

MagicDraw/Cameo Redirect FACE™- Element References User's Guide

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Colophon

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1. Introduction

MagicDraw and Cameo are modeling tools developed by No Magic. Cameo is another branding name for MagicDraw; and therefore, for the remainder of this document the term MagicDraw will be used to indicate both MagicDraw and Cameo. More information on these tools can be found at: <https://www.nomagic.com/products/magicdraw>. Future Airborne Capability Environment (FACE™) is a consortium developed standard. More information on this standard can be found at: <https://www.opengroup.org/face>.

This document provides information on the installation and use of the following plugins running within MagicDraw:

- Redirect-References Plugin

Note: The "Redirect-References Plugin" is delivered in a zip file. The Redirect-References Plugin works with FACE 3.0, 3.1 and 3.2; therefore, there is only one zip file that supports both FACE versions.

The plugin provides the following functionality:

- Redirects element attribute and association references to FACE elements in another library. It is extremely important to note that this plugin only redirects references to FACE elements, which are elements that have a `_faceUUID` tag. An example of a redirection would be if your model references a Sharded Data Model (SDM) and you would like to upgrade to a new version of the SDM. This plugin would change the references to the old SDM to point to the new SDM.
- Redirects tags, that point to FACE elements, to another library.
- Replaces FACE elements on a diagram with elements from another library.

The FACE Technical Standard Edition defines the meta-model and XMI schema that are used to create MagicDraw data models and XMI files. These documents can be found at: <https://prod.opengroup.org/face/docsandtools>.

2. Redirect-References Plugin Use Cases

This plugin only redirects FACE elements, which are elements that have a `_faceUUID` tag. Therefore, if you need to replace a library that has a mixture of FACE elements and other elements, then the other elements would have to be manually edited/redirected. This is not a typical use case in that SDMs and Domain Specific Data Models (DSDMs) would be composed of only FACE elements. Also, MagicDraw FACE Architecture models are typically composed of only FACE elements.

As previously mentioned, a typical use case would be to upgrade a FACE model to use a new SDM.

This same use case applies to DSDMs. As DSDMs evolve, it would be advantageous to upgrade a FACE model to the latest DSDM.

A less obvious use case would be to refactor a single FACE MagicDraw model into multiple MagicDraw models. For example, if the MagicDraw model contained the following:

```
Project_A.mdzip
  ArchitectureModel
    DataModel_01
      ConceptualModel
      LogicalModel
      PlatformModel
    UoPModel
    IntegrationModel
```

You could use the Redirect-Reference Plugin to create the following hierarchy where the DataModel resides in a separate mdzip file.

```
Project_A.mdzip
  ArchitectureModel
    DataModelRef<<SmartPackage>>
      DataModel_01
    UoPModel
    IntegrationModel
  DataModel_01 [DataModel_01.mdzip]
    DataModel_01
      ConceptualModel
      LogicalModel
      PlatformModel
```

The general flow for this type refactoring follows:

- Copy Project_A.mdzip to DataModel_01.mdzip
- Open DataModel_01.mdzip and reset the Project ID. The menu picks for resting the project ID vary for different MagicDraw versions. For v2021, File "Project Properties" More Advanced "Reset Project ID".
- Open DataModel_01.mdzip and delete the UoPModel and IntegrationModel content. Share the DataModel_01 package via right clicking on DataModel_01, in the dropdown menu select "Project Usage" and then select "Share Packages" and follow the prompts. Save the model.
- Open Project_A.mdzip and invoke File "Use Project" "Use Local Project" and follow the prompts to select DataModel_01.mdzip.
- With Project_A.mdzip, use the Redirect-Reference Plugin to redirect references in the UoPModel and IntegrationModel from DataModel_01 under ArchitectureModel to DataModel_01 under "DataModel_01 [DataModel_01.mdzip]".
- With Project_A.mdzip, delete DataModel_01 under ArchitectureModel.

- With Project_A.mdzip setup the SmartPackage as shown above.

3. Redirect-References Plugin Setup

This section describes the steps necessary to setup the Redirect-References Plugin.

3.1. Prerequisites

The prerequisites for the Redirect-References Plugin Setup follow:

- MagicDraw/Cameo version 19.0, 2021, and 2022

3.2. Installation

Installation will start in the MagicDraw installation directory, which is typically "C:\Program Files\MagicDraw" or "C:\Program Files\Cameo Systems Modeler". Your particular MagicDraw installation may be in a different directory.

These instructions are based on the plugin installation directions found here: <https://docs.nomagic.com/display/NMDOC/Installing+plugins>

If you do not have admin access to your machine, you can install in an alternative location such as C:\Users\<username>\AppData\Local\magicdraw<version>. The exact path would be the same path as the path to the configuration files, which can be retrieved per the following steps:

- Open the help menu and select About MagicDraw.
- From the Help menu, select About MagicDraw. The About screen opens.
- Click the Environment tab.
- Click the hyperlink next to Configuration files. The folder containing MagicDraw configuration files opens.

Additional information can be found here: <https://docs.nomagic.com/display/MD185/Plugins+directories>.

To install the Redirect-References Plugin open the plugin directory in the MagicDraw installation directory (e.g C:\Program Files\MagicDraw by default) or Cameo (e.g. C:\Program Files\Cameo Systems Modeler by default) and copy the Redirect-References Plugin (i.e. edu.vanderbilt.isis.bns.md_utils) into this directory. This is simply copying a directory and all its contents to the plugins directory in the MagicDraw/Cameo installation.

To clarify what should be copied, an example for FACE 31 with Cameo installed in “Program Files” follows:

Copy From the Zip File: edu.vanderbilt.isis.bns.md_utils

Copy To: C:\Program Files\Cameo Systems Modeler\plugins

See Figure [Plugin Install Directory](#) for an example of the plugins directory.

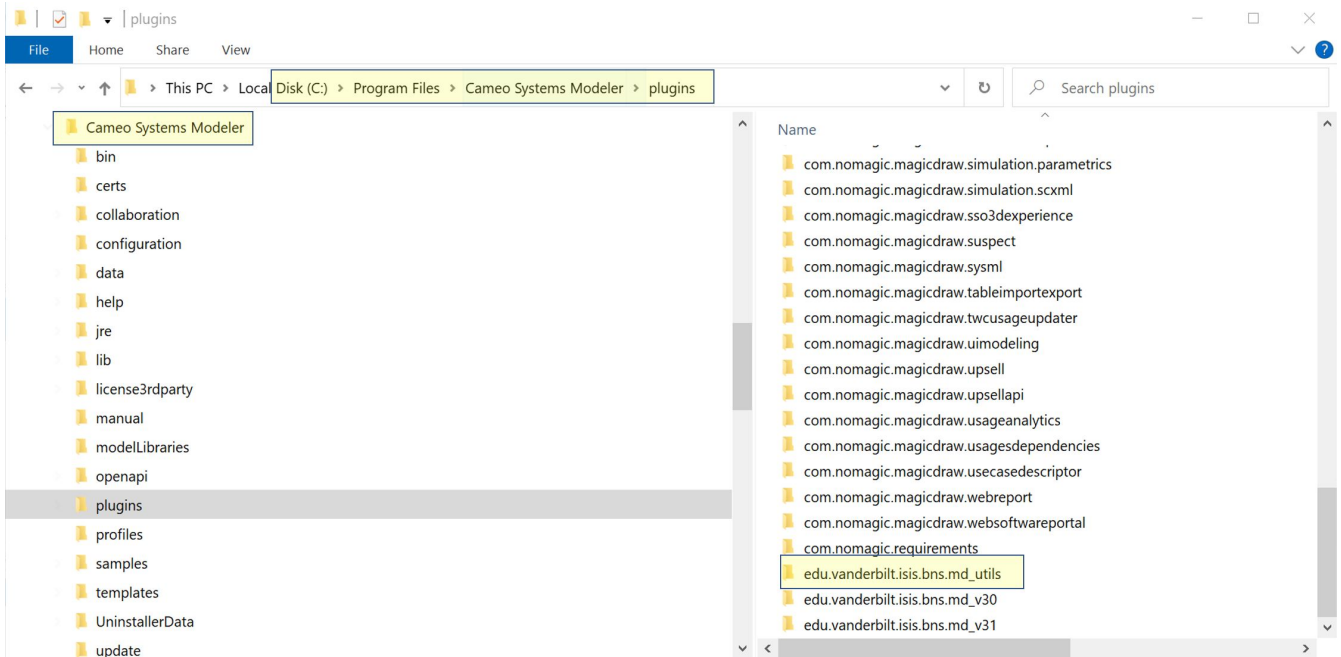


Figure 1. Plugin Install Directory

4. Redirect-References Plugin Usage

This chapter discusses how to invoke, setup and use the plugin.

4.1. Invocation

There are two steps to invoke the Redirect-References UI. The first step is to invoke the FACE Utilities as shown in Figure [Invoke FACE Utilities](#).

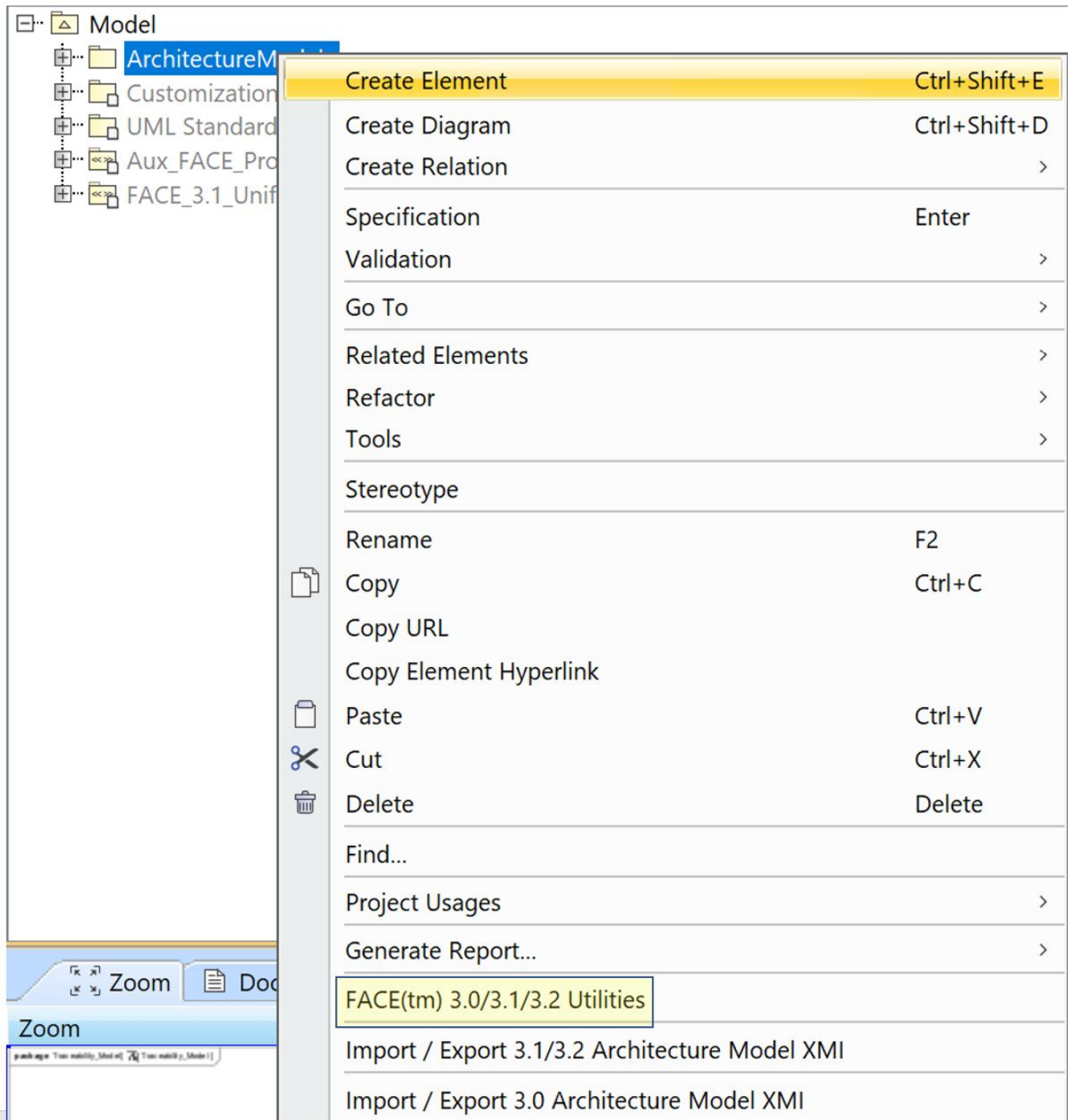


Figure 2. Invoke FACE Utilities

Selecting "FACE(tm) 3.0/3.1/3.2 Utilities" will result in the UI in Figure [FACE Utilities UI](#) being displayed.

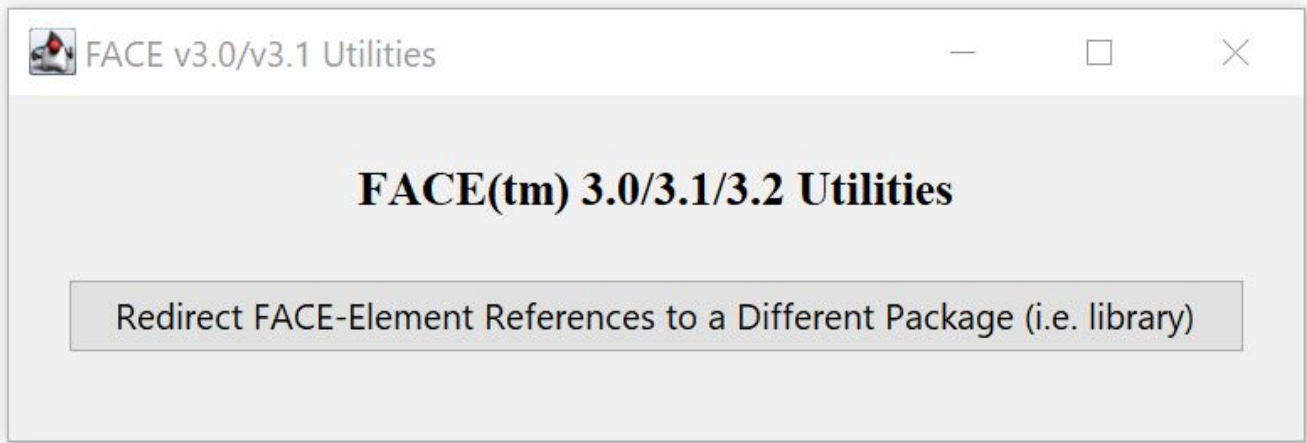


Figure 3. FACE Utilities UI

4.2. Setup and Execution

Selecting "Redirect FACE-Element References to a Different Package" in Figure [FACE Utilities UI](#) and completing the steps to populate the fields highlighted in yellow would result in UI displayed in Figure [Redirect-References UI](#). A description of each field follows:

- [1] Model (Packages)... - The packages that contain the model that references the [2] package.
- [2] From Library (Package) - The package that is referenced by [1].
- [3] To Library (Package) - The redirection target for references redirected from [2] to [3].
- [4] Redirect Report File (first box) - Directory for the report file, which can be changed by selecting the "..." button to the right of the second box.
- [4] Redirect Report File (second box) - Report file name. If empty, no report file would be created. The report file provides detailed information about the redirected elements. It is a good idea to review the report information to assure that the redirection occurred as expected.

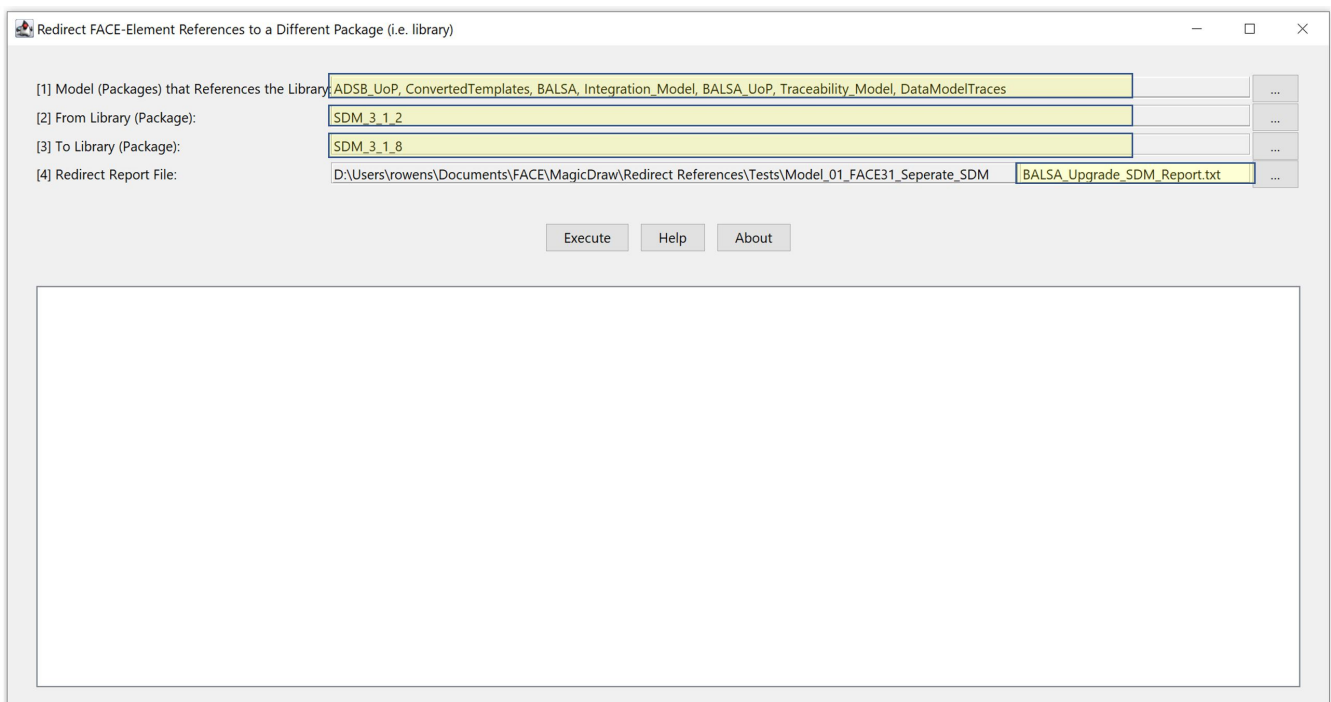


Figure 4. Redirect-References UI

It is important to note that [1] can have multiple package selections, but [2] and [3] can have only one selection each. Figure [Model Packages Multi-Select](#) illustrates how to perform the multi-select. Typically, when this pop-up box is invoked the highlighted text will be "> Multi Selection". Selecting "> Multi Selection" will toggle to the multi-select mode.

Some models may contain the MD construct SmartPackage, which supports references to other portions of the MD model. When selecting packages for [1], [2], or [3], DO NOT select SmartPackages, instead select the packages within the SmartPackage. Selecting SmartPackages will result in errors when executing the redirection.

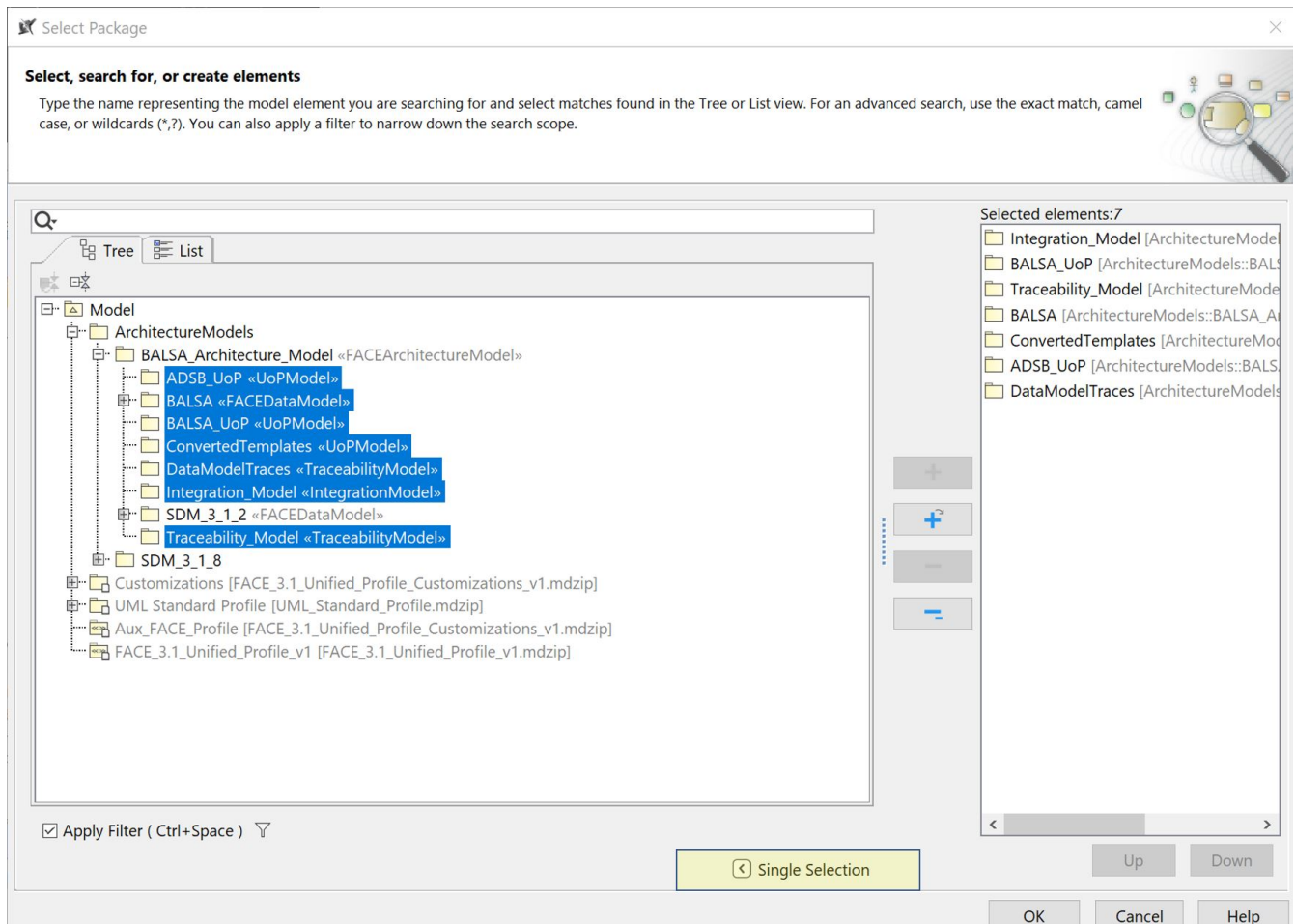


Figure 5. Model Packages Multi-Select

When the Execute button in Figure [Redirect-References UI](#) is selected, the reference redirection would occur with results as shown in [Redirect-References Execute Results](#). Notice that there were some anomalies. In particular, [2] contained some elements that were not in [3]. This would only be a problem if some of those elements were actually referenced by [1], which unfortunately was the case for this model. Notice the ERROR message indicating that an element was not mapped. This error condition would need to be corrected, which would entail manually editing the model to map the element appropriately.

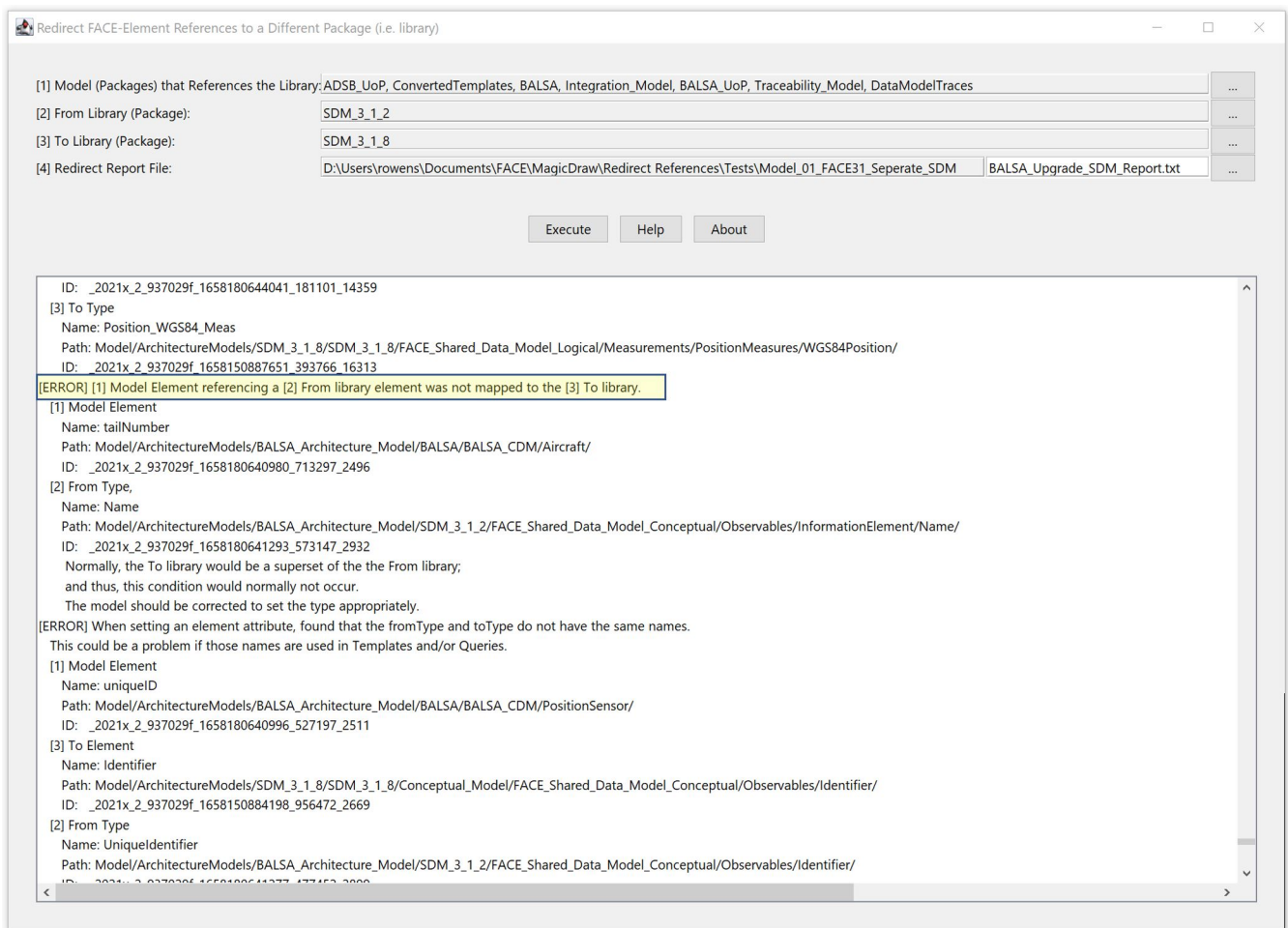


Figure 6. Redirect-References Execute Results

5. Ancillary Instructions

5.1. Report File

The report file has detail information on the mapping of elements. It is advisable, after executing Redirect-References, to review the report file. Pay special attention to warnings and errors.

5.2. Save the Model Before Invoking Redirect-References

Before invoking Redirect-References, you should save the model. This is because there is no undo capability. Therefore, if the results of executing Redirect-References is not as anticipated (after reviewing the report file), you can close the model without saving to return to the original state.

5.3. Element ID Searches

The report file, and in some cases the status window, contain MD element IDs. It is often desirable to search the MD model to locate the particular element. To find an element, perform the following steps:

- Select Edit Find
- In the popup window enter in the "What" box a string such as follows:
xmi.id=_2021x_2_937029f_1659122363621_878163_2489

The prefix xmi.id= is required when searching for element IDs. The string to the right of "=" would be copied from the report file or the status window.

The search works for most elements, with the exception of presentation elements on a diagram. The presentation element is a wrapper around the actual element on the diagram. There is not a way to directly select the wrapper and it does not appear in the containment tree. This is probably why the search fails to find the presentation elements.

5.4. Queries and Templates Use of Element Names

Queries and Templates use the name of elements. Therefore, if the "From" library element uses a different name than the "To" library element, then you must determine if this affects any Queries/Templates. There are several ways that you could analyze the impact of a name change. One way would be via a visual inspection of the model aided with MagicDraw's search capability. Another way would be to export the model to a .face file and run the DMVT/DACT portion of the Conformance Test Suite (CTS), which would indicate any errors. Instructions on how to run the DMVT/DACT are beyond the scope of this document.

5.5. Elements Added to a Diagram After Model Opened

If you drag an element onto a diagram, you should save the model, exit MD, and reopen the model before invoking Redirect-References. Failure to do this will result in a benign exception that is described in Known_Issues.txt.

6. Redirect-References Plugin Testing

6.1. Test Platforms

Plugin Version	Operating System	MagicDraw Version	Test Scope
2022.08.1_Beta	Windows 10	19, 2021	Testing per STR
2023.02.0	Windows 10, 11	19, 2021, 2022	Testing per STR

6.2. Bug Reports

Send all bug reports and improvement suggestions to robert.l.owens@vanderbilt.edu.

7. Acronyms

Acronym	Description
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CTS	Conformance Test Suite
DACT	Data Architecture Conformance Tool
DMVT	Data Model Validation Tool
DSDM	Domain Specific Data Model
FACE™	Future Airborne Capability Environment
MTI	Model Tool Interchange
SDM	Shared Data Mode
STR	Software Test Report
XMI	Extensible Markup Language Metadata Interchange
XML	Extensible Markup Language

8. Version History

Revision	Date	Authors(s)	Description
2022.08.1_Beta	8/23/2022	RO	Initial Publication
2023.02.0	2/1/2023	RO	Production release. Added support for FACE™ 3.2 and MD 2022.
2023.05.0	5/19/2023	RO	Security improvements
2023.05.0.A	1/19/2024	RO	Added: Approved for public release: distribution unlimited
2023.05.0.B	2/15/2024	RO	Added: Army PEO Aviation Control No: 004-23 Distribution Statement A - "Approved for public release: distribution unlimited"