additional shapefiles and geographic roles, basemaps, and demographic layers.

The list of geographic roles has been simplified and unified by adding hierarchical levels of keys in the server geographic configuration file. Your request that provides the geography dimension must provide the hierarchical keys needed to identify each target geography. For example, if your geographic role is City, you must also provide values for State and Country.

The following is the list of unified geographic roles is available for generating maps:

- Point of Interest.
- City.
- Continent.
- Country.
- County.
- Geometry line.
- Postal code.
- State.

Note: App Studio does not support aliasing or name variations in geographic roles. Users have to cleanse the data and provide the right values for all the georoles. Only Names are supported.

There is support for the lowest Administrative Level listed for the following countries:

Country	Postal Code (Number of Values)	Administrative Level (Number of Values)
Argentina	5 - digit (1963)	Departamentos (525)
Australia	4 - digit (2652)	Local Government Areas (569)
Belgium	4 - digit (1146)	Arrondissements (43)
Brazil	5 - digit (17892)	Municípios (5565)
Canada	3 - digit (1629)	Census Divisions (293)
Denmark	4 - digit (1078)	Kommuner (99)
Finland	5 - digit (3041)	Seutukunnat (70)
France	5 - digit	Cantons (1972)
Germany	5 - digit (8201)	Municipalities

Country	Postal Code (Number of Values)	Administrative Level (Number of Values)
Gibraltar	3/4/5 - digit (1)	
Holy See (Vatican City State)	5 - digit (1)	
India	6 - digit (20509)	Districts (640)
Italy	5 - digit (4600)	Provincias (110)
Japan	3 - digit (937)	Prefectures (47)
Netherlands	4 - digit (4044)	COROP Regions (40)
Portugal	4 - digit (507)	Concelhos (308)
Serbia	5 - digit (1)	
Spain	5 - digit (10866)	Provincias (52)
Sweden	5 - digit (9876)	Kommuner (290)
Switzerland	4 - digit (4078)	Bezirke (148)
Taiwan	3 - digit (365)	Township Districts (368)
United Kingdom	2 - digit	Districts (391)
Albania	2 - digit (33)	Qarke (12)
Andorra	5 - digit (7)	Parroquies (7)
Austria	4 - digit (2216)	Politische Bezirke (117)
Belarus	6 - digit (3417)	Woblaszi (7)
Bosnia and Herzegovina	5 - digit (558)	Kantone (18)
Chile	2 - digit (78)	Provincias (54)
China	2 - digit (59)	Counties City Districts (2855)
Costa Rica	2 - digit (13)	Cantones (81)

Country	Postal Code (Number of Values)	Administrative Level (Number of Values)
Croatia	2 - digit (20)	Zupanije (21)
Cyprus	2 - digit (43)	Eparchia (6)
Czech Republic	2 - digit (59)	Orp (206)
Estonia	5 - digit (5318)	Maakonnad (15)
Greece	5 - digit (1046)	Nomoi (75)
Hong Kong	6 - digit (1)	Shih Zizhiqu (18)
Hungary	2 - digit (83)	Kistersegek (175)
Iceland	2 - digit (63)	Landsvaedi (8)
Kenya	1 - digit (10)	Wilaya (47)
Korea, Republic of	3 - digit (244)	Si Gun (230)
Latvia	2 - digit (28)	Rajons (33)
Liechtenstein	4 - digit (13)	Landschaften (2)
Lithuania	2 - digit (93)	Apskritis (10)
Luxembourg	4 - digit (4070)	Cantons (12)
Macedonia, the former Yugoslav Republic of	2 - digit (17)	Statisticki Regioni (8)
Malta	3 - digit (72)	Districts (6)
Mexico	3 - digit (954)	Estados (32)
Monaco	5 - digit (1)	Quartiers (9)
Montenegro	2 - digit (3)	Opstina (21)
New Zealand	4 - digit (1064)	Territorial Authorities (68)
Norway	4 - digit (3210)	Okonomisk regioner (89)

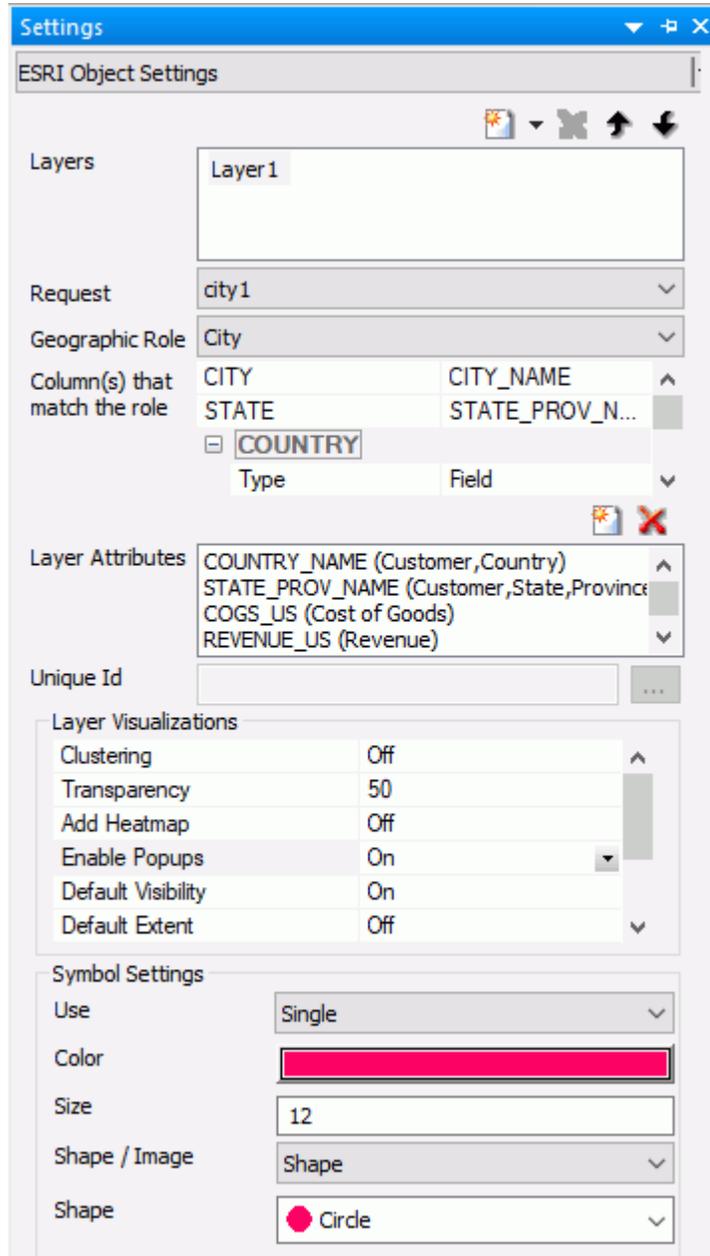
Country	Postal Code (Number of Values)	Administrative Level (Number of Values)
Poland	5 - digit (20392)	Gminy (2479)
San Marino	5 - digit (10)	Castelli (9)
Singapore	2 - digit (79)	Regions (5)
Slovakia	2 - digit (24)	Okresy (79)
Slovenia	2 - digit (22)	Statisticne Regije (12)
South Africa	Postcodes2 (95)	Municipalities (234)
Turkey	5 - digit (2876)	Iller (81)

Example: **Creating a Map of World Cities**

The following request, city1.fex, retrieves world city names, state names, and country names.

```
TABLE FILE wf_retail_lite
SUM COGS_US REVENUE_US
FST.CITY_NAME
BY COUNTRY_NAME
BY STATE_PROV_NAME
ON TABLE PCHOLD FORMAT XML
END
```

The following Settings panel for the HTML page that will generate the map is shown in the following image. CITY_NAME is the field that matches the geographic role. The keys needed to correctly identify each city are State (STATE_PROV_NAME field) and Country (COUNTRY_NAME field).



Running the HTML page generates the following map.



Drawing Lines on an Esri Map

In addition to drawing polygons and points on an Esri map, you can draw geography lines. Lines are used to represent the shape and location of geographic objects such as transmission lines, streets, pipelines, and routes. A line is built joining two or more points. The geographic role used for lines is called Geometry line in the Esri map Settings panel.

You can control the line widths, colors, and styles using several methods of generating the line symbols.

For more information, see the *App Studio User's Manual*.

Using IbComposer Functions to Invoke Map Menu Options

The following IbComposer functions invoke map menu options using API calls.

- Toggle layer visibility.** `IbComposer_toggleLayer(mapId, layerId)`
- Toggle heatmap visibility on a layer.** `IbComposer_toggleHeatLayer(mapId, layerId, options)`
- Toggle visibility of clustering on a layer.** `IbComposer_toggleCluster(mapId, layerId, options)`
- Make selections on a layer by shape.** `IbComposer_selectLayerByShape(mapId, layerId, shape)`
- Make selections on a layer by distance.** `IbComposer_selectByDistance(mapId, layerId, distance, units)`

- ❑ **Clear selections.** `IbComposer_clearSelected(mapId, layerId)`
- ❑ **Change basemap.** `IbComposer_changeBaseMap(mapId, baseMapName)`

For more information, see the *App Studio User's Manual*.

InfoAssist Geographic Information Systems Enhancements

InfoAssist is a powerful report generation tool that enables business users to leverage ad hoc functionality. With InfoAssist, you can generate highly complex reports, charts, and documents from any enterprise information source without IT intervention. You can also analyze multiple reports and charts simultaneously and output report data in a variety of formats.

New, Simplified List of Geographic Roles

When working with the Esri mapping feature in Release 8.2 Version 03, you are presented with a new, simplified global list of geographic roles (dimensions across 58 countries). This simplified list of roles provides administrative boundary coverage down to the postal code level. In App Studio, you can select one of these roles in the Settings panel for an HTML5 Map component. In InfoAssist, the new roles will be displayed when assigning a geographic role in the workbench to create a map chart. They are also available for assignment from the Map As feature in the Data pane.

Visualization and Analytics

WebFOCUS allows all users to easily conduct data preparation, visually analyze complex data sets, and quickly generate compelling data visualizations, dashboards, and reports that can be shared with other users. This gives you an edge in using content and developing real-world scenarios derived from your source data.

This topic highlights the new capabilities that are available for visualization and analytics in this release of WebFOCUS.

In this chapter:

- ❑ [InfoAssist Visualization and Analytics Enhancements](#)
-

InfoAssist Visualization and Analytics Enhancements

InfoAssist is a powerful report generation tool that enables business users to leverage ad hoc functionality. With InfoAssist, you can generate highly complex reports, charts, and documents from any enterprise information source without IT intervention. You can also analyze multiple reports and charts simultaneously and output report data in a variety of formats.

Using Insight Save to Preserve Procedures

Insight is a robust visualization tool that allows for the interactive selection of measures and dimensions, so you can create dynamic charts that refresh as you make changes. Insight is available in HTML5 Chart mode only.

You can now save your Insight charts as you produce them. You can save the same Insight chart multiple times. When you resave a chart, you can use the same title and filename. You will be prompted to overwrite the file each time you save.

Learn More

For more information, see *Using Insight to Analyze Dynamic Charts* in the *InfoAssist* technical content.

Installation, Security, and Administration

The WebFOCUS Client repository and authorization security model uses an implementation of Role-Based Access Control (RBAC) to enforce security across all resources in the repository. The flexibility of this model enables an administrator to implement security at a granular level for every resource in the WebFOCUS repository, if needed. User actions can be permitted for individual combinations of users and resources. Access can be granted or specifically denied on a group or individual level, and it can be inherited from higher folders.

In this chapter:

- [WebFOCUS Installation Enhancements](#)
 - [Security and Administration Enhancements](#)
-

WebFOCUS Installation Enhancements

The following information describes important WebFOCUS installation and configuration changes.

Migrating Configuration Files from Release 8.1 Version 05M to Release 8.2 Version 03

Due to architecture changes in WebFOCUS, the configuration of WebFOCUS has changed between Release 8.1.x and Release 8.2.x. If you are upgrading content from Release 8.1 Version 05M to Release 8.2 Version 03, you can use the configuration file migration utility to ensure that the configuration applied in Release 8.1 Version 05M is properly migrated to the new installation.

Learn More

For more information, see the *WebFOCUS and ReportCaster Installation and Configuration* technical content for your platform in the Technical Library.

Security and Administration Enhancements

This topic highlights the new capabilities that are available for security and administration in this release of WebFOCUS.

Enabling InfoSearch

A new setting, Enable InfoSearch (IBI_INFOSEARCH), appears on the Magnify Settings page of the Administration Console Configuration tab. When the check box in this setting is selected, InfoSearch is available for use. Users who have the new Display Ask WebFOCUS Menu (opInfoSearch) privilege and to whom dimensionally-indexed Repository content is available can then open the Ask WebFOCUS view by clicking the Ask WebFOCUS sidebar option, and use InfoSearch to search for reports, charts, and other content resources that contain data or metadata that matches their query. This check box is selected, by default. When it is cleared, none of these features can be made available to any user within the organization.

Learn More

For more information, see the *Configuring WebFOCUS to Support InfoSearch* topic in the *WebFOCUS Understanding InfoSearch* technical content.

Displaying Ask WebFOCUS Menu (opInfoSearch)

A new privilege, Display Ask WebFOCUS Menu (opInfoSearch), is available in the Basic Reporting privilege category of the Security Center Edit Role dialog box. Users who have this privilege, and who also have access to at least one dimensionally-indexed content item in the Repository, can open the Ask WebFOCUS view by clicking the Ask WebFOCUS sidebar option, and use InfoSearch to search for reports, charts, and other content resources that contain data or metadata that matches their query.

The display and use of this privilege depends upon the value assigned to the Enable InfoSearch (IBI_INFOSEARCH) setting, found on the Magnify Settings page of the Administration Console Configuration tab. When this setting is selected, the privilege is visible, and InfoSearch can be made available to users. When it is cleared, this privilege is not visible in the Edit Role dialog box, and InfoSearch cannot be made available.

Learn More

For more information, see the *Configuring WebFOCUS to Support InfoSearch* topic in the *WebFOCUS Understanding InfoSearch* technical content.

New Portals Context for the WebFOCUS URL

In WebFOCUS Release 8.2 Version 03, a new context named portals was added to the WebFOCUS URL. This new context directs users to the new Portals Home Page. This page displays links only to those portals that are available to the user who is signed in.

To open this page directly from the Browser Address Bar, type the URL:

[http\(s\)://host:port/context/portals](http(s)://host:port/context/portals)

where:

host

Is the name or IP Address of the host used to access WebFOCUS.

port

Is the number of the port on which the Web Server or Application Server listens.

This value is optional, and it should be excluded if the URL uses the default port for the protocol it uses in the scheme, which is port 80 for URLs using the http protocol or port 443 for URLs using the https protocol.

context

Is the specific context used for WebFOCUS. For example, *ibi_apps*.

portals

Is the case-sensitive path that opens the Portals Home Page.

In order to make the Portals Home Page the default home page for an installation of WebFOCUS, select the Custom Welcome Page option in the Redirect */ibi_apps* to setting on the BI Portals page of the Administration Console Configuration tab, and then type *portals* in the */ibi_apps/* field.

Learn More

For more information, see the *Redirect /ibi_apps* setting definition topic in the *Security and Administration* technical content.

Adapters

All adapters can be used for WebFOCUS Reporting and SQL requests, and as sources for DataMigrator flows.

The server supports adapters designed to access a wide variety of data sources. Using the graphical Web Console, you can configure these adapters and create the metadata you need to seamlessly access the corresponding type of data.

On the Web Console, adapters are grouped as SQL, XML-based, ERP, OLAP, Procedures, Sequential and Indexed, DBMS, and Social Media.

This topic highlights the new capabilities that are available for adapters in this release of WebFOCUS.

In this chapter:

- ❑ [Adapter Enhancements](#)
-

Adapter Enhancements

This section describes new adapter features. All adapters can be used for WebFOCUS Reporting and SQL requests, and as sources for DataMigrator flows.

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On the Web Console, adapters are grouped as SQL, XML-based, ERP, OLAP, Procedures, Sequential and Indexed, DBMS, and Social Media.

SQL Adapters

This section provides descriptions of new features for SQL adapters.

Diagnostics: Improved Outer Join Rejection Messages for SQL Adapters

More explanation has been added to messages that result from a rejected outer join request.

Extended Bulk Load for SQL Adapters: Auxiliary Connection Updates

Using Extended Bulk Load with selected adapters requires that intermediate data files are transferred using [S]FTP to a host server. These adapters include:

- Apache Hive
- Cloudera Impala
- Jethro
- EXASol

In previous releases, this was done by adding a connection to the Flat File adapter and was limited to a single connection per server.

As of this release, a new *Configure Bulk Load* option is available, and allows you to configure an additional connection for the combination of server and adapter with a unique name. This option can be accessed by right-clicking a connection for a configured data adapter.

Adapter for Amazon Athena

The Adapter for Amazon Athena is new in this release. The Amazon Athena query service allows you to access data stored in Amazon Simple Storage Service (Amazon S3) by using standard SQL.

Adapter for Amazon Redshift: Readonly Property for IDENTITY Columns

The Adapter for Amazon Redshift supports IDENTITY data types as read-only with the property FIELDTYPE=R set in the Master File.

Adapter for Apache Drill: TIME and TIMESTAMP Fields

The Adapter for Apache Hive can now be used to read columns described with the TIME and TIMESTAMP data types, provided the storage plug-in used supports it.

Adapter for Apache Spark

The Adapter for Apache Spark is new in this release. It provides access to data using the Spark Thrift Server and JDBC driver. This adapter can be used when:

- Spark is installed with a Hadoop distribution, such as Hortonworks or MapR, and data is stored in HDFS.
- Spark is installed independently, without Hadoop, and data is stored in NFS.

Support for DSN-Less Connections to Db2 on UNIX, Linux, and Windows

On UNIX, Linux, and Windows you can specify the host name, port and database name instead of a DSN when configuring a connection to Db2 in the Web Console.

Setting the Db2 Effective Trusted Context User From a Procedure

A Db2 trusted context enables the connected WebFOCUS user ID to be used for database interactions instead of the authenticated user ID for the connection. Use the following command to set the trusted context user ID in a WebFOCUS procedure.

```
ENGINE DB2 SET TRUSTED_USERID conname /tcuser,tcpass
```

where:

conname

Is the connection name for the trusted context. This connection must be the active connection for the server when the SET TRUSTED_USERID command is issued.

tcuser

Is the trusted context user ID.

tcpass

Is the trusted context password.

Adapter for Db2: Limited Support for Tables With CLOB Columns on i5

While CLOB and BLOB columns cannot be used for Change Data Capture, synonyms can now be created for Table Log Records that contain them so that the other columns can be used. Attempts to retrieve CLOB and BLOB columns from Table Log Records return a MISSING value.

Adapter for Db2: CDC for i5 Unicode Supports Multiple CCSIDs

The Adapter for DB2 on IBM i with a Unicode server now supports a Change Data Capture (CDC/IUD) load flow when a target has columns with different Coded Character Set Identifiers (CCSIDs).

Adapter for Cache: JDBC Adapter

A JDBC adapter for access to Cache data sources is available in this release.

Adapter for EXASol: Extended Bulk Load Support From Windows

Extended Bulk Load to the EXASol system is now supported from Windows by using an auxiliary connection to a non-Windows "buffer host", which is also known as a FTP_node.

Creating Data Fields as **TIMESTAMP** for Jethro and Impala

In previous releases, attempting to create a table in Jethro or Impala from a synonym using the Recreate DBMS Table (or CREATE FILE) option in the DMC with fields described as YYMD or Date would fail with a syntax error. This was due to the fact that a data type would not be specified.

As of this release, such fields are created as **TIMESTAMP** and an error does not occur.

Note: Neither Jethro or Impala have a **DATE** datatype.

Adapter for Oracle: Extended Bulk Load Support for **BLOB** and **CLOB** Columns

The Adapter for Oracle now supports **CLOB** and **BLOB** Extended Bulk loading that provides improved performance using the Direct Path API.

Adapter for Oracle: Support for System-Versioned Temporal Tables

Temporal queries against Oracle System-Versioned tables have been implemented by introducing fields with **TEMPORAL_PROPERTY SYSTEMTIME**. Such a field is added by editing the synonym for the table. For example:

```
DEFINE FIELD1/HYMDm WITH REALFLD TEMPORAL_PROPERTY SYSTEMTIME = ;$
```

The following are requirements for the field with **TEMPORAL_PROPERTY SYSTEMTIME**.

- The field can have any valid field name.
- The datatype must be a date-time datatype with sufficient precision.
- The **WITH** clause is required and must reference a real table column.

Fields with **TEMPORAL_PROPERTY=SYSTEMTIME** can only be used in a single **WHERE** test of one of the following two types.

- `WHERE field EQ expression`

This type of **WHERE** test translates to an **ORACLE AS OF TIMESTAMP** clause.

- `WHERE field FROM expression1 TO expression2`

This type of **WHERE** test translates to a **VERSIONS BETWEEN TIMESTAMP** clause.

where:

expression, expression1, expression2

Must be date-time expressions or constants. When used in a FROM-TO expression, the constants DT('0001-01-01') and DT('9999-12-31') represent the oldest and most recent applicable timestamps. They translate to the ORACLE keywords MINVALUE and MAXVALUE.

Adapter for Microsoft SQL Server ODBC: Version 2017 Support

SQL Server 2017 is supported with the MSODBC version of the adapter.

Adapter for Microsoft SQL Server ODBC: SQL Server 2017/2016 Always Encrypted Support

The Windows ODBC version of the Adapter for SQL Server supports the SQL Server 2017/2016 Always Encrypted native feature under the following conditions:

- ❑ The columns have to be encrypted using SQL Server Management Studio prior to creating any synonyms.
- ❑ The adapter connection is configured with the connection string keyword ColumnEncryption=Enabled.

When a synonym is created, the Access File will contain the attribute ENCRYPT_TYPE={DETERMINISTIC|RANDOMIZED} for the encrypted columns.

Certain operations on encrypted columns cannot be performed in SQL. The adapter logic will account for that, and those operations will be performed by the WebFOCUS Reporting Server.

Adapter for Microsoft SQL Server OLE DB Support

Microsoft reversed its previous decision, and un-deprecated OLE DB technology on 3/31/2018, with the release of MSOLEDBSQL Driver version 18. Microsoft calls this release the third generation of OLE DB technology.

Accordingly, Information Builders removed *obsolescent* status from its OLE DB adapter, and introduced support of new MSOLEDBSQL Driver 18.

Customers may now choose between MS SQL Server OLE DB or ODBC adapters, depending on required features.

Note that first (SQLOLEDB) and second (SQLNCLI/SNAC) generations of Microsoft OLE DB Providers remain deprecated.

Adapter for Microsoft SQL Server: Extended Bulk Load Support for BLOB and CLOB Columns

The Adapter for Microsoft SQL Server now supports CLOB and BLOB Extended Bulk loading that provides improved performance. To take advantage of this feature the version of Microsoft BCP utility should be 11.0 or higher.

Adapter for Microsoft SQL Server Azure Data Warehouse

The Adapter for Microsoft SQL Server Azure Data Warehouse is new in this release. It enables you to access data stored in the Microsoft parallel processing data warehouse architecture.

Adapter for SQL Server: Azure SQL Database Support

The Adapters for SQL Server (suffixes SQLMSS and MSODBC) now support read/write access to the Azure Database. The MSODBC version of the Adapter is recommended on platforms where the MS ODBC driver is available.

Adapter for Teradata CLI: Extended Bulk Load Support for BLOB, CLOB, and String Columns

The CLI Adapter for Teradata now supports loading CLOB and BLOB data into fields of an existing target using Extended Bulk (MERGE INTO command transpires into LOB_DEFERRED_BY_NAME method).

Note:

- in previous server releases, CLOB/BLOB write functionality was available only with the ODBC version of the adapter and not using Extended Bulk Load.
- The Teradata TPT API, version 15.10.01.08 or higher is recommended in order to take advantage of this feature.

Adapter for Teradata CLI: Support for Stored Procedures with Dynamic Result Set

The CLI Adapter for Teradata now supports reporting from Teradata stored procedures that return a dynamic result set.

Adapter for Teradata: FASTLOAD

As of this release, when the adapter for Teradata has the BULKLOAD setting set to ON, the Teradata load procedures FASTLOAD or MULTILOAD are used for best performance.

Previously, when creating a new table in Teradata from the Web Console using Custom Copy or the HOLD...FORMAT SQLDBC (FOCUS) command, a parameterized INSERT statement was generated, which was not the fastest option.

OLAP Adapters

This section contains descriptions of features for OLAP adapters.

Adapter for Microsoft SQL Server Analysis Services: Support for Microsoft Azure

The Adapter for Microsoft SQL Server Analysis Services supports connection to and querying from the Analysis Services Server hosted by Microsoft Azure.

ERP Adapters

This section describes new features for ERP adapters.

Adapter for Salesforce.com: Extended Bulk Load Now Available

Extended Bulk Load is now available on the adapter for Salesforce.com, making it the very first non-SQL adapter with this capability. The Salesforce.com adapter can be found in the ERP adapter folder list.

Support for SAP S/4 HANA, the Next Generation of ERP Business Suite From SAP Replaces SAP ECC/ERP

Support for SAP S/4 HANA, the next generation of ERP business suite from SAP replaces SAP ECC/ERP. The Adapter for SAP now supports SAP S/4 HANA. Customers who rely on the current Adapter for SAP can now take advantage of all the benefits of SAP S/4 HANA, while reusing business logic and data in new application initiatives.

Adapter for SAP/R3: Support for Strict Mode in Release 7.40 and Up

Starting with Release 7.40, SAP implemented a stricter check for and enforcement of Open SQL syntax rules:

- List elements in Open SQL statements are separated by a comma.
- Host variables in Open SQL statements are escaped by an at symbol (@).

To enable a user to control use of strict mode, the following command has been introduced.

```
ENGINE SQLSAP SET SQLSTRICTMODE {ON|OFF|AUTO}
```

where:

ON

Enforces use of strict mode, regardless of the target SAP system capabilities.

OFF

Turns off strict mode.

AUTO

Sets strict mode automatically depending on the target SAP system kernel release (Kernel 740 SP02 and higher support ON). This is the default value.

To revert to the automatic setting, issue the following command.

```
ENGINE SQLSAP SET SQLSTRICTMODE RESET
```

Procedures Adapters

This section provides descriptions of new features for procedures adapters.

Adapter for REST: RESTTSCQ Support for Custom Headers

The Adapter for REST now supports custom headers in the FILEDEF RESTTSCQ REST request trace.

Adapter for REST: Create Synonym Support for Custom Header Information

The Create Synonym page for the Adapter for REST now supplies a text box in which you can enter custom header name=value pairs that are passed in the HTTP header of the REST web service call. Each name=value pair must be separated from the previous pair with a semicolon (;). For example:

```
Content-Type="CDF" ;PARAM1="ABC"
```

The custom header information is only passed if the web service call requires the custom header parameters. You can change the parameter values at runtime using a WHERE or IF command.

Adapter for REST: Support for URL in the Synonym

You can edit a synonym for the Adapter for REST to contain the endpoint URL for unsecured services instead of placing it in the connection string.

Delete or null out the CONNECTION parameter in the Access File and add the SERVICEURL attribute to point to the endpoint URL. If the OBJECT attribute exists in the Access File, the full URL is a concatenation of the SERVICEURL and OBJECT values. For example, consider an Access File that contains the following attributes:

```
CONNECTION=,  
SERVICEURL=http://api.geonames.org,  
OBJECT=ABC,
```

The endpoint URL will be:

<http://api.geonames.org/ABC>

Adapter for WebFOCUS

The Adapter for WebFOCUS integrates with the WebFOCUS Client through WebFOCUS RESTful Web Services. Explicit and Password Passthru authentication to WebFOCUS is handled by configuring the connection to the adapter. A successful authentication returns a Cross-Site Request Forgery (CSRF) token that is automatically passed on each WebFOCUS RESTful Web Service call.

When you right-click the connection and click *Show DBMS objects*, you can then click *Create Synonym(s) and Examples*, which loads a set of examples that include Master Files, Access Files, and Procedures. Each of these examples performs a specific WebFOCUS function, such as security maintenance, ReportCaster scheduling, and folder maintenance.

To configure the adapter, right-click the adapter on the Available list and click *Configure*. The Add Connection page opens. Configure the following parameters.

Connection Name

Is a name for the connection.

WebFOCUS Base Url

Is the URL used to access WebFOCUS, in the form `http://computername:port/ibi_apps`.

Security

Select Explicit or Password Passthru. For Explicit authentication, enter the WebFOCUS user ID and password.

Sequential and Indexed Adapters

This section provides new feature descriptions for sequential and indexed adapters.

Storing Images on Filesystem From a Database Table

In previous releases, when using DataMigrator to copy data from a database table with a field described as BLOB for a column that contains a picture to a Delimited Flat File target, the name of a temporary file was written to that file.

Now, in the location specified for the target file, a like-named sub-directory is created that contains a file with each image from the source table with the appropriate extension (file type). This is currently available for the following file formats: .gif, .jpeg, .png, or .svg.

Test for Write Access to SFTP Server

As of Release 7.7.08, when testing a connection using [S]FTP, both reading and writing are tested and the message displayed indicates the success or failure of each.

In previous releases, when configuring a connection to an [S]FTP server for fixed or delimited flat files, the Test option would only test *reading* from the remote server.

However, these adapters could be used to *write* to the remote server, either independently or as an auxiliary connection for an adapter, such as Impala or Drill, that required a file to be transferred to the server where they were running.

In these cases, even though the test successfully passed, the use of the adapter could still fail. An example of this is if the user did not have write access to the specified directory.

Adapter for Hyperledger Fabric

The Adapter for Hyperledger Fabric is new in this release. It allows you to seamlessly communicate with IBM Hyperledger Fabric, which provides support for permissioned blockchain applications. Blockchain technology is a distributed record of transactions validated and stored at multiple peer locations in a network. The records stored in the blockchain are immutable, providing an extremely high level of security and integrity.

Statistics Adapters

This section contains descriptions of features for statistics adapters.

Adapter for Rserve Integration

The Adapter for Rserve enables you to define a connection to Rserve for remotely executing R scripts to be used with WebFOCUS reports and charts as a summary (Compute) or virtual field.

Rserve is a TCP/IP server that allows users to run R scripts directly from WebFOCUS or the Reporting Server without the need to initialize R or link to an R library. The original Rserve paper is available at <http://www.ci.tuwien.ac.at/Conferences/DSC-2003/Proceedings/UrbaneK.pdf>.

For more information on Rserve, see <https://rforge.net/Rserve/index.html>.

For more information on configuring and using the adapter, see the *Adapter Administration* technical content.

XML Adapters

This section provides new feature descriptions for XML-based adapters.

Pivot Support for JSON Documents

Both the Data Management Console and Web Console provide a capability to Pivot a database column or field containing multiple values, such as a delimited list or a JSON document. This creates a new segment in the synonym that describes the internal structure of the field.

This option is now available for JSON documents. In previous releases, if the source synonym was for a JSON document itself, this option was not available.

Adapter for JSON: Reflect the WebFOCUS Query in HOLD FORMAT JSON

The following HOLD syntax for creating a JSON HOLD file uses the BY fields in the report request to create a hierarchy of the JSON output.

```
ON TABLE HOLD NOKEYS AS app/filename FORMAT JSON STRUCTURE HIERARCHY
```

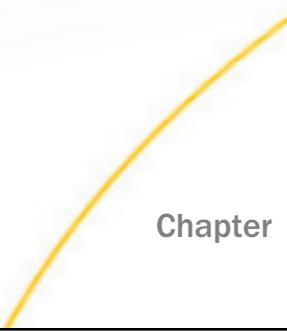
Example: Retaining the Query Structure Using HOLD FORMAT JSON

The following request retains the BY field hierarchy in the JSON HOLD file.

```
TABLE FILE WF_RETAIL_LITE
SUM COGS_US REVENUE_US
BY BUSINESS_REGION
BY PRODUCT_CATEGORY
BY PRODUCT_SUBCATEG
ON TABLE HOLD NOKEYS AS STRUCTJSON FORMAT JSON STRUCTURE HIERARCHY
END
```

The partial JSON output resulting from this request is shown in the following image.

```
{ "sort_keys": [
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Accessories", "PRODUCT_SUBCATEG": "Charger", "verbs": [{"COGS_US": 3755.00, "REVENUE_US": 7493.22}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Accessories", "PRODUCT_SUBCATEG": "Headphones", "verbs": [{"COGS_US": 82280.00, "REVENUE_US": 124148.95}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Accessories", "PRODUCT_SUBCATEG": "Universal Remote Controls", "verbs": [{"COGS_US": 57952.00, "REVENUE_US": 79835.82}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Camcorder", "PRODUCT_SUBCATEG": "Handheld", "verbs": [{"COGS_US": 38749.00, "REVENUE_US": 78621.88}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Camcorder", "PRODUCT_SUBCATEG": "Professional", "verbs": [{"COGS_US": 63464.00, "REVENUE_US": 81727.30}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Camcorder", "PRODUCT_SUBCATEG": "Standard", "verbs": [{"COGS_US": 84787.00, "REVENUE_US": 119886.10}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Computers", "PRODUCT_SUBCATEG": "Smartphone", "verbs": [{"COGS_US": 47616.00, "REVENUE_US": 78240.81}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Media Player", "PRODUCT_SUBCATEG": "Blu Ray", "verbs": [{"COGS_US": 319254.00, "REVENUE_US": 410102.65}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Media Player", "PRODUCT_SUBCATEG": "DVD Players", "verbs": [{"COGS_US": 5169.00, "REVENUE_US": 8065.19}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Media Player", "PRODUCT_SUBCATEG": "Streaming", "verbs": [{"COGS_US": 3978.00, "REVENUE_US": 6739.63}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Stereo Systems", "PRODUCT_SUBCATEG": "Home Theater Systems", "verbs": [{"COGS_US": 104425.00, "REVENUE_US": 157117.66}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Stereo Systems", "PRODUCT_SUBCATEG": "Receivers", "verbs": [{"COGS_US": 69100.00, "REVENUE_US": 97380.26}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Stereo Systems", "PRODUCT_SUBCATEG": "Speaker Kits", "verbs": [{"COGS_US": 144389.00, "REVENUE_US": 190687.54}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Stereo Systems", "PRODUCT_SUBCATEG": "iPod Docking Station", "verbs": [{"COGS_US": 43842.00, "REVENUE_US": 69504.47}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Televisions", "PRODUCT_SUBCATEG": "Flat Panel TV", "verbs": [{"COGS_US": 100443.00, "REVENUE_US": 123921.37}]}
{"BUSINESS_REGION": "EMEA", "PRODUCT_CATEGORY": "Video Production", "PRODUCT_SUBCATEG": "Video Editing", "verbs": [{"COGS_US": 78722.00, "REVENUE_US": 112141.72}]}
{"BUSINESS_REGION": "North America", "PRODUCT_CATEGORY": "Accessories", "PRODUCT_SUBCATEG": "Charger", "verbs": [{"COGS_US": 4290.00, "REVENUE_US": 8496.92}]}
{"BUSINESS_REGION": "North America", "PRODUCT_CATEGORY": "Accessories", "PRODUCT_SUBCATEG": "Headphones", "verbs": [{"COGS_US": 102014.00, "REVENUE_US": 151454.64}]}
]
```

Chapter 9

Server

The server provides a wide range of capabilities and tools for adapter configuration, metadata creation, application and path management, security control, communications configuration, and for monitoring, tuning, and troubleshooting server performance. Authorized users can perform most server administration tasks from a graphical Web Console.

The server supports WebFOCUS reporting functions, extraction, load and transformation functions, and analysis and data access control functions.

This topic highlights the new capabilities that are available for the server in this release of WebFOCUS.

In this chapter:

- [DataMigrator Enhancements](#)
 - [Resource Analyzer and Resource Governor Enhancements](#)
 - [Server Enhancements](#)
-

DataMigrator Enhancements

This section describes the new features for DataMigrator.

DataMigrator represents a broad category of tools designed to facilitate and automate the extraction and integration of data. From source extraction through target load, data is transformed through the application of business rules. Once the transformation is complete, the data is loaded into table structures that have been optimized for a particular application.

For more information on any of these new features, see the *DataMigrator User's Guide*.

Adapters

The following section provides descriptions of new features for adapters.

Adapter for Salesforce.com: Extended Bulk Load Now Available

Extended Bulk Load is now available on the adapter for Salesforce.com, making it the very first non-SQL adapter with this capability. The Salesforce.com adapter can be found in the ERP adapter folder list.

Test for Write Access to SFTP Server

As of Release 7.7.08, when testing a connection using [S]FTP, both reading and writing are tested and the message displayed indicates the success or failure of each.

In previous releases, when configuring a connection to an [S]FTP server for fixed or delimited flat files, the Test option would only test *reading* from the remote server.

However, these adapters could be used to *write* to the remote server, either independently or as an auxiliary connection for an adapter, such as Impala or Drill, that required a file to be transferred to the server where they were running.

In these cases, even though the test successfully passed, the use of the adapter could still fail. An example of this is if the user did not have write access to the specified directory.

Extended Bulk Load for SQL Adapters: Auxiliary Connection Updates

Using Extended Bulk Load with selected adapters requires that intermediate data files are transferred using [S]FTP to a host server. These adapters include:

- Apache Hive
- Cloudera Impala
- Jethro
- EXASol

In previous releases, this was done by adding a connection to the Flat File adapter and was limited to a single connection per server.

As of this release, a new *Configure Bulk Load* option is available, and allows you to configure an additional connection for the combination of server and adapter with a unique name. This option can be accessed by right-clicking a connection for a configured data adapter.

Creating Data Fields as TIMESTAMP for Jethro and Impala

In previous releases, attempting to create a table in Jethro or Impala from a synonym using the *Recreate DBMS Table* (or *CREATE FILE*) option in the DMC with fields described as YYMD or Date would fail with a syntax error. This was due to the fact that a data type would not be specified.

As of this release, such fields are created as *TIMESTAMP* and an error does not occur.

Note: Neither Jethro or Impala have a *DATE* datatype.

Pivot Support for JSON Documents

Both the Data Management Console and Web Console provide a capability to Pivot a database column or field containing multiple values, such as a delimited list or a JSON document. This creates a new segment in the synonym that describes the internal structure of the field.

This option is now available for JSON documents. In previous releases, if the source synonym was for a JSON document itself, this option was not available.

Data Management Console

The following section provides descriptions of new features for the Data Management Console (DMC).

Modern Design of the Data Management Console

The Data Management Console has been modernized with the use of Google material design icons and the Awesome font.

Storing Images on Filesystem From a Database Table

In previous releases, when using DataMigrator to copy data from a database table with a field described as BLOB for a column that contains a picture to a Delimited Flat File target, the name of a temporary file was written to that file.

Now, in the location specified for the target file, a like-named sub-directory is created that contains a file with each image from the source table with the appropriate extension (file type). This is currently available for the following file formats: .gif, .jpeg, .png, or .svg.

Cluster Manager Available for DataMigrator Scheduler

DataMigrator has been updated to include the Cluster Manager (CLM), a scalable workload manager which enables distribution of the requests across servers. The addition of CLM to DataMigrator, which automatically switches to other application servers in the event that the main server is unavailable, provides a sense of security to businesses by ensuring that essential functions can continue regardless of a service disruption.

Data and Process Flows

The following section provides descriptions of new features for data and process flows.

Specifying Connection for Formatted File Targets

In previous releases, using DataMigrator with a Formatted File target adapter would fail if the Flat File adapter had a connection for an [S]FTP server. In addition, by default, an application directory name was specified for a synonym, which was not needed.

Now, when a data flow uses a new target with a Formatted File adapter, a new Connection box appears. This option enables you to specify a configured connection. The default value is <local>.

Data Profiling

The following section provides descriptions of new features for data profiling.

Data Profiling Enhancement - Forecast and Distribution Charts

Data Profiling provides data characteristics for the columns in a synonym. This release introduces two new options: Forecast Chart and Distribution Chart.

The Forecast Chart allows data profiling on numeric fields, and displays the values used for both the actual data values and forecast values in a bar chart. For the selected numeric field, you can specify the field to sort by, the number of predictions you wish to see, and the forecast type. The Forecast Chart is available for numeric fields only.

The Distribution Chart feature displays the most frequent values, along with a report that shows the basic data profiling statistics for the field

Reporting

The following section provides descriptions of new features for reporting.

New Dependencies Analysis Column

The Dependencies Analysis report for a DataMigrator flow or synonym shows all of the synonyms and flows that it references.

A new column in the report shows the last modified date for each dependent file.

Resource Analyzer and Resource Governor Enhancements

This section describes the new features for Resource Analyzer.

Resource Analyzer provides Information Systems (IS) organizations with the ability to manage the growing volume and unpredictable nature of ad hoc data access.

Resource Governor controls monitoring, system configuration parameters, and governing rules. It provides preemptive governing for requests issued to both relational and non-relational data sources.

Together, Resource Analyzer and its partner product, Resource Governor, are designed specifically to help IS organizations analyze and control end user data access.

Monitoring at the Data Service Level

Resource Management now provides the administrator the ability to enable and disable monitoring at the Data Service level.

Every Data Service defined in Workspace will be displayed in the Resource Management tree with a single right-click menu item that allows you to view properties. The Properties pane gives you the option to set Monitor status for the Data Service to either *On* or *Off*. By default, the setting will be *On* so that all Data Services are monitored.

Server Enhancements

The server provides a wide range of capabilities and tools for adapter configuration, metadata creation, application and path management, security control, communications configuration, and for monitoring, tuning, and troubleshooting server performance. Authorized users can perform most server administration tasks from a graphical Web Console. The server supports WebFOCUS reporting functions, extraction, load and transformation functions, and analysis and data access control functions.

New Dependencies Analysis Column

The Dependencies Analysis report for a DataMigrator flow or synonym shows all of the synonyms and flows that it references.

A new column in the report shows the last modified date for each dependent file.

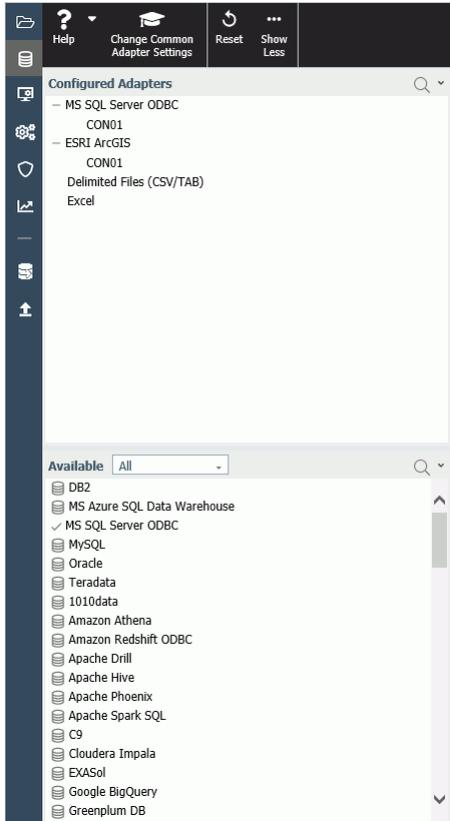
Specifying Connection for Formatted File Targets

In previous releases, using DataMigrator with a Formatted File target adapter would fail if the Flat File adapter had a connection for an [S]FTP server. In addition, by default, an application directory name was specified for a synonym, which was not needed.

Now, when a data flow uses a new target with a Formatted File adapter, a new Connection box appears. This option enables you to specify a configured connection. The default value is <local>.

Redesign of Connect to Data Page

The Connect to Data (Adapters) page has been redesigned to have separate lists for configured adapters and available adapters, as shown in the following image.



The *Configured Adapters* list shows all adapters and connections that have been configured.

The *Available* list shows all available adapters. If a connection has already been configured for an adapter, a check mark is displayed next to the adapter name. A drop-down list enables you to select an adapter category to view on the list.

Many of the options for adapters and connections, such as configuring a new connection or creating a synonym, open in a new streamlined panel on the Connect to Data page.

For more information, see the *Server Administration* technical content.

Configuring Geographic Information

Geographic roles have been unified to access 58 world administrative boundaries down to the postal code level. The server has a geographic configuration editor for customizing the list of geographic roles, basemaps, reference layers, and demographic layers. A customized geographic role can reference either an uploaded shapefile or an existing Esri Feature Layer.

Note:

- You must configure the Adapter for ESRI ArcGIS in order to use many of the geographic features. See the *Adapter Administration* technical content for information on configuring the adapter.
- The server must be configured for Unicode.

For more information, see the *App Studio User's Manual*.

Linking to Your WebFOCUS Client Repository

You can map an application directory to access your WebFOCUS Client Repository.

In order to map an application to your WebFOCUS Client Repository, you must have the WebFOCUS Client REST Adapter configured, as described in the *Adapter Administration* manual.

Procedure: How to Link to an Existing WebFOCUS Client Repository

1. From the Applications page, click *Manage* on the ribbon, then *External Repository*, then *WebFOCUS Client Repository*, then *Link to Existing*.

You can also right-click the Application Directories tree and click *Manage*, then *External Repository*, then *WebFOCUS Client Repository*, then *Link to Existing*.

The WebFOCUS Client Repository connection page opens, as shown in the following image.

Connection: CON01

Prefix: wfcomputer

This will configure this server to use existing connection to WFC repository as a regular file device.

OK Cancel

2. Enter a prefix or accept the default value. The prefix can be any string but, by default, it is set to the machine name running the WebFOCUS Client. This name is derived from the WebFOCUS Client REST Adapter connection.

3. Click *OK*.

The New Application pane opens with the Application Type set to map to your WebFOCUS Client REST connection, as shown in the following image.

4. Enter or select values for the following parameters.

Application Type

Select *Application mapping to hostname - WebFOCUS Client REST (CON01)*

Application Name

Enter an application name for the mapped repository application, or accept the default name.

Physical location

The default WebFOCUS Repository location will be automatically entered based on your entries on the first connection screen. However, you can click the ellipsis to browse for a location.

Map to

Select one of the following mapping selections.

- Existing application.** The Repository directories will be added to an existing application directory.
- New application (directory will be created).** A new directory for the WebFOCUS Client Repository files will be created.
- Existing application, recreated (all files will be deleted).** An existing application directory will be deleted and recreated with the WebFOCUS Repository files.

Add directory to APPPATH

This check box is selected, by default, so the application will show on the Application Directories tree.

Position in APPPATH

By default, the position is Last. You can select First.

Profile

Select a profile from the drop-down list. The default is edasprof.

5. Click *OK*.

The application is added to the Application Directories tree. You can manage WebFOCUS Client Repository files using this application directory.

Procedure: How to Delete a Link to a WebFOCUS Client Repository

1. From the Applications page, click *Manage* on the ribbon, then *External Repository*, then *WebFOCUS Client Repository*, then *List and Delete*.

You can also right-click the Application Directories tree and click *Manage*, then *External Repository*, then *WebFOCUS Client Repository*, then *List and Delete*.

A pane opens listing the WebFOCUS Client Repositories that are linked as applications.

2. Right-click a host name in the Prefix column, or click the down arrow in the Prefix column, and click *Delete reference to remote repository*.

A dialog box opens asking you to confirm that you want to delete the reference.

3. Click *OK*.

The application directory will not be deleted, but the reference to the WebFOCUS Repository will no longer be available to the server.

Upload Support for JSON

The Upload Wizard now supports upload of .json files.

Automatic Scrolling Of the Business View Pane When Dragging and Dropping

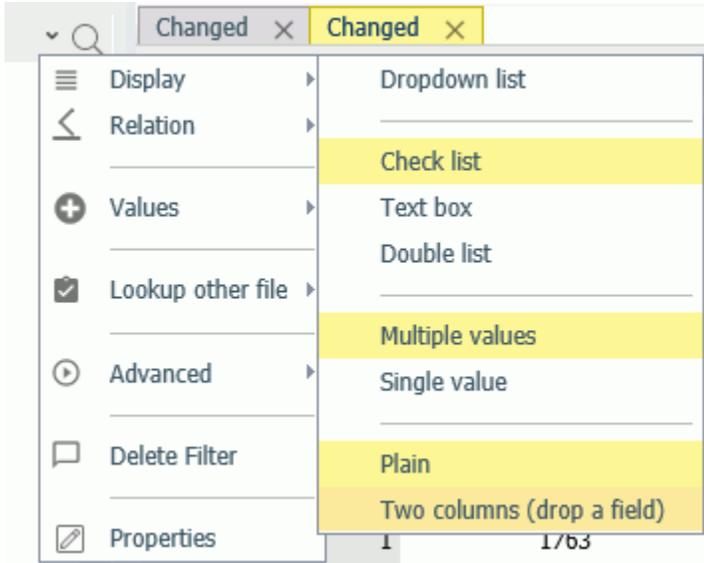
When a synonym is open in DataAssist, if you need to drag a field to a location below the visible area of the screen, the pane will automatically scroll as you drag, so you can drop the field where you need to place it.

Adding Captions for Check List Values

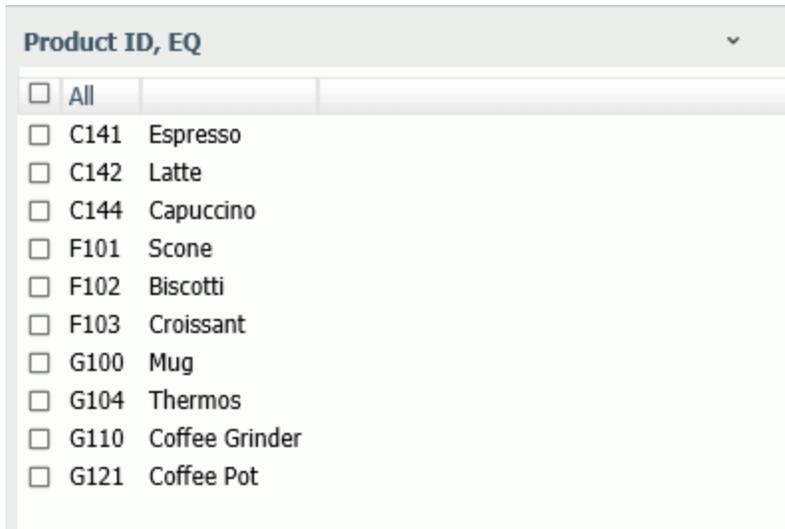
If you use a check list filter for a field that contains numbers or codes, you can configure the filter to have an additional column into which you can drag a field that will display a description of each value. For example, if you list product codes as a check list, you can also list the associated product names.

The check list is the default type of filter for integer and alphanumeric fields. For other numeric fields, the default filter type is the slider. However, you can use the Display option on the filter pane drop-down menu to change the type of filter.

Once you have created a check list for a numeric field, you can click *Two columns (drop a field)* from the Display option on the filter pane drop-down menu, as shown in the following image.



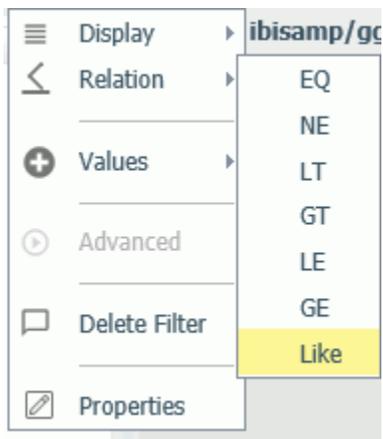
Next, you can drag a field that will describe these values to the second column, as shown in the following image.



Note: The additional description column does not become part of the filter. To clear the additional column, click *Plain* instead of *Two columns (drop a field)* from the Display option on the filter pane drop-down menu.

Using a LIKE Relation With a Text Box Filter

When you create text box filter, the Relation menu on the filter pane drop-down menu now has Like as an option, as shown in the following image.

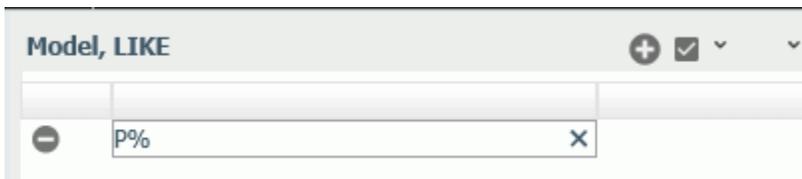


To use LIKE, you enter a pattern for data values to match.

You can click a row in the filter pane and add a LIKE pattern in the text box.

In the LIKE pattern:

- If you enter an underscore character (_) in any position of the pattern, any single character in that position will match the pattern.
- If you enter a percent symbol (%), any number of characters in that position will match the pattern. The % symbol is not needed at the end of a pattern, it is added automatically, as shown in the following image, where the entered pattern was P.



You can add additional rows in order to add additional patterns by clicking the plus sign (+) at the top of the filter pane.

For the pattern entered above, any model starting with the letter P will match the pattern.

In order to apply the filter, click the Apply filter button (the check mark) at the top of the panel.

Right-click the filter in the Business View pane and click *Sample Data* to open an output window for the filter. Click *Sample Data* in this window to display values that match the pattern, as shown in the following image.

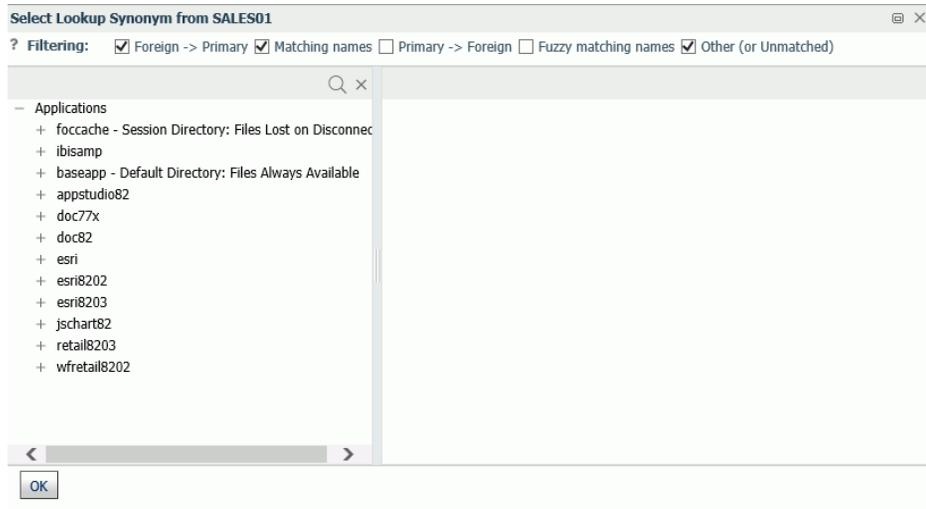
Data for "Model,Filter" in BV column order. Limit 50 rows.			Double the Row Limit
Model	ID Produ	Model,Fill	
Panasonic DMP-BD60	1003	1	
Pioneer BDP-120	1005	1	
Panasonic DMP-BD30	1007	1	
Panasonic DMP-BD80	1010	1	
Pioneer BDP-320	1013	1	
Pioneer BDP-330	1015	1	
Panasonic DMP-BD70V	1019	1	
Pioneer BDP-51	1020	1	
Panasonic DMR-ES18	1104	1	
Panasonic DMR-EH59	1111	1	
Pioneer DVR-560H	1112	1	
Philips 7 LD741	1150	1	
Polaroid PD-M0722	1151	1	
Panasonic SC-PT160	2003	1	
Pioneer HTZ-170	2004	1	
Panasonic	2008	1	
Philips CD Radio	2050	1	
Panasonic rx-es23	2054	1	
Polk Audio RM705	2155	1	
Polk Audio LSIFX	2157	1	
Panasonic HMTA1PPR	3015	1	
Panasonic 58TV25BNDL-CRT	4001	1	
Panasonic TCP46G25-CRT	4004	1	
Panasonic 58TV25BNDL	4012	1	
Panasonic TCP46G25	4015	1	
Pioneer HDJ1000	5005	1	

Comparing Values to a Lookup File

You can create a filter that compares the values in a source file to the values in a lookup file. The filter has the value 1 if the value from the source file is found in the lookup file, and the value 0 (zero) if the value from the source file is not found in the lookup file.

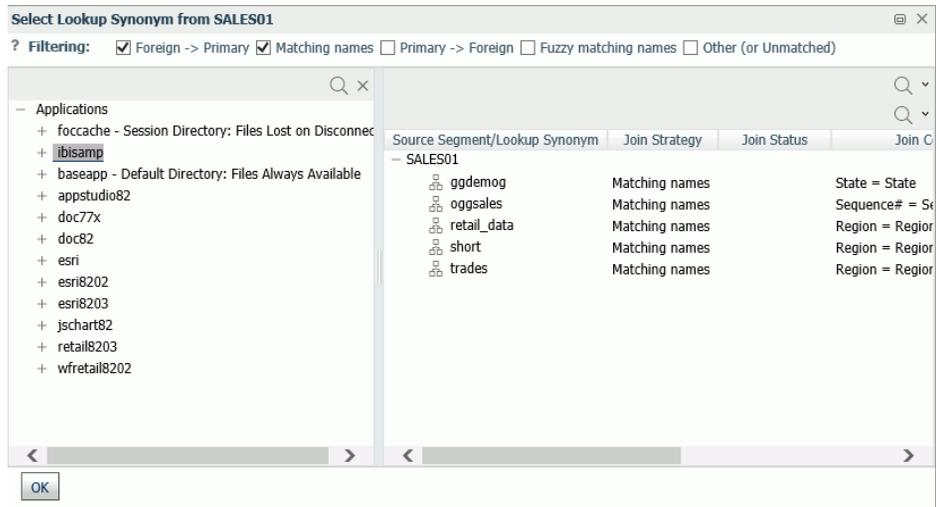
From the filter pane drop-down menu, point to *Lookup other file* and click *Check: has value*.

The Select Lookup Synonym dialog box opens, as shown in the following image.

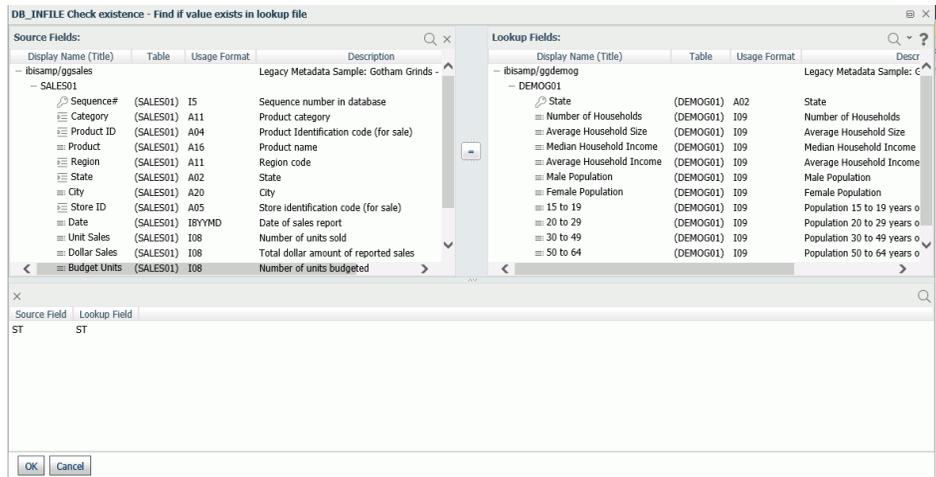


The top of the dialog box has check boxes for conditions for automatically matching to the lookup field. By default, foreign-to-primary key match and matching names are selected. You can change the selections.

Once you have made your selections, select an application directory. The synonyms with fields that match your selections display in the right pane, as shown in the following image.

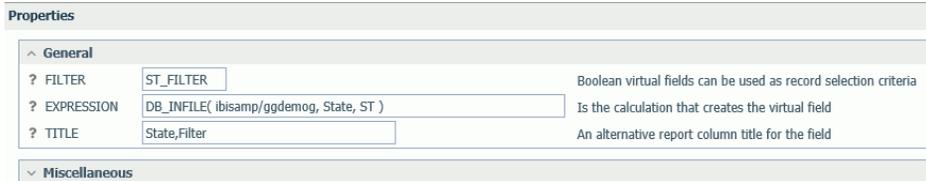


Select the synonym you want to use. The DB_INFILE dialog box opens. If it doesn't automatically find a match, you can select the matching fields. However, if it could find a match using the methods checked at the top of the Select Lookup Synonym dialog box, the source field and lookup field are listed, as shown in the following image.



When you are finished, click **OK**.

To see the filter that was created, right-click the filter name in the Tables and Columns pane, and click Properties. The DB_INFILE calculation is displayed in the Expression text box, as shown in the following image.

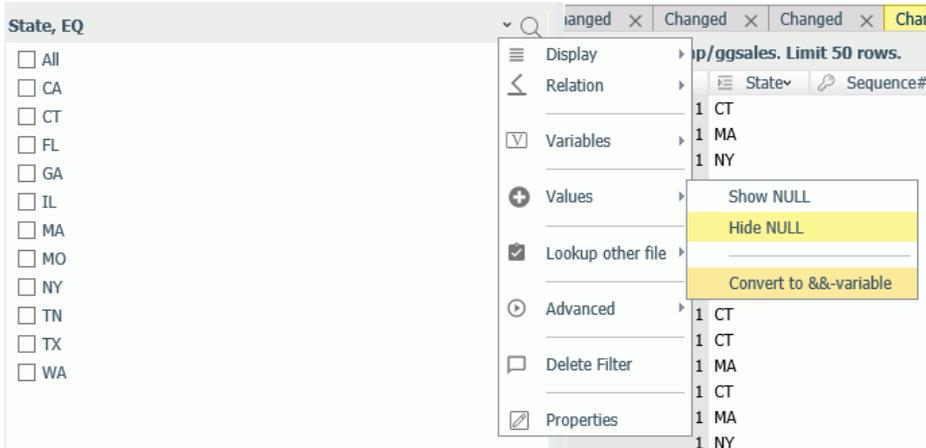


If you want to change the lookup properties, you can edit the expression, and click *Apply*.

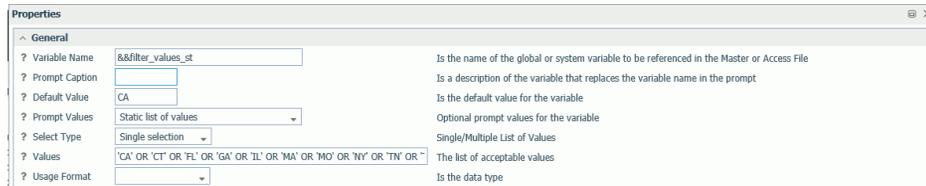
Converting a Filter Value List to a Variable Expression

When you insert a check box filter using the EQ (equal) or NE (not equal) relation for a field that has a small list of possible values that do not change often, you can convert the filter to a variable expression that improves performance.

The option to convert the filter to a variable expression is on the Values option of the filter pane drop-down menu, as shown in the following image.



The variable expression is added to the synonym under Variables. Right-click the variable expression and click *Properties* to see the expression, as shown in the following image.

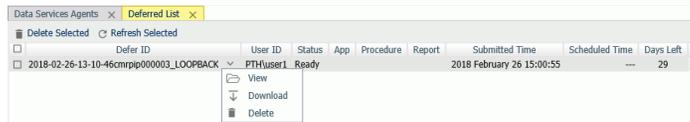


Storing Server Log Files in a User-Specified Location

By default, the server log files edaprint.log, hliprint.log, rmldata.log, and edadata.log are stored in the edatemp directory. This directory is created under the EDATEMP location which, by default, is set to EDACONF. To override this location, set the EDALOG environment variable to a physical directory prior to starting the server. The edatemp directory will still be created under EDATEMP.

Downloading a Deferred Jobs Report

You can download a deferred jobs report to your personal computer. On the Workspace page, open the Special Services and Listeners folder. Click the arrow next to Scheduler or right-click *Scheduler*, and click *Deferred List* on the context menu. On the Deferred List page, click the arrow or right-click a deferred job and click *Download*, as shown in the following image.



The default location for the downloaded report is your Downloads directory.

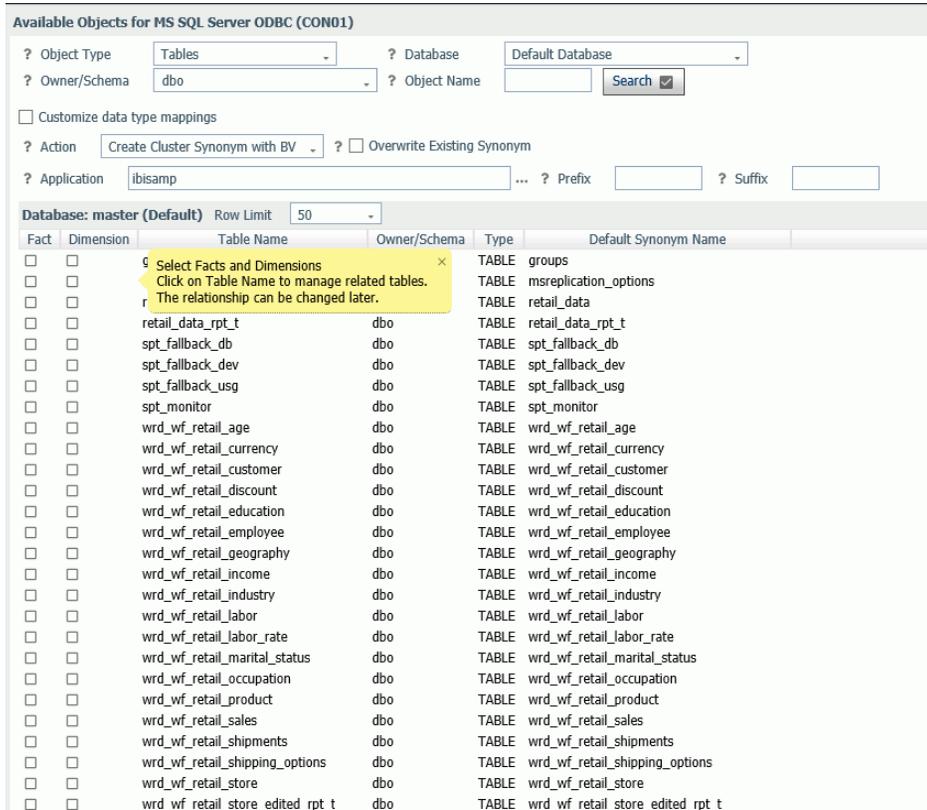
Applications Page Redesign

The Applications page on the Web Console has been redesigned to include:

- Multi-selection of files and folders for copy, cut, paste, and delete.
- Column-based filters.
- An upgraded integrated search.
- A customized layout with drag and drop of all frames on all Web Console pages and the ability to view items as lists, or tabs.

Bubble Help for Guiding the User to the Next Step

Context sensitive bubble help pops up to guide the user to the next step when performing Web Console procedures. For example, the following image shows bubble help that pops up when creating a cluster synonym with a Business View:

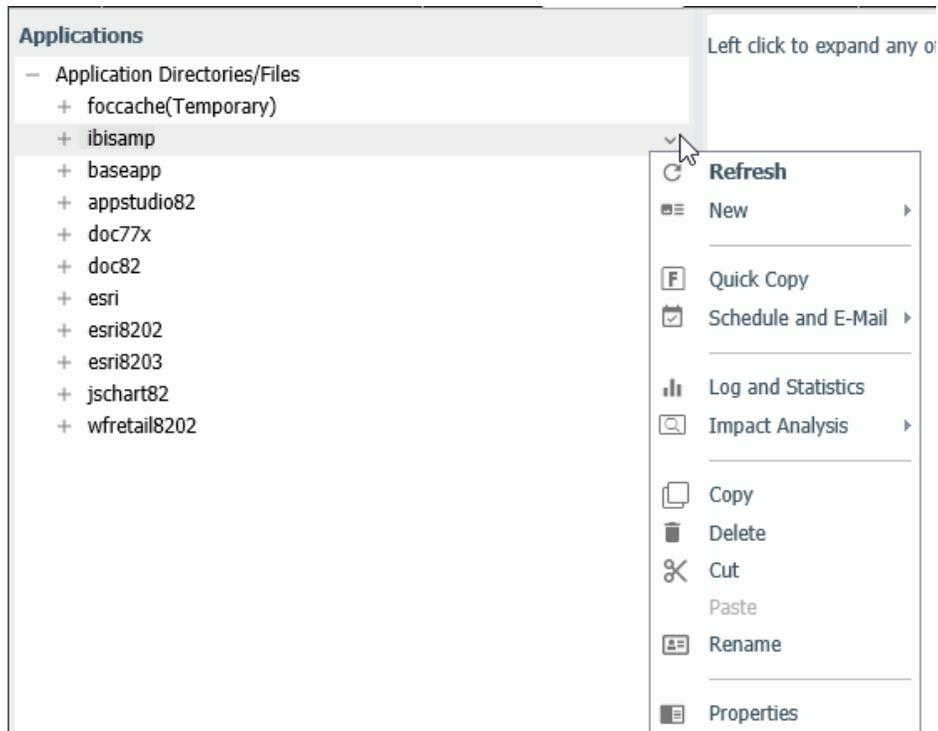


Modern Design of Server Web Console

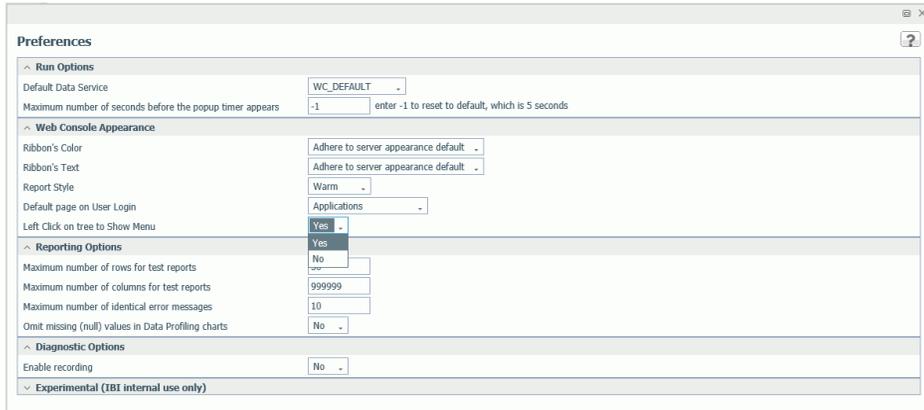
The server Web Console has been modernized with the use of Google material design icons and the Awesome font.

Left-Click Menu on the Web Console

Web Console items that have a popup context menu now have a down arrow that you can click to open the menu, as shown in the following image.



This option is controlled by the *Left Click on tree to Show Menu* option on the Preferences page of the User menu found on the top right of the Web Console page, as shown in the following image.



edastart Command Option for Updating Connection Attributes

The edastart command now has options to update adapter connection attributes. For example, you can use the following command to update the password.

```
UPDATE_PROFILE prof SUFFIX suffix CONNECTION conname NEW_PASS passwd
```

where:

prof

Is the name of the profile in which to change the attributes.

suffix

Is the suffix for the adapter whose connection attributes are being updated.

conname

Is the name of the connection for which the attributes are being updated.

passwd

Is the new password for the connection.

Turning a Configured Server Into a Docker Container

A Docker container is a standalone executable package containing everything needed to run piece of software while isolating it from the environment.

The server now includes a UNIX/Linux shell script that you can use as a template for turning a configured server into a Docker container. Turning a configuration into a Docker container requires a working Docker environment where the server administrator is allowed to create and manage Docker containers. The shell script is in the EDAHOME/bin directory and is named `ibidockerize.sh`.

***Procedure:* How to Turn a Server Configuration Into a Docker Container**

Prior to editing the script, visit the Docker web site (<https://www.docker.com/>) for information on Docker features to accomplish your task.

The template is written for UNIX and Linux, however, the same concepts/steps apply to Windows (it is up to the customer to rewrite it for windows, if needed).

1. Copy the `ibidockerize.sh` file from the EDAHOME/bin directory to a local directory and open it for editing.

Note: The script is highly commented and easy to follow (the actual program code is less than 10 lines).

2. Edit the installation paths and HTTP ports to the ones used in your server configuration.
3. Add paths for any additional software needed to support the configuration, such as DBMS software and JVM software.

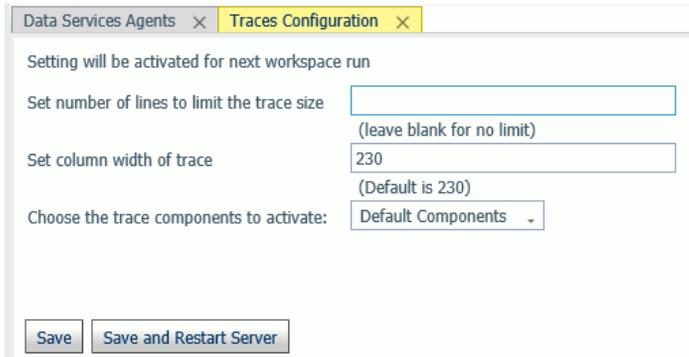
You can edit the script to conform to the needs of your site.

4. Save and run the script to create the container.

You can then redistribute the container according to your needs.

Setting the Maximum Width of a Trace Line

By default, the maximum width of a trace line has been increased to 230 characters to increase the readability of traces by reducing wrapped lines. You can change this default value on the Workspace page. Open the Logs and Traces folder, click the arrow or right-click *Traces*, and click *Configure*. The Traces Configuration page opens, as shown in the following image.



The screenshot shows a web browser window with two tabs: "Data Services Agents" and "Traces Configuration". The "Traces Configuration" tab is active. The page content includes a message: "Setting will be activated for next workspace run". Below this, there are three configuration options:

- "Set number of lines to limit the trace size" with an empty text input field and the text "(leave blank for no limit)" below it.
- "Set column width of trace" with a text input field containing "230" and the text "(Default is 230)" below it.
- "Choose the trace components to activate:" with a dropdown menu showing "Default Components".

At the bottom of the configuration area, there are two buttons: "Save" and "Save and Restart Server".

Enter a new value in the *Set column width of trace* text box, and click *Save and Restart Server*.

Debugging a Dialogue Manager Procedure

The Web Console now has a Dialogue Manager Debugger tool. Using this tool, you can execute a procedure that contains Dialogue Manager commands while watching and changing the values of the Dialogue Manager variables in the procedure. You can set and remove breakpoints in the procedure, step into each line of code, step over execution of external procedures, continue to a breakpoint, execute an ad-hoc procedure, and open HOLD files created in the procedure. You can save the session information of one debug session.

While the procedure is executing, the Dialogue Manager Debugger shows the values of all local variables, global variables, and, if requested, system variables. If a TABLE request is executed, the debugger shows the FOCUS stack with the commands being executed. If a variable that has not been defined is used in the procedure, the Dialogue Manager Debugger prompts you for a value.

Note that when the Dialogue Manager Debugger is executing a procedure, it is not running that procedure in an interactive WebFOCUS environment, so interactive Dialogue Manager commands (such as -PROMPT) that require a response from the user are not executed. Also, you cannot edit the procedure in the debugger environment. If you want to edit the procedure, you must do it from the Applications page or in a text editor.

For more information, see the *Server Administration* technical content.

Reporting Server on z/OS 64-Bit Version

The Reporting Server on z/OS is now a 64-bit version. This implementation allows a larger number of simultaneous agents and connections in a single server instance, provides performance improvements, and enables the server to access additional memory so it can take advantage of modern core language features that require a larger memory footprint.

Kerberos Support for JDBC-Based Data Sources

Kerberos, an authentication protocol that provides a strong authentication for computer networks, has been enhanced for this release. Single sign-on is now supported from the browser, to the WebFOCUS Reporting Server, to JDBC-based data sources.

With server security set to OPSYS and Kerberos authentication enabled, a Windows user can connect to the server from a supported browser (such as, Internet Explorer 11, Chrome, or Firefox) to the Web Console without having to re-enter their credentials.

The simplified process results in the browser passing a stored Kerberos ticket to the WebFOCUS Reporting Server, which then passes it on to a JDBC data source that uses Kerberos and is configured with Security as Trusted.

Git Integration With the WebFOCUS Reporting Server

Git, a Distributed Version Control System (DVCS), is now supported by the DataMigrator Server. Git can be used on both the Reporting Server Web Console and the DataMigrator Data Management Console

The distributed nature of Git allows a vast range of workflow possibilities for projects and teams. The two most commonly used paradigms are Centralized Workflow and Integration-manager Workflow. This Git integration with the DataMigrator Server works with both paradigms seamlessly.



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WebFOCUS

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Release 8.2 Version 03



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Information Builders, Inc.
Two Penn Plaza
New York, NY 10121-2898