



Based on 25 years of innovation excellence, Arbutus delivers the very best in purpose-built audit analytics technology to meet the exacting demands of today's business environment. Auditors, business analysts, and fraud investigators rely on Arbutus audit software to enhance their testing, analysis, and compliance capabilities.

## What's New in Analyzer Version 5.5 Documentation – December 2013

Version 5.5 of Analyzer features numerous innovative and useful enhancements. Here are the Top 10:

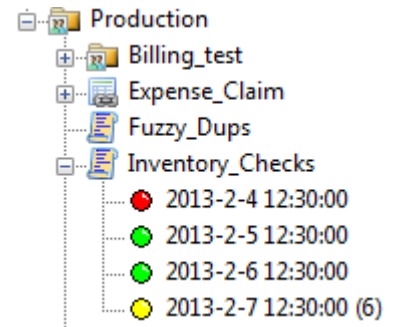
- **Procedure scheduling** – Server-based procedures may now be scheduled from the Overview with a right-click. There is no need for a separate product or user interface. Scheduling options range from Now to Monthly. Also, depending on the test, results can be 3-10 times faster than Fuzzydup. We have test files you can use, if you don't have appropriate data.
- **Duplicates Same-Same-Near and Same-Same-Similar** – You can now look for fuzzy duplicates within a file using the Duplicates command. The ability to specify "Same" keys makes the command dramatically more powerful than that other company's Fuzzydup command. This allows you to, for example, test for same vendor, same date, similar invoice number, as well as process millions of records in seconds.
- **Procedures are now independent of your individual preference settings** – Setting changes made by a procedure are automatically reversed on completion. Also, the new Set Default command ensures "factory" settings are in place for your procedure, which you can then modify as required.
- **SIMILAR( ) function** – This new function complements the fuzzy NEAR( ) function. SIMILAR is also fuzzy, but is specifically designed to ignore differences due to visually similar characters (such as l vs. 1 or 0 vs. O). It also allows testing for transpositions of digits in numbers and dates.
- **LISTFIND( ) function** – This function allows you to easily scan for an unlimited list of words in a file or fields. This is particularly powerful for purchase card analyses.
- **Auto-loading Workspaces** – You may now refer to Workspace fields directly in any expression (including Views and computed fields) using the familiar x.y format, without the need to first activate the Workspace. In this case, x is the name of the workspace and y is the field name. When using this syntax, the Workspace is automatically loaded.
- **Copy and Paste fields** – You may now move field definitions between tables with a simple copy and paste in Edit Table Layout. This eliminates the need for awkward uses of Workspaces and applies to all field types, including computed fields.
- **Extract View** – This allows you to easily extract the data showing in the current view, in the same manner as previously available for Export.
- **Multi-Parameter Functions** – A number of functions (e.g., Maximum) have been extended to allow any number of parameters. These functions can also take a variable array as a parameter, and will process the entire set of values as if they were individual parameters.
- **Sort and Index** – The algorithm has been revised, improving speeds significantly.

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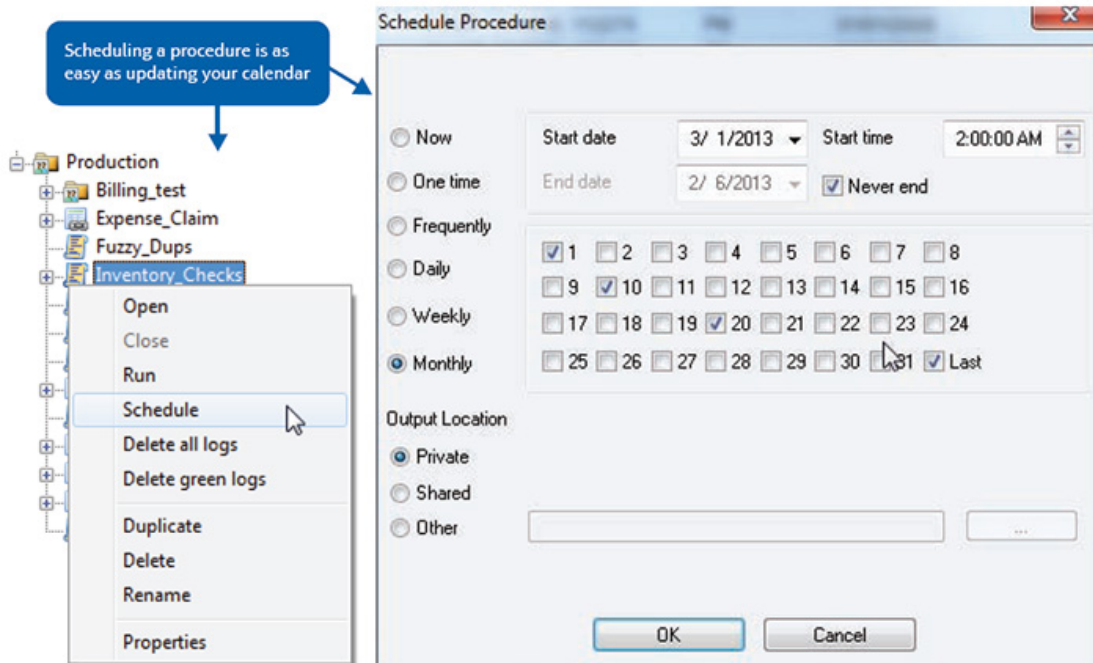
## Windows Server

Added a Scheduler for Scheduling Procedures stored in Shared Folders on an Arbutus Windows Server directly from Analyzer. Scheduling is only available for Enterprise (server) implementations.

- Procedures can be scheduled for a specified date and time, or for a specified interval (daily, weekly, or monthly, at a specified time).
- In addition to the date and time run, you can specify a result (such as number of exceptions), that will show in the Overview, next to the run.
- Output tables created can be stored privately (to the folder specified in your output prefix), shared (to a common server folder) or to any other accessible network folder. Private scheduled jobs are most useful for individual analyses, whereas Shared output is most useful for ETL.
- Scheduled jobs can utilize the Notify command, so you can signal completion, or perhaps exceptional situations, with an email.
- Scheduled jobs can use all the standard user interface capabilities of Analyzer, such as the dialog command. Whenever a scheduled procedure contains interactive elements, then that portion of the procedure is run BEFORE the procedure is scheduled, and the values entered are passed to the job. The new SCHEDULE START and SCHEDULE END commands must bracket any interactive portion of a scheduled job.



- Result logs (*above*) are shown in the Overview and are color-flagged to indicate whether a particular run was successful (green) or failed (red). You can also programmatically specify a warning condition (yellow) as an alert.



- Added a Server Explorer capability, allowing users to work with files on their Arbutus Windows Server without having to use the Data Definition Wizard. Capabilities include browsing, renaming, and deleting files, as well as creating new folders.
- Windows Server performance improved; results will vary based on the command issued.
- Added support for concurrent user licensing on Arbutus Servers.

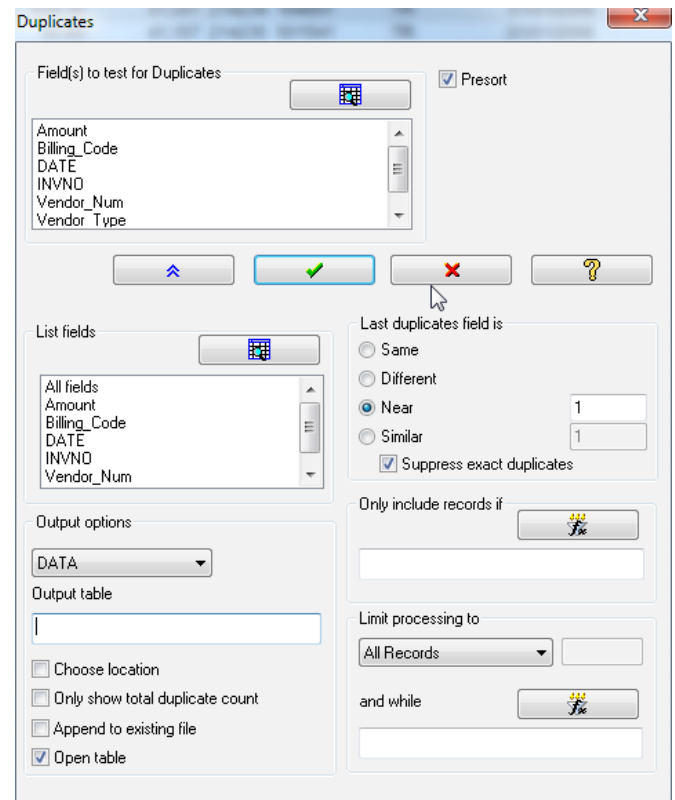
# What's New in Analyzer Version 5.5

## Analyzer – Procedures

- The current application settings (Preferences) are now automatically saved prior to running a procedure. When the procedure is completed, these application settings are restored to the saved values. This new functionality ensures that running a procedure only temporarily changes the user's preferences and that a procedure can no longer permanently affect the application settings from within a procedure.
- Added a SET DEFAULT command which sets all preferences to their default values. Typically, the SET DEFAULT command is followed by desired SET commands to establish the necessary user settings required for the procedure to run correctly and consistently (like Set Safety off). The SET DEFAULT command is equivalent to the SET DEFAULT button in Tools > Options, but of course only applies while the procedure is running.
- Enhanced the SET SAFETY OFF command to also control the overwriting of fields/variables without asking. As a result, if your procedure defines fields (and safety is OFF), there is no longer the need to delete the field in the procedure prior to defining it for subsequent running of the procedure.

## Analyzer – Commands

- Added Duplicates Same-Same-Near functionality (*at right*), which supports the easy execution of fuzzy duplicate tests. Exact field values can be combined with a near field value (e.g., test for same date, same amount, near vendor name). This command uses the NEAR( ) function (Damerau-Levenshtein distance for strings; a numeric value for numerics; and a number of days for dates).
- Added Duplicates Same-Same-Similar functionality. This is close to Same-Same-Near, but is specifically designed for fuzzy duplicate testing on accounting reference fields, such as invoice number or product number. This type of data is vulnerable to characteristic data entry errors or inconsistencies which can lead to duplicate payments or other accounting errors (e.g., same amount, same vendor, similar invoice number, like 11928 and 11928). This command uses the SIMILAR( ) function.
- Enhanced the speed of the SORT and INDEX commands (including presort/secsort).
- Added support for use of the AS field modifier for fields in an IMPORT command. This allows you to change the name of a field from the source.
- Added enhancement to EXTRACT so you can now extract the current view.
- Enhanced the DISPLAY command to support new options:
  - The VERSION parameter will now create a numeric variable. This could be useful when conditionalizing commands issued within procedures that are dependent on the version of Analyzer being used.
  - When workspace fields have been activated, issuing a DISPLAY will now list workspace fields using an x.y naming convention (similar to how related fields are referenced).



# What's New in Analyzer Version 5.5

## Analyzer – Functions

- Enhanced MATCH( ) to support variable arrays as parameters for the matching list. If the variable array 'items' has the values "10", "20", "30", "40" and "50", then MATCH(dept, items) is the same as: MATCH(dept, "10", "20", "30", "40", "50").
- For any functions that support multiple parameters and variable arrays, you can also mix combinations of parameters and variable arrays, so if items and items2 are arrays, then MATCH(dept, items, "88", "99", items2) would be valid. Of course, wherever a variable array is valid it can be as large as required.
- Added AVERAGE( ), to return the average value for a set of specified numbers, or a set of numbers stored within a specified variable array. Any number of parameters and/or variable arrays may be supplied: AVERAGE(4.7, 18.42, 19.63, 6, 0, 1.123, 10.5)=8.625
- Added LISTFIND( ), to find any of a list of words (case insensitive) specified in one or more text files or from a single specified variable array. This is particularly useful for purchase card analyses, where the data is being scanned for inappropriate or suspicious terms. The LISTFIND( ) function finds matches in upper, lower, and mixed cases and also searches for either ASCII or EBCDIC characters based on the field definitions. Use Listfind in a filter like LISTFIND("exceptions.txt", description).
- Added SIMILAR( ). This is another "fuzzy" function that complements NEAR( ). SIMILAR( ) returns true or false based on a fuzzy comparison of the parameters. It transforms its parameters before comparison, to eliminate the most common data entry errors, and then compares the results using the Damerau-Levenshtein distance. This function differs from NEAR( ) because it compares transformed values.
  - For strings, it upper-cases, removes all non-alphanumerics (e.g., blanks, commas, quotes, dashes, periods, etc.), replaces foreign characters with their English equivalents, and eliminates certain letter combinations that are easily confused (such as I/1 or O/0).
  - For numeric and date data it converts the values to strings for comparison. This will easily identify data transpositions that might otherwise be missed because the resulting incorrect value is quite different from the correct value.
  - Unlike NEAR( ), it is reasonable to specify a distance of zero. This implies two values that may or may not be identical in their raw form, but are identical after the transformation: SIMILAR("I - 12345", "112345", 0) would be true, for example.
- Added TOTAL( ) to return the total value for a set of specified numbers or a set of numbers stored within a specified variable array: TOTAL(4.7, 18.42, 19.63, 6, 0, 1.123, 10.5)=60.373
- Enhanced DIFFERENCE( ) to include an optional third parameter to turn off case sensitivity for the difference comparison. By default, the DIFFERENCE( ) function is case-sensitive: DIFFERENCE("Smith", "SMYTHE", F)=2
- Enhanced the MAXIMUM( ) and MINIMUM( ) functions to support date values, any number of function parameters and to support variable arrays. For example: MINIMUM(4.7, 18.42, 19.63, 6, 0, 1.123, 10.5)=0.000
- Enhanced VALUE( ) to support an optional decimal character parameter, for when it differs from the default preference setting. This is useful for processing numeric data that is formatted differently than your national defaults. For example: VALUE("5,67", 3, ",")=5.670
- Added ISDEFINED function.

# What's New in Analyzer Version 5.5

## Analyzer – Functions (cont'd)

- Enhanced NORMALIZE( ) and SORTNORMALIZE( ) to support specification of multiple substitution files. This allows you to keep separate substitution files by area. For addresses, you might have separate street descriptions (Ave, Avenue), state names (Washington, WA), directions (N, SW), country names (Canada, CAN, CDN) or even numeric designations (Twelfth, 12th). Any number may be specified and combined as required. You might even store the list in a variable, so it is both easy to refer to while still being easy to maintain. When multiple substitution files are desired, just separate the file names with commas in the parameter. For example, NORMALIZE(address, "streets.txt,states.txt,countries.txt") will automatically combine the substitutions specified in the three separate files.

## Analyzer – Edit Table Layout

Added right-click options to the Edit Table Layout window to easily copy and paste field definitions between table layouts. This is particularly useful for copying common computed fields between table layouts rather than using a Workspace.

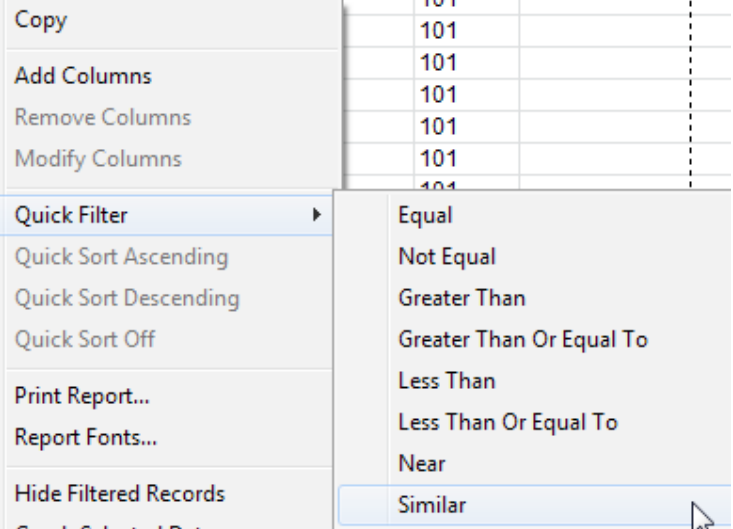
## Analyzer – View

- You may now Quick Filter for similar values. See SIMILAR( ) for a description of the function.

Quick Filter example: this choice uses the SIMILAR( ) function to construct a Quick Filter using a default Damerau-Levenshtein difference of 1 (which can be edited).

- You may now set Quick Filters based on defined Triggers for a selected column. This option is only available when a column is highlighted, versus a "cell", if column triggers exist for the highlighted column.
- Changed Smart Search so that when no columns are selected it searches the actual data in the View for matches, rather than the primary record. A new SMARTSEARCH() function has replaced the old FIND() that used to be used when performing a Smart Search. This will search any data shown in the View, any data shown in the View, including computed fields, expressions, and related fields.
- SmartSearch now matches if multiple items appear in any of the fields in the View (rather than all in one field).

| Amount       | Absolute  | DateTm1             | Account |
|--------------|-----------|---------------------|---------|
| (6,448.95)   | 6,448.95  | 06/21/1986 14:46:19 | 101     |
| (4,800.00)   | 4,800.00  | 03/12/2021 00:34:55 | 101     |
| (2,785.00)   | 2,785.00  | 10/26/2004 00:01:43 | 101     |
| (10,846.21)  | 10,846.21 | 11/15/1989 08:05:39 | 101     |
| (124,840.80) | 10,846.21 | 03/12/2021 00:34:55 | 101     |
| 0.10         |           |                     | 101     |
| 0.50         |           |                     | 101     |
| (18.98)      |           |                     | 101     |
| (51.26)      |           |                     | 101     |
| (7.47)       |           |                     | 101     |
| (4.80)       |           |                     | 101     |
| (22.18)      |           |                     | 101     |
| (428,033.87) |           |                     | 101     |
| 60.41        |           |                     | 101     |
| 169.55       |           |                     | 101     |
| 250.00       |           |                     | 101     |
| 50.00        |           |                     | 101     |
| 5.10         |           |                     | 101     |
| (124,840.80) |           |                     | 101     |
| 2,441,423.74 |           |                     | 101     |
| (40,556.98)  |           |                     | 101     |
| 350.00       |           |                     | 101     |
| 550.00       |           |                     | 101     |
| 4,450.57     |           |                     | 101     |



- Copy
- Add Columns
- Remove Columns
- Modify Columns
- Quick Filter**
  - Equal
  - Not Equal
  - Greater Than
  - Greater Than Or Equal To
  - Less Than
  - Less Than Or Equal To
  - Near
  - Similar**
- Quick Sort Ascending
- Quick Sort Descending
- Quick Sort Off
- Print Report...
- Report Fonts...
- Hide Filtered Records
- Graph Selected Data
- Column Properties

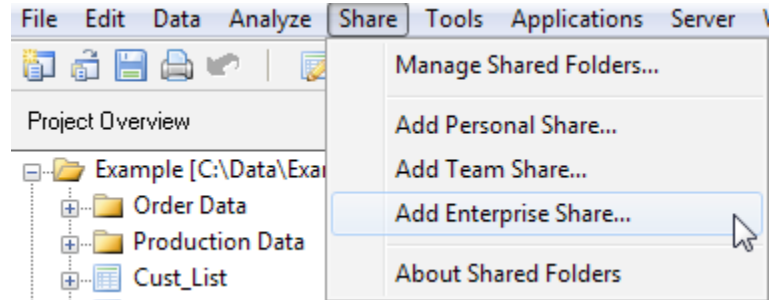
## Analyzer – Overview

- The Overview now mirrors Windows Explorer by placing folders above the other project items, in alphabetical order.
- Opened objects can now be moved within the Overview. They are automatically closed before moving.

# What's New in Analyzer Version 5.5

## Analyzer – Shared Folders

- Added a Share top level menu (*at right*) to create and manage shared folders (Personal, Team, and Enterprise).
- Added right-click support for Shared Folders to display properties within the Overview.
- Added ability to drag local table layouts into Shared Folders in order to transfer data and results between users. Users are prompted to optionally move local data into Shared Folder with local table layouts.



*Note: Refreshable table layouts and table layouts containing relations are only maintained when a table layout is moved within the same root folder (e.g., from the root to a sub-folder within the root).*

- Removed the read-only nature of Shared Folders so project items (e.g., procedures) can be edited within the shared folder without the need to drag the project item to the desktop's project folder. This, of course, is controlled by the Windows rights you have to the shared folder contents, so if the folder is "read-only" for a given user, then they will not be able to edit the contents.
- Additionally, shared objects can now be dragged directly between Shared Folders (including sub-folders within them).
- Removed the "Manage Shared Objects" preference from the Tools > Options > Interface, as this is now controlled by the Windows security settings.

## Analyzer - General

- Auto-loading Workspaces have been added. Workspace fields can now be specified using the familiar x.y style, meaning Workspace-name.field-name. This style can be used in any expression, including the View and Computed fields. When you specify a workspace field in this way, the workspace is automatically Activated if it is not active already.
- Improved the field display command (Display, Edit Table Layout, Field Picker, etc.) to distinctly identify Workspace fields. These are now shown using the x.y style, for easy identification.

*Tip: Use of the x.y style of referencing workspaces alleviates the need to issue an ACTIVATE WORKSPACE command.*

- Changed the naming convention for the underlying file name of View/Report and Index files, to make it easier to see the relationship between Views/Indexes and their parent Table:  
demo .aww (default view for demo.fmt)  
demo altdemo.aww (alternate view for demo.fmt)

*Note: This does not change the way Views/Reports and Indexes are displayed in the Overview; only the way they are displayed in Windows Explorer.*

- When creating a New Project from the File menu, a new project folder is automatically created at the same level as the current folder. A named project file is automatically placed into this new folder. The new project file uses the same name as the new project folder. This ensures that a new project starts "empty".
- Enhanced the table properties to include Relations information, in the Notes area, if parent tables with relations are moved to a shared folder.
- File DSNs are now supported via the Wizard and Import command.

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