



Enterprise Analyzer 6.0

Release Notes

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Enterprise Analyzer Release Notes - Version 6.0

These release notes contain a summary of the major features of Enterprise Analyzer Version 6.0, as well as late-breaking information about the product.

Before using Enterprise Analyzer, please read the *Getting Started* manual in the online help to gain an understanding of the user interface and tool metaphor. For more detail on the behavior, usage and limitations of Enterprise Analyzer, please refer to the online help.

What's New

Enterprise Analyzer Product Enhancements

REST API and Jenkins Plugin

A REST API has been added for administrating workspaces, running searches against the repository, and generating reports. A Jenkins plugin to use the REST API is included for easy integration with the popular continuous integration system.

For details, see Appendices II, III, and IV in this document.

Business Rules in EA Web

The viewing and editing of business rules is now available in EA Web. Any rules created in the desktop application will be shown in the Web client interface under a new Business Rules tab at the top of the page. The display in EA Web matches the display from Interactive Analysis in the desktop application. Rules can be viewed in the Grouping or Triggering tree views, the attributes are shown and can be edited, and the source view highlights the selected rule's source code.

There is also a feature to show all rules associated with a selected line in the source. To use this feature while in the Business Rules section of EA Web, right-click a construct in the source view and choose **Find Rules**. A pane labeled Found Rules will be shown under the rules tree with all the rules that cover the selected code segment.

Homonyms Search Method Options

New options have been added to specify the rules that are used when resolving references to include files. The three new options can be found in the **Project Options > Homonyms Support** tab.

The first option is **Search all, use the provided paths as preference**. This is the default behavior and is the same as the default behavior in previous versions. It will search the entire workspace to complete the reference. If more than one instance of the referenced file is found, the provided list of homonyms paths will be used to determine which version to use.

The second option is **Search only in the provided paths**. When this option is selected only the paths specified as homonyms paths will be used as a location for finding include files, and the entire workspace will not be searched.

The last option is **Search in common location and only the same subsystem**. This option may help when there is a large number of applications/subsystems. It is designed to allow the folder structure in the file system to define the boundaries between subsystems and to restrict retrieval of include files based on the physical folder structure. This could allow all files to be included in a single project without the need to specify the search paths in the homonyms options.

This option requires you to identify two key levels in the source folder structure:

1. All common libraries to be located inside the same root folder, for example `C:\Sources\Common`. Files in folders located here will be "visible" to all programs being analyzed.
2. All subsystems roots to have a common root folder. For example, if you have 2 subsystems, BATCH and ONLINE, they need to be children of the same folder (e.g. `C:\Sources\Subsystems`).

Therefore, in this example the structure will be:

```
C:\Sources
  Common
    LIB1
    LIB2
  Subsystems
    BATCH
    ONLINE
```

In this case, you should specify:

Common Folder: C:\Sources\Common

Subsystems root level: C:\Sources\Subsystems

Then the BATCH application will not get copybooks from ONLINE and vice versa. But both can get copybooks from folders LIB1 and LIB2.

Refresh Registered Source Paths

A new feature allows the location of registered source files to be changed. This feature is available from the **Refresh Registered Source Paths** menu item in the Enterprise Analyzer Administration tool as well as from the Source Synchronization window in the main tool when a registered root folder that contains sources is not found. In the main tool it is accessible in the Source Synchronization window from the **Change Registered Source Paths** button in **Removed folders/subfolders** when it is available.

This feature is useful in cases where sources have been moved to another location, a folder that contains sources has been moved, a folder that contains sources has been renamed, or when sources were registered from a non-shared location and the location has since been shared.

Support for SQL Statements in JCL

Support has been added for processing JCL control card data containing SQL statements. Various SQL relationships such as `Reads Table`, `Updates Table`, etc. can be generated from jobs. The check for SQL statements is done whenever there is a `Uses Control Cards File` relationship present for JCL.

Convert Missing Programs to System Programs

The ability to convert missing programs into a system program has been added. When viewing a missing program in the Repository Browser, right-click the Program Entry Point and choose **Convert Unresolved Entry Point To System Program** from menu. All calling relationships for the program will automatically change to calls to a system program of the same name. This is useful when the source base includes references to third party programs for which we do not have the sources to load into the repository.

A dialog is also provided to convert multiple unresolved program entry points without having to find them each separately in the Repository Browser. To access this dialog, click **View > Entire Workspace** in the main window. Then switch to the Types view in the browser, expand the Workspace node at the top of the browser, and right-click the Program Entry Point folder and choose **Convert Unresolved Entry Points To System Programs....**

Deleting a system program is possible by selecting it in the Repository Browser and choosing **Delete System Program** from the right-click menu. When the system program is deleted it will be converted back to an unresolved entry point and all calling relationships to it will be automatically updated accordingly.

Note that the System Programs are no longer managed in the Workspace Options.

Search Results Report in the Repository Browser

A new report to save the search results in the Repository Browser has been added. This report can be executed from the results of any Search Assistant or Find search by right-clicking any node and choosing **Search Report**.

Usability

Reference Reports

- A new option called **Show Relation Path** has been added to the **View** menu for the Cross Reference Report. When selected, the report is refreshed and the Relation column will then include details for composite relationships. It shows the full path of relationships between the left and right entities.
- Four new composite relationships have been added to make the results in the Cross Reference Report more understandable.
 - [Invokes System Program] Job -> Has Data Connector -> Is read in system program -> System program
 - [Invokes System Program] Job -> Has Data Connector -> Is written in system program -> System program
 - [File is accessed by Program] Data Connector -> Refers to File -> Data port is inserted in Program -> Program
 - [File is read in Program] Data Connector -> Refers to File -> Data port is read in Program -> Program
- If a program, program entry point, or file originates from a JCL, it will not be included in the Cross Reference Report.
- The columns in the Cross Reference, Unresolved, and External Reference reports have been adjusted to improve their readability. The order of the columns has been changed to:
 - Referred By
 - Referring Object Type
 - Relationship
 - Object Name
 - Object Type
 - Legacy Object
 - Object Description
- The object properties window is now sensitive to which cell has been clicked so it will either show the referred or referring object. If the Relation field is selected, the properties will show the referred object. Certain relationships that showed irrelevant objects are no longer included.

Other Enhancements and Changes

- The performance of showing the Source Synchronization dialog has been improved. The Source Synchronization count of invalidated files is no longer calculated before the dialog window opens. The dialog opens faster and the count of total objects to be invalidated will be calculated and continuously updated without blocking the UI. The count is based on the selections of added and updated files.
- Support for general regular expressions in patterns in `NewBatchProgs` elements has been added in `Legacy.xml` to allow more complex regular expressions to be specified to match text. To do this, add `regex='full'` as an attribute to any element to use the extended regular expression syntax. If `regex` is not set to full, then the previously existing functionality is used.
- Project options are now available only to Master users or the owner of the project.
- The **Import**, **Copy**, and **Assign** buttons in the Options Manager are now enabled for master users only.

- The `ProcessEmbedments` list has been added to `Legacy.xml` to exclude certain JCL PGMs from having their control cards be processed for embedded languages such as SQL.
- The **Micro Focus compiler compatibility level** verification option for the Micro Focus COBOL dialect has been updated with values for MFLEVEL 19, 20, and 21. The default value remains level 15.
- A message has been added to the BRP logs indicating how many objects are not included in any projects and therefore cannot be verified.

Example: "Selected XXX object(s) (XX object(s) not connected to any project and cannot be verified)."

- Some batch scripts have been restricted to be run by a master user only. When a non-master user attempts to run the batch job, a message like the following will be shown in the log: "The user does not have privileges to run source synchronization."
- A new checkbox option called **Show empty columns** has been added to the Configure Report Options dialog for the Business Rule Report. If the option is selected, empty columns for Business Description, Technical Description and Rule Description will appear in the report.

Nonfunctional Changes

- Windows Server 2019 is now supported.
- Microsoft SQL Server 2019 is now supported.
- DB2 9.5 is no longer supported. DB2 10.5 or higher is now required.
- Windows Server 2008 is no longer supported.
- Microsoft SQL Server 2008 is no longer supported.
- When saving diagrams the `.vsdx` format is now available instead of `.vsd` when the installed Visio version is 2013 or higher.
- On startup `rescuent.exe` will be added to the trusted sites Internet Explorer options to prevent obtrusive popup messages and to make charts visible in the Chart Viewer on Windows Server Operating Systems.
- The Adopt OpenJDK version included with the product has been updated to 8.0.242.08.
- The Apache Tomcat version included with the product has been updated to 9.0.33.
- Microsoft .NET Framework Redist Package 4.6.1 is now installed by the product as a prerequisite.
- Microsoft .NET Framework Redist Package 3.5 SP1 is no longer installed by the product.

Upgrades from Previous Versions

Enterprise Analyzer 6.0 supports upgrades of workspaces from Enterprise Analyzer version 5.0 GA or 5.0 with any HotFix and version 4.0 GA or 4.0 with any HotFix.

Upgrading workspaces that use non-inplace registration (starting from version 4.0 GA) is not recommended. If upgrading from a version earlier than 4.0, creating new workspaces is recommended.



Important: All workspaces must be upgraded after installing EA 6.0. Before upgrading, we recommend you contact SupportLine for the latest Enterprise Analyzer updates. SupportLine is also available to give guidance on best practices for workspace upgrades. Before performing the upgrade on important workspaces, be sure to back up the database and the workspace folder along with the `.rwp` file. If you experience any issues or errors with the workspace upgrade process, please contact SupportLine with a description of the problem and include the contents of the `Upgrade` folder from the workspace as an attachment.

Updating the EA Web Client

After installing Enterprise Analyzer 6.0, follow these steps to continue using the EA Web client. If Enterprise Analyzer was installed with the **Install Web Client** option selected, steps 1 through 6 below can be skipped.

1. Stop the Apache Tomcat service.
2. Delete `EAWeb.war` and the `EAWeb` folder from `C:\Program Files (x86)\Apache Software Foundation\Tomcat\webapps`.
3. Delete everything in the `...\Tomcat\temp` folder.
4. Delete everything in the `...\Tomcat\work\Catalina\localhost` folder.
5. Copy the `EAWeb.war` file from `[EA install directory]\Web Client` into the `...\Tomcat\webapps` folder.
6. Start the Apache Tomcat service.
7. In the properties for the Enterprise Analyzer Web Service, go to the **Log On** tab, choose **This account** and enter the account of a user with access to EA and the workspace.
8. Restart the Enterprise Analyzer Web Service.



Note: The browser clients might need to hard refresh the EA Web page with **Ctrl+R** to get the latest version.



Note: When using EA Web in Internet Explorer, disable compatibility mode.

Updating the Eclipse Plugins

Follow these steps after installing EA 6.0 to continue using the Clipper View and Search Assistant plugins in the Eclipse IDE.

1. On the EA server, in the properties for the Enterprise Analyzer Web Service, go to the **Log On** tab, choose **This account** and enter the account of a user with access to EA and the workspace. Restart the Enterprise Analyzer Web Service.
2. Open Eclipse or Enterprise Developer on the client machine.
3. Go to **Help > Install New Software**.
4. Click the **Add** button next to the **Work with** list.
5. Click **Archive** and point to the `EAIntegration.repository.zip` file in `[EA install directory]\Bin`. Then add a name in the **Name** field and click **Add**.
6. In the Install window, check the box for **Enterprise Analyzer Access**. Click **Next**.
7. Click **Next** again.
8. Accept the license agreement and when prompted, restart Eclipse.

Silent Install

The following command can be used to perform a silent install of the product. This command will execute the installation to the default location with the default selections of SQL Server Express install enabled, Install Web Client disabled, Install MFA enabled, and the Administration tool enabled:

```
start EnterpriseAnalyzer60.exe ShowConfig=0 /s /v"/qn"
```

The following command will install with the default options plus the Install Web Client will be enabled:

```
start EnterpriseAnalyzer60.exe TomcatCheckbox=1 ShowConfig=0 /s /v"/qn"
```

The parameters to disable the default selections are `SQLExpressCheckbox=0`, `MFACheckbox=0`, and `EAdminCheckbox=0`. These are shown in the following command as an example of how to disable these default selections and can be used along with the `TomcatCheckbox` parameter:

```
start EnterpriseAnalyzer60.exe SQLExpressCheckbox=0 MFACheckbox=0  
EAdminCheckbox=0 ShowConfig=0 /s /v"/qn"
```

The install location can be changed with the `InstallFolder` parameter. The following command shows an example of using the `InstallFolder` parameter to install to any location:

```
start EnterpriseAnalyzer60.exe InstallFolder="D:\Install\Micro Focus  
\Enterprise Analyzer" ShowConfig=0 /s /v"/qn"
```

Important Notes

- After installing EA version 6.0 with the **Install Web Client** option selected, if the Apache Tomcat service does not start automatically, it can be started from the Services application. There you can also set the **Startup Type** to `Automatic` if it is set to `Manual`.
- When installing EA version 6.0 over 5.0 with the **Install Web Client** option checked, newer versions of the Adopt OpenJDK JRE will be installed and the older version left untouched by the EA installer. For Apache Tomcat, if an older version is present Tomcat will continue to use the older version of the JRE. Note that the latest version of the JRE will always be used by default for verification of Java files in a workspace.
- When using EA on Windows Server 2019 it may be necessary, depending on the security settings, to do one of the following in order to access a workspace local to that machine:
 - Before creating a workspace share the folder or a parent folder that will contain the `.rwp` file and workspace folder.
 - Before creating a workspace add security permissions for the user account to the folder where the workspace will be created.
 - Add security permissions for the user account to the workspace folder that is on the same level as the `.rwp` file.
- Enterprise Analyzer can be used with either an Analyzer Client license or a Developer Client license installed in the Micro Focus License Administration application. The Analyzer Client license gives access to all features of the desktop client. The Developer Client license gives access only to features needed to build a workspace. The purpose of the Developer Client license is to allow one installation of Enterprise Analyzer to create a workspace and deploy the Web client for end users to access the workspace. Note that Business Rule Manager is licensed separately and also requires an Analyst Client license.

Resolved Issues

The numbers that follow each issue are the Support Incident Numbers followed by the Reported Problem Incident (RPI) number (in parentheses).

- [EA - Administration](#)
- [EA - Analysis](#)
- [EA - Analysis - Diagrammer](#)
- [EA - Analysis - HyperView - Clipper](#)
- [EA - APM](#)
- [EA - Backend](#)
- [EA - Backend - Analysis](#)
- [EA - Backend - Analysis - Cobol](#)
- [EA - Backend - Analysis - Cobol - Advanced](#)
- [EA - Backend - Analysis - DDL](#)
- [EA - Backend - Analysis - JCL](#)
- [EA - Backend - Parsing - Assembler](#)
- [EA - Backend - Parsing - Cobol](#)
- [EA - Backend - Parsing - Cobol/ACU](#)
- [EA - Backend - Parsing - Cobol/Cobol 390](#)
- [EA - Backend - Parsing - Cobol/MicroFocus](#)
- [EA - Backend - Parsing - Cobol/OSVS](#)
- [EA - Backend - Parsing - Cobol/Unisys 2200](#)
- [EA - Backend - Parsing - Cobol/Unisys MCP](#)
- [EA - Backend - Parsing - DDL](#)
- [EA - Backend - Parsing - EmbeddedSQL](#)
- [EA - Backend - Parsing - IMS Definition](#)
- [EA - Backend - Parsing - JCL](#)
- [EA - Backend - Verification](#)
- [EA - Batch Application Viewer](#)
- [EA - Batch Refresh Process](#)
- [EA - Business Rules](#)
- [EA - Change Analyzer](#)
- [EA - Common](#)
- [EA - Decision Resolution](#)
- [EA - Diagrammer](#)
- [EA - Documentation](#)
- [EA - EAWeb](#)
- [EA - Eclipse Plugins](#)
- [EA - ED/VC Integration](#)
- [EA - Homonyms](#)
- [EA - HyperView](#)
- [EA - HyperView - Callie](#)
- [EA - HyperView - Clipper](#)
- [EA - HyperView - Context](#)
- [EA - HyperView - Execution Path](#)
- [EA - IDE](#)

- [EA - IDE - Activity Log](#)
- [EA - IDE - Options](#)
- [EA - IDE - Project Operations](#)
- [EA - IDE - Repository Browser](#)
- [EA - IDE - Workspace Operations](#)
- [EA - Installation](#)
- [EA - Inventory](#)
- [EA - Reports](#)
- [EA - Reports - Executive Report](#)
- [EA - Reports - Portability Assessment](#)
- [EA - Reports - Reference](#)
- [EA - Tag Manager](#)
- [Licensing](#)
- [MFA Client API](#)

EA - Administration

- An issue where the provider was not automatically switched when needed has been fixed.
3216933 (1119231)

EA - Analysis

- An invalidation issue on MS SQL Server workspaces has been fixed.
3198867 (1118067)

EA - Analysis - Diagrammer

- An issue with the expansion of relationships for entity-based diagrams in Diagrammer has been fixed.
3218061 (1119324)
- When saving diagrams the .vsdx format is now available instead of .vsd when the installed Visio version is 2013 or higher.
3211880 (1118800)

EA - Analysis - HyperView - Clipper

- Searches for variables no longer return declarations.
3206497 (1118280)

EA - APM

- An issue that caused some charts in Enterprise View to display incorrect object counts has been fixed.
3214608 (1119154)
- An issue causing charts to not include all objects has been fixed.
3193642 (1117673)
- The length of EV panes for editing Business Attributes has been increased.
3163608 (1114702)

EA - Backend

- Using the Invalidate Workspace feature from the administration tool will no longer clear the list of default system programs.
3224812 (1120005)

- Database error logging for the invalidation process has been improved.
3202326 (1117898)

EA - Backend - Analysis

- A problem causing non legacy objects to be selected when starting the Find feature from the Types view of the Repository Browser has been fixed. This will improve the performance of opening the Find and executing it.
3225832 (1120117)
- An issue where files were not resolved to data store names in the CRUD Report for a specific Legacy.xml case has been fixed.
3169670 (1115271)

EA - Backend - Analysis - Cobol

- A problem causing the instances of declarations from COPY REPLACING copybooks to be unrecognized has been fixed.
3207919 (1118398)
- A message will now be shown in the Activity Log when the Micro Focus COBOL parser license is missing.
3206267 (1118249)
- The ability to convert missing program entry points into a system program has been added. When viewing a missing entry point in the Repository Browser, right-click the entry point and choose "Convert Unresolved Entry Point To System Program" from the context menu. All calling relationships for the entry point will automatically change to calls to a system program of the same name. A dialog is also provided to convert multiple unresolved program entry points without having to find them each separately in the Repository Browser. To access this dialog, select the View menu in the main window then choose Entire Workspace. Then switch to the Types view in the browser, expand the Workspace node at the top of the browser, and right-click on the Program Entry Point folder and choose "Convert Unresolved Entry Points To System Programs..." from the context menu. Note that the System Programs are no longer managed in the Workspace Options.
3203915 (1118148)

EA - Backend - Analysis - Cobol - Advanced

- Generic API support for CICS SEND and RECEIVE statements has been added.
3178930 (1115989)

EA - Backend - Analysis - DDL

- An issue when using the "Use Database Schema" option that could cause tables from deleted DDL files to remain in the repository has been fixed.
3226022 (1120061)
- DBD PSINDEX access without DATASET is now allowed.
3224514 (1119920)
- An issue with stored procedure relationships not being produced when verifying certain DDL files has been fixed.
3162272 (1114588)

EA - Backend - Analysis - JCL

- You can now specify PSB and IMS status for JCL verification by adding relationships to the NewBatchProgs tag in the Legacy.xml.
3223345 (1119906)
- Adding a new configuration for a batch program in JCL using Legacy.xml will now correctly identify passed DD's.
3213856 (1118946)
- Support has been added for general regular expressions in patterns in NewBatchProgs elements in Legacy.xml.
(644902)

EA - Backend - Parsing - Assembler

- 'ALC' as a valid value for LANG in BMS has been added.
3217675 (1119295)

EA - Backend - Parsing - Cobol

- EasyTrieve verification now supports macro calls with a dot at the end.
3226737 (1120150)
- The SQL command ROW_NUMBER OVER is now supported.
3224662 (1119931)
- The OVER() function of ROW_NUMBER() no longer requires parameters. Nested SELECT statements support has been enhanced.
3224662 (1119973)
- Square brackets in embedded SQL are now supported.
3202698 (1117949)
- Support has been added for terminating comma separators in the column list in SQL DECLARE TABLE statements.
3202687 (1117948)
- A verification failure when 'occurs to' starts from zero and has 'depending on' specified has been fixed.
3202507 (1117923)

EA - Backend - Parsing - Cobol/ACU

- A parser error for values in the comment area for ACUCOBOL has been fixed.
3220491 (1119531)
- An issue with memory access violation caused by incorrect handling of INSPECT syntax was fixed.
3220286 (1119521)
- An issue when converting underscores to hyphens in ACUCOBOL identifiers has been fixed.
3219566 (1119453)

EA - Backend - Parsing - Cobol/Cobol 390

- An issue where a reference to a stored procedure from a COBOL file was not resolved correctly has been fixed.
3213555 (1118938)

EA - Backend - Parsing - Cobol/MicroFocus

- An issue with using the NoOdoslide compiler directive has been fixed.
3201862 (1117865)
- An issue where copybooks without an extension were not found has been fixed.
3201650 (1117847)
- An issue with hyphens and underscores in variable names being treated as the same character during COBOL verification has been fixed.
3196348 (1117796)
- An issue where missing declarations for items used in display statements could result in certain COBOL programs failing verification has been fixed.
3193838 (1117150)

EA - Backend - Parsing - Cobol/OSVS

- A verification failure for a specific program with the OS/VS COBOL dialect has been fixed.
3217527 (1119276)

EA - Backend - Parsing - Cobol/Unisys 2200

- An issue with the correct copybooks not being used for DASDL databases has been fixed.
3198401 (1117558)

EA - Backend - Parsing - Cobol/Unisys MCP

- An issue with a verification error for a duplicate identifier "TERMINATED" has been fixed.
3200560 (1117753)

EA - Backend - Parsing - DDL

- Various DDL verification errors have been fixed.
3226331 (1120099)
- Various DDL verification errors have been fixed.
3225890 (1120050)
- Support has been added to handle IDENTITY options without commas between them.
3225199 (1119983)
- An issue with the backquote character being used as a terminator has been fixed.
3217692 (1119294)
- Support for DB2 table clones with a new "defines" relationship has been added. Support for PCTFREE 5 FOR UPDATE 0 in Create Table has been added.
3189213 (1117687)
- Support for the XMLTABLE function has been added.
3188970 (1117667)

EA - Backend - Parsing - EmbeddedSQL

- The SQL parser has been improved to allow keywords to be used as identifiers in the case of correlation clauses.
3218680 (1119382)

- An issue with parsing the alter session SQL command in COBOL files has been fixed.
3201770 (1117850)
- Support for the XMLTABLE function has been added.
3198693 (1117682)

EA - Backend - Parsing - IMS Definition

- GSAM files used with the IMS CBLTDLI driver will now report direct data access to the file.
3225628 (1120024)

EA - Backend - Parsing - JCL

- Support has been added for processing JCL control card data containing SQL statements and producing various SQL relationships such as "Reads Table", "Updates Table", etc. The check for SQL statements is done whenever there is a "uses control card" relationship present for JCL.
3225190 (1120113)
- An issue with JCLLIB card not being honored for JCL Procedures when there are duplicate files located on shared drives has been fixed.
3224677 (1119927)
- CA7 JCL override statements (#JI, #JO, #HLD, #JEND, etc.) will no longer return errors with JCL verification, but these statements are ignored and not represented in the repository.
3224675 (1119926)
- An issue with JCL verification that prevented the generation of some relationships to programs has been fixed.
3222599 (1119743)
- JCL verification with control cards now handles comment lines starting with ' *', /*' between statements, as well as comment lines starting with '*' within the definition of parameters.
3218369 (1119365)
- An issue with the verification of certain linkdeck files has been fixed.
3207652 (1118428)
- The error "Assertion Failed" no longer occurs when the option "Import instream data from DSN" is enabled or disabled for verification.
3203157 (1117991)
- Support for leading TABs in JCL control cards has been improved.
3202695 (1117957)
- The ProcessEmbedments list has been added to Legacy.xml to exclude certain JCL PGMs from having their control cards be processed for embedded languages such as SQL.
(644793)

EA - Backend - Verification

- Legacy.xml NewBatchProgs Level 1 relationships from jobs to files are now only created when relationship="Runs" is specified in the add element.
3225773 (1120111)
- The stability of the product when the MSSQL broker is disabled has been improved.
3200452 (1117870)

EA - Batch Application Viewer

- An error in Batch Application Viewer that resulted from the length of the step name exceeding the size limit in the database has been fixed.
3222050 (1119753)
- An issue where the diagram view was only showing one instance of a system program that was executed multiple times in a JCL has been fixed.
3197098 (1117476)
- BAV reports now show the fully qualified step/proc name.
3197009 (1117450)

EA - Batch Refresh Process

- A message has been added to the BRP logs indicating how many objects are not included in any projects and therefore cannot be verified. Example: "Selected XXX object(s) (XX object(s) not connected to any project and cannot be verified)"
3219394 (1119452)
- Some batch scripts have been made to be run by master users only. When a non-master user attempts to run the batch job, the following message will be shown in the log: "The user does not have privileges to run source synchronization."
3218519 (1119592)
- An issue that could cause queue processors to hang when waiting for dead tasks to finish has been fixed.
3215690 (1119112)
- An issue with ApplyPCF.bj that could cause an error for certain duplicated records has been fixed.
3214180 (1119059)
- An issue with case sensitivity when using ApplyPCF.bj has been fixed.
3210150 (1118660)
- An issue that could cause an error when generating some flowchart diagrams in batch has been fixed.
3209381 (1118859)
- An issue with additional queue processors opening during BRP has been fixed.
3209254 (1118675)
- Source Synchronization will now correctly update a changed file even if the modified date on the file is older than that of the previous version.
3209147 (1118523)
- A problem with PCF file creation and Obsolete handling has been fixed.
3198355 (1117557)
- An issue where sources registered through BRP in a non-inplace workspace could get flagged as not found during Source Synchronization has been fixed. In some cases the Source Synchronization message may still appear even if Source Synchronization has been disabled in the workspace. To bypass the message, place a file called BRPFolders.cfg in the workspace folder. The BRPFolders.cfg file should contain a line for every folder that should be ignored by the Source Synchronization message. For example: \\machine-name\Workspaces\BRP_Workspace1\Staging
\\20190620_1558\source
3196585 (1117532)
- A situation where a workspace RWP file could be overwritten as a log file because of an incorrect Brave.exe command has been addressed. If an RWP file is passed as a Brave log, a message will be shown to the user to avoid overwriting it.
(642394)

EA - Business Rules

- An issue with empty condition handling in Rules Autodetect has been fixed.
3223536 (1119853)
- The "Statements From" prefix has been removed from the rule name of rules from Rules Autodetect that contain multiple lines.
3223509 (1119915)
- An issue with importing an exported list of rules from Rules Autodetect has been fixed.
3217079 (1119323)
- The indication for which rules are selected in a rule set has been improved. If not all rules from a rule set are selected, then the rule set will not show as checked and only the selected rules will be exported.
3216794 (1119540)
- An issue where the technical description for an SQL statement was incorrect has been fixed.
3216612 (1119215)
- An issue where an incorrect technical description was captured for a compute statement with Rules Autodetect has been fixed.
3216609 (1119214)
- Variable names are now replaced with business names in the technical description for rules from Rules Autodetect.
3216433 (1119305)
- An issue where rules were pointing to the wrong line in Rules Autodetect has been fixed.
3215823 (1119130)
- An issue with Rules Autodetect not including the full text of a condition in the technical description has been fixed.
3215352 (1119089)
- The business rule report no longer repeats the same business function for different rule sets.
3212896 (1118849)
- An issue with Rules Autodetect not working with specific sources has been fixed.
3212409 (1118797)
- An issue with the line selection for a rule from the Rules Autodetect for a particular program has been fixed.
3207887 (1118410)
- An issue with the Rules Autodetect feature for certain programs has been fixed.
3206921 (1118305)
- The Rule Set is now shown in the properties for a Rule in the Rules pane.
3206380 (1118331)
- An issue where rules could not be generated for a specific source has been fixed.
3200580 (1117750)
- A new checkbox option called "Show empty columns" has been added to the Configure Report Options dialog for the Business Rule Report. If the option is selected, empty columns for Business Description, Technical Description and Rule Description will appear in the report.
3206382 (1118290)

EA - Change Analyzer

- The correct message is now displayed when running step 2 for an empty list in Change Analyzer.
3215670 (1119199)

- An issue that caused Change Analyzer to run only the selected program when choosing to run for all programs has been fixed.

3201327 (1119176)

EA - Common

- An issue where the Export Source from Workspace feature from the Workspace menu was saving with extra parent folders instead of just the registered folder has been fixed.

3215808 (1119168)

- Workspace and project options now have a single set of options assigned instead of being user-specific. The workspace and project options are now the same for all users. This fixes situations where users had different workspace and project option sets that could result in workspace corruption and confusion. The User Options will continue to be user-dependent. When upgrading existing workspaces, the workspace and project options will all be migrated to the options that belong to the master user that upgrades the workspace.

3197338 (1117494)

- The option to disable Source Synchronization has been removed. Source Synchronization is always enabled for in-place registration workspaces and always disabled for non-inplace workspaces.

(640855)

- The Source Synchronization count of invalidated files is no longer calculated before the dialog window opens. The dialog opens faster and the count of total objects to be invalidated will be calculated and continuously updated without blocking the UI. The count is based on the selections of Added and Updated files.

(642650)

EA - Decision Resolution

- Support for procedure pointers in COBOL has been added to improve the resolving of some decisions.

3224803 (1119947)

- An issue where the checked objects in the "Available Objects" list were not shown in the "Decision List" has been fixed.

3199925 (1117711)

- An issue causing Decision Resolution to sometimes not show the first "resolved to" item has been fixed.

3197682 (1117519)

EA - Diagrammer

- An issue with turning off the "Auto Expand" option in the Diagrammer has been fixed.

3208268 (1118518)

EA - Documentation

- The following note has been added to the Installation Guide: "The Administration tool will prompt to be run with elevated privileges. This is required because some features of the tool require write access to the Program Files directory."

3218180 (1119314)

- A note about the commits to the database has been added to the Invalidating Files Before Reverification topic.

3202574 (1118418)

- Reports are now listed under Reports in the documentation.

3199136 (1117623)

- The Viewing Inventory Reports topic has been updated.
3198984 (1117621)
- ImpExBav.bj has been removed from the documentation.
3198895 (1117603)
- Information about expanding copybooks has been removed from the documentation.
3180043 (1116148)
- A new ACU COBOL section has been added to the Support Notes.
3116529 (1110667)
- The documentation on the different types of searches has been updated.
2828276 (1100408)
- The EA Web reports have been documented.
2818999 (1099251)

EA - EAWeb

- A display issue with the Project Name selection list for Code Search has been fixed.
3206271 (1118258)
- The error message shown when failing to connect to a workspace has been improved.
3204332 (1118171)
- The correct source is opened when opening source from relations.
3191476 (1117408)

EA - Eclipse Plugins

- The Search Assistant plugin now works for remote workspaces.
3207459 (1118361)
- An issue causing the wrong editor to open has been fixed.
3205351 (1118209)

EA - ED/VC Integration

- A change has been made to allow DFHEIBLK to appear as an input and output parameter to extracted components created in Logic Analyzer.
3226429 (1120119)
- 1. Registration of generated components in EA 6.0 is now performed in the Sources\COBOL folder instead of the Components folder. 2. If you wish to perform component generation using CICS, find the CICSSlice option in the project options file (Options.Project.xml or p00000X.xml) and change VALUE="false" to VALUE="true". After the regeneration, you will get instead of a CALL statement an EXEC CICS LINK PROGRAM statement. If the CICSSlice option is left in its default state (false), the generated slice will include in the generated structure BRE-INP-INPUT-STRUCTURE the DFHEIBLK members.
3226425 (1120121)
- The structure slice no longer generates unnecessary copybooks.
3226424 (1120105)
- Display statements now support the vertical bar symbol (|).
3217022 (1120020)
- An issue with a fall through in Program Control Flow when a program has multiple program entries has been resolved.

(638382)

- An issue with fall through in Program Control Flow when the program has multiple program entries has been fixed.

(638381)

- An issue with fall through in Program Control Flow when the program has multiple program entries has been fixed.

(638387)

- An issue that caused incorrect code generation for variable-formatted COBOL in Logic Analyzer has been fixed.

(642709)

EA - Homonyms

- An issue that could cause a duplicate member error for a parm card in two different PDS files has been fixed.

3224945 (1119953)

- An issue causing homonym search path not to work in an unshared workspace has been fixed.

3219376 (1119463)

- An issue that could lead to programs appearing to be verified with the wrong project options when using the VerifyX.bj script to specify separate project verifications has been fixed.

3210507 (1118620)

- The subsystems root level selection in the Homonyms project options now takes precedence over the common folder when resolving copybooks.

3208879 (1118479)

- New options have been added to specify the rules that are used when resolving references to include files. See the Supplementary Information section of this readme for details.

(640991)

EA - HyperView

- The default option for resolving Component Convertor Conflicts of Logic Analyzer has been changed from 'Keep old legacy files' to 'Replace old legacy files'.

3219837 (1119541)

- There is no longer a crash when selecting a file from the context pane over a JCL Procedure.

3203049 (1118037)

- The CA-7 object type has been removed from the Objects list pane in Interactive Analysis.

3188882 (1116836)

- An issue that resulted in a Logic Analyzer slice reporting a verification error due to variable names exceeding 30 characters has been fixed.

3168352 (1115190)

EA - HyperView - Callie

- The Program Control Flow diagram is now generated for the first section when clicking on the PROCEDURE DIVISION in Interactive Analysis.

3197001 (1117442)

EA - HyperView - Clipper

- An issue with opening code search reports saved as .csv format has been fixed. If the number of characters per cell in a spreadsheet reaches the limit of allowed characters, the value will be cut and ellipses "..." will be appended.
3218516 (1119367)
- New indexes have been added to improve the performance of certain Code Search queries.
3206752 (1118287)

EA - HyperView - Context

- An issue where a large DDL file could not be opened in Interactive Analysis has been fixed.
3200060 (1117782)

EA - HyperView - Execution Path

- An issue where incorrect expressions for conditional statements were shown in Execution Path has been fixed.
3216290 (1119186)
- A problem with displaying WHEN or WHEN NOT in PERFORM-UNTIL statements in Execution Path has been fixed.
3198343 (1117792)

EA - IDE

- The loading time of Chart Viewer charts has been improved significantly.
3223947 (1119883)
- An issue caused by having a single quote in a file search string has been fixed.
3217494 (1119272)
- An issue where certain master user-only menu items were available for non-master users has been fixed.
3216899 (1119279)
- An issue where search results from the Find feature were not showing the correct project when objects were assigned to multiple projects has been fixed.
3197824 (1117640)
- An issue where a workspace could not be opened after an upgrade has been fixed.
3197339 (1117974)
- It is now possible to create a project from search results in the Repository Browser.
3194269 (1117177)

EA - IDE - Activity Log

- An issue with an incorrect message when reaching the MS SQL Server Express database size limit has been fixed.
3207995 (1118527)

EA - IDE - Options

- The Import, Copy, and Assign buttons in the Options Manager are now enabled for master users only.
3201998 (1118160)

- Project options are now available only to Master users or the owner of the project.
3223944 (1119871)
- The Systems Program tab in the Workspace Options has been removed. The System Programs functionality is now handled from the Repository Browser.
(645645)

EA - IDE - Project Operations

- An issue with non-standard dates causing crashes has been fixed.
3199206 (1117723)

EA - IDE - Repository Browser

- An issue causing the incorrect line to be shown for relationships in repository searches has been fixed.
3214094 (1119269)
- An issue with the Is CRUD By relationship in the browser showing all relationships correctly for homonyms has been fixed.
3208388 (1118659)
- The relationship from program to stored procedure is now shown from the COBOL file in the browser.
(642943)

EA - IDE - Workspace Operations

- SetChangeDate.bj now works as expected.
3216040 (1119145)
- A display issue with the Source Synchronization Changes dialog has been fixed.
3206273 (1118257)
- An issue where data was not being fully removed during invalidation on some SQL Server workspaces has been fixed. It is recommended to have Asynchronous Procedure Execution under the service broker enabled for SQL Server workspaces to improve the performance of the invalidation process. Cases where Asynchronous Procedure Execution is disabled will now be handled correctly to execute synchronous invalidation.
3189649 (1117336)

EA - Installation

- The HotFixes are now compatible with Japanese Windows operating systems.
(635425)
- On startup rescount.exe will be added to the trusted sites Internet Explorer options to prevent obtrusive popup messages and to make charts visible in the Chart Viewer on Windows Server Operating Systems.
(640887)

EA - Inventory

- An issue with the Find feature for large projects in Oracle workspaces has been fixed.
3194160 (1117461)
- The performance of showing the Source Synchronization dialog has been improved.
(644340)

EA - Reports

- Support has been added for excluding entities when running reference reports in the Portability Assessment report.
3222571 (1119733)

EA - Reports - Executive Report

- An issue where the source in the Executive Report used the wrong encoding has been fixed.
3203854 (1118147)

EA - Reports - Portability Assessment

- The "Types of Data COBOL Sequential" report for Portability Assessment has been updated.
3227322 (1120216)
- The Embedded Hex code search query for the Portability Assessment report has been updated.
3224183 (1119888)
- Adjustments to the "Usage - JCL - Create (Variable Length Files)" report in Portability Assessment have been made.
3222465 (1119719)
- Adjustments to the "Usage - JCL - Create (Outbound)" report in Portability Assessment have been made.
3222463 (1119718)
- Adjustments to the Inbound Interface Files report in Portability Assessment have been made.
3222462 (1119717)
- An issue that could prevent all section headers from appearing in the report has been fixed.
3208730 (1118460)
- An issue with the width of columns in IE has been fixed.
3206137 (1118242)
- An issue where charts might not be shown in a saved PA report has been fixed.
3202013 (1117882)
- An issue with the formatting of long values in table columns in the report has been fixed.
3195413 (1117347)

EA - Reports - Reference

- An issue that could cause the Reference Reports window to not be visible has been fixed.
3224417 (1120014)
- The order of the columns in the Unresolved and External Reference reports has been changed to match the same order in the Cross Reference Report.
3207300 (1118342)
- An issue where the Cross Reference Report was showing the full path in the source name for the referred objects when the "Show Source Path In Reports" option in Workspace Options > Homonyms was disabled has been fixed.
3200858 (1117804)
- The Cross Reference report has been adjusted to improve its readability. The order of the columns has been changed to: Referred Object, Referred Type, Relation, Object Name, Legacy File, Object Type, Source, Description. A new option called "Show Relation Path" has been added to the View menu for the Cross Reference Report. When selected, the report is rebuilt and the Relation column will now include details for composite relationships. It shows the full path of relationships between the left and

right entities. The object properties window is now sensitive to which cell has been clicked so it will either show the referred or referring object. If the Relation field is selected, the properties will show the referred object. Certain relationships that showed irrelevant objects are no longer included.

3200195 (1117740)

- An issue with running the Reference Reports on very large workspaces has been fixed.

3200156 (1117721)

- An issue where relationships that no longer existed were being included in the Unreferred Report has been fixed.

3199769 (1117709)

- The memory consumption and the overall performance of the Reference Reports have been improved.

3196055 (1117340)

- An issue where incorrect relationships between jobs and programs were being shown in the Cross Reference Report has been fixed.

3195384 (1117294)

EA - Tag Manager

- The behavior of the Untagged Objects query has been adjusted to recognize the selected filters.

3205749 (1118254)

Licensing

- Several licensing changes have been made to match the expected behavior.

3222938 (1119757)

- Improvements have been made to license handling. Licenses no longer timeout after 5 minutes so they will remain checked out. Queue Processors no longer use a license.

3218924 (1119716)

- The Activity Log message displayed when a license for the Micro Focus COBOL parser is not present has been improved.

3216007 (1119143)

MFA Client API

- MFA Client now rounds any mainframe time difference to the nearest time zone block where a block consists of 30 minutes.

3223202 (1119813)

- MFDAS secchk is now handling negative time differences correctly.

3223202 (1120059)

Updates and SupportLine

Our Web site provides up-to-date information of contact numbers and addresses.

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- Your computer make and model.
- System information such as operating system name and version, processors, and memory details.
- Any detailed description of the issue, including steps to reproduce the issue.
- Exact wording of any error messages involved.
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Appendix I: Enterprise Analyzer Features per Client

The Web client provides a subset of the features available in the Windows desktop application. The table below shows the features that are available in each client. Note that this is not a full feature list for the desktop application.

Capability	Desktop Application	Web Interface
System Level Objects		
Repository Browser	Yes	Yes
Search Assistant	Yes	Yes
Repository Queries	Yes	Yes
Reference Reports	Yes	No
Diagrammer (project)	Yes	No
Diagrammer (object)	Yes	Yes
CRUD Report (project)	Yes	No
CURD Report (object based)	Yes	Yes
Complexity Metrics	Yes	Overview charts only
Syntactical Analysis		
Code Search	Yes	Yes, execute only
Source pane with navigation	Yes	Yes
Program Control Flow	Yes	No
Code Search Reports	Yes	Yes, execute only
Migration Reports	Yes	Yes, execute only
Quality Reports	Yes	Yes, execute only
Business Rules	Yes, licensed separately	Yes, view and edit only
Advanced Analysis Options		
Change Analyzer (full)	Yes	No
Change Analyzer (single data item)	Yes	Yes
Impact Analysis	Yes	Yes
Execution Path Analysis	Yes	No

Appendix II: First Steps with the REST API

Before using the REST API or EA Jenkins Plugin make sure that the Micro Focus Enterprise Analyzer Web Service is running with the Logon User set to your Windows user.

To make a **GET** request, you can use any browser like Chrome, Firefox or Internet Explorer. For the other HTTP requests such as **PUT**, **POST** or **DELETE** you can use any tool like Postman or Fiddler.

To register a new workspace, use either the **REST API** or **Enterprise Analyzer Administration > Administer > Configure Web Service**.

If you want to use the REST API, you need to make a **POST** request with the name of the workspace and the Path of the workspace as a parameter: <http://localhost:1248/api/workspaces/NewWorkspace?Path=C:MicroFocusWorkspaces>

```
{
  "status": "success",
  "message": "Workspace 'NewWorkspace' is registered successfully!"
}
```

Next you can list all registered workspaces: <http://localhost:1248/api/workspaces>

```
[
  {
    "name": "NewWorkspace",
    "directory": "D:\\MicroFocus\\Workspaces",
    "default": true,
    "url": "http://localhost:1248/api/workspaces/NewWorkspace"
  }
]
```

Then you can list all available APIs for the selected workspace: <http://localhost:1248/api/workspaces/NewWorkspace>

```
[
  {
    "url": "http://localhost:1248/api/workspaces/NewWorkspace/Projects",
    "description": "List all available projects for the workspace"
  },
  {
    "url": "http://localhost:1248/api/workspaces/NewWorkspace/Inventory",
    "description": "The report shows high-level statistics for source file
types in the current workspace",
    "parameters": [
      {
        "name": "Format",
        "description": "Report formats: json(default), html, htm, xls, rtf,
doc, txt, csv",
        "required": false,
        "example": "format=txt"
      }
    ]
  },
  ...
]
```

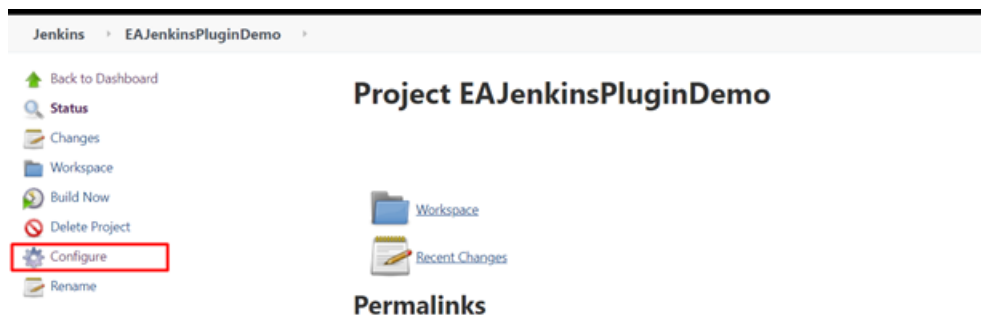
In the list of available APIs you will find the full details needed to use each API. Descriptions, parameters, supported formats, etc. are all shown.

Appendix III: Getting Started with the EA Jenkins Plugin

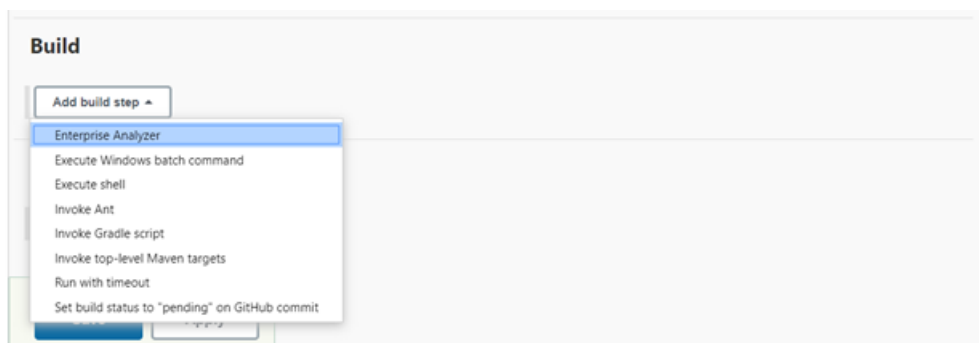
1. Ensure that the Micro Focus Enterprise Analyzer Web Service is running with the Logon User set to your Windows user.
2. Install Jenkins with the default settings on your local machine: <https://jenkins.io/download/>
3. Go to **Manage Jenkins > Manage Plugins > Advanced > Upload Plugin**. Select the EAJenkinsPlugin.hpi from the EA installation \Bin directory.



4. Go to **Home Page > New Item > Create Freestyle Project**.
5. Go to **Project Configuration**.



6. Go to the Build section and choose Enterprise Analyzer.



7. Now you can add a valid address and test the connection. If there are configured workspaces, they will be loaded. Otherwise, this can be done either from the REST API or from **Administrator > Configure Web Service** in EA Administration.

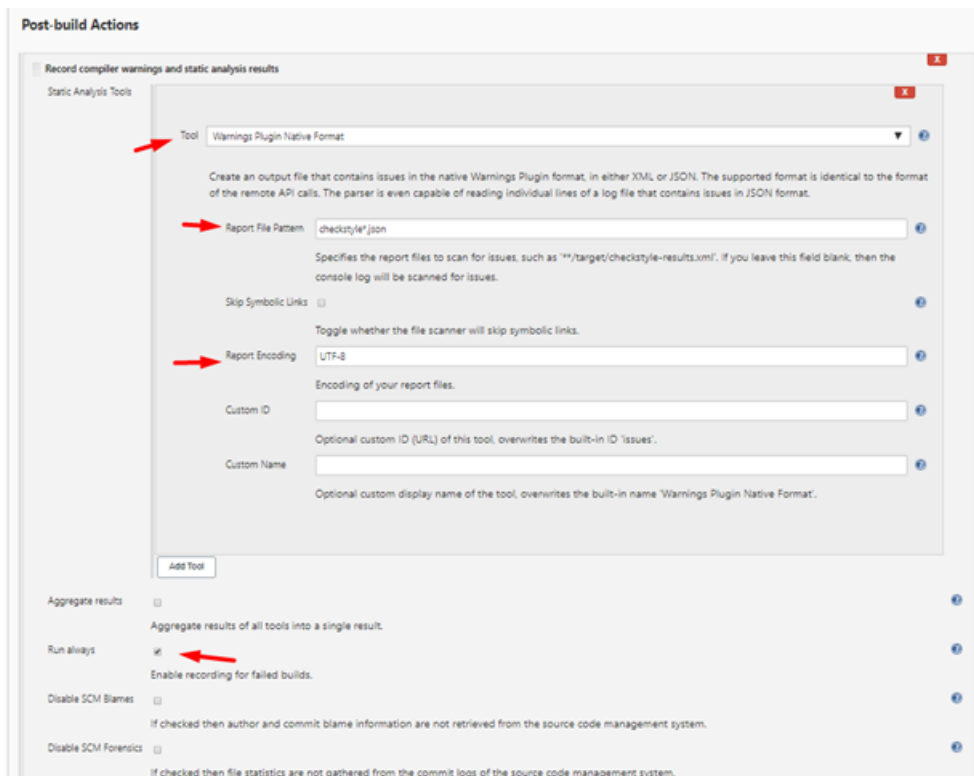
Appendix IV: Adding the Next Generation Warnings Plugin

<https://plugins.jenkins.io/warnings-ng/>

1. Go to **Manage Jenkins > Manage Plugins > Available > Search for "Warnings Next Generation"**.
2. Install the plugin and restart Jenkins.
3. Go to **Project Configuration**.
4. In **Post Build Action** select **Record compiler warnings and static analysis results**.



5. Set up the following configuration:



6. The plugin is now configured.

Jenkins - EA.JenkinsPluginDemo - #4 - Warnings Plugin Native Format Warnings

Back to Project
 Status
 Changes
 Console Output
 Edit Build Information
 Delete build #4
 @AllWeb - NewWorkSpace
 Micro Focus Enterprise Analyzer
 Migrate Enterprise COBOL to E.1
 Warnings Plugin Native Format Warn...
 Previous Build

Warnings Plugin Native Format Warnings

Severities Distribution

High Normal Low

Reference Comparison

New Outstanding Fixed

History

Normal

Details

Files Issues

Show 10 entries Search

Details	#	Category	Type	Severity	Age
	CUSTOM1.CCP:13	New Resolved Wards	Declaration	Normal	1
	CUSTOM1.CCP:13	New Resolved Wards	Declaration	Normal	1
	CUSTOM1.CCP:13	New Resolved Wards	Declaration	Normal	1
	CUSTOM1.CCP:13	New Resolved Wards	Declaration	Normal	1