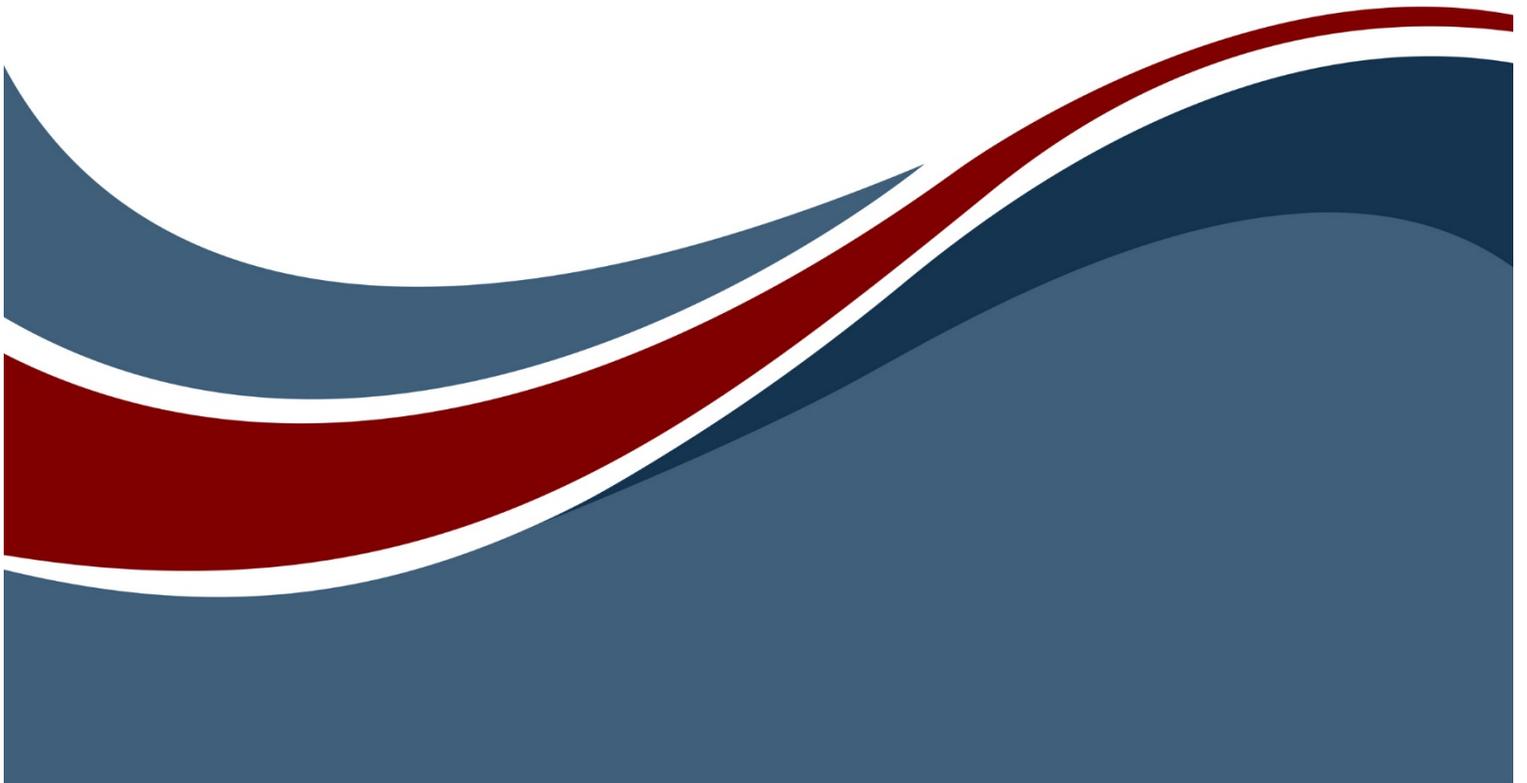




# New Features Guide



## New Features Guide

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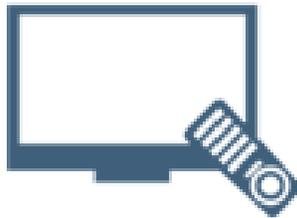
## CUSTOMER RESOURCE OPTIONS

Supporting users throughout their entire journey of learning model-based systems engineering (MBSE) is central to Vitech's mission. For users looking for additional resources outside of this document, please refer to the links below. Alternatively, all links may be found at [www.vitechcorp.com/resources](http://www.vitechcorp.com/resources).



### [Webinars](#)

Webinar archive with over 40 hours of premium industry and tool-specific content.



### [Screencasts](#)

Short videos to guide users through installation and usage of Vitech software.



### [A Primer for Model-Based Systems Engineering](#)

Our free eBook and our most popular resource for new and experienced practitioners alike.



### [Help Files](#)

Searchable online access to Vitech software help files.



### [Technical Papers](#)

Library of technical and white papers for download, authored by Vitech systems engineers.



### [MySupport](#)

Knowledge Base, Exclusive Webinars and Screencasts, Chat Support, Documents, Download Archive, etc.

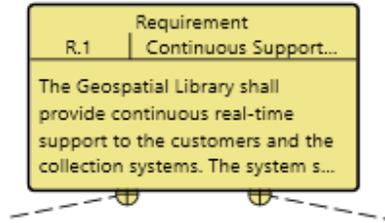
Our team has also created resources libraries customized for your experience level:

<a href="#">All Resources</a>	<a href="#">Advanced</a>
<a href="#">Beginner</a>	<a href="#">IT / Sys Admin</a>
<a href="#">Intermediate</a>	<a href="#">Student</a>



## EXPANDING DIAGRAM CAPABILITIES

Displaying the needed information on your diagrams while not confusing the audience with extraneous information is key to achieving shared understanding in order to move your project forward.



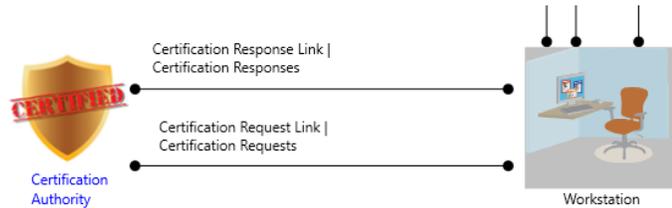
### Composite Node Templates

Having enough space to show all the information you want on a diagram is easier now that you can display multiple fields on a single line. Instead of making larger nodes, show the number and name on a single line and have an additional line for the other information you want to display.

### Control Line Labels

Node templates can now be associated with connecting lines on diagrams where lines are more than just lines. For example, on a physical block diagram, you can specify to display not only the link connecting two components but also the items it carries. On a sequence diagram or an IDEF0, you can decide to show abbreviations rather than full item names. For each of these diagrams, the diagram options have been extended to include a connection node template in addition to the existing node templates. The following diagrams have this new capability:

- Flow Internal Block
- IDEF0 and IDEF A-0
- Interface Block
- Internal Block
- Physical Block
- Sequence
- State Transition



### Frame Block Header Customization

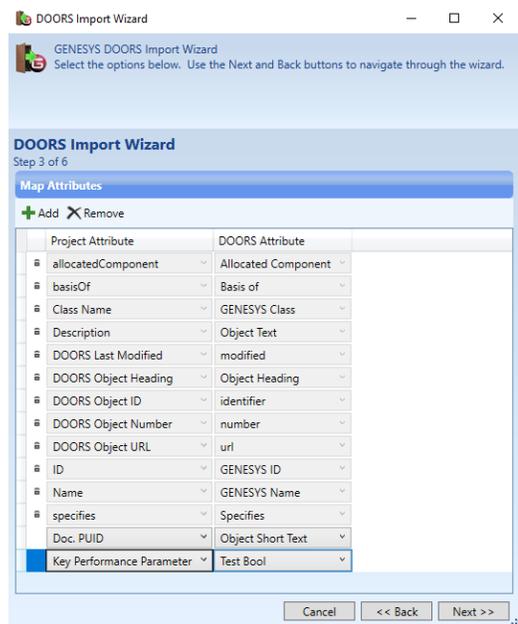
We added the ability to customize the header frame block on a diagram. This is in addition to the frame block footer customization released with GENESYS 7.0. Now you can show more information at the top of your diagram, or you can keep the frame looking the same as it has been.

## CONNECTORS

### DOORS® Connector

In response to customer requests, stemming from the increasing use of the interface between GENESYS and IBM® Rational® DOORS®, we have improved the performance and capability of the connector. For GENESYS 2020, we have added richness to the transfer of data between GENESYS and DOORS by giving the user the ability to specify additional attributes to be transferred. When exporting or importing data, the wizard now contains options which allow you to specify the attribute mappings between the tools. To see more details about the changes, please refer to the DOORS® Connector Guide included in the Documentation folder installed with GENESYS.

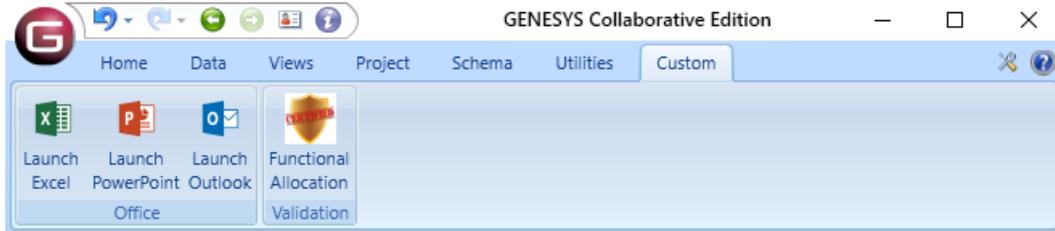
GENESYS 2020 includes support for connecting to DOORS 9.7. In order to make this connection you must follow the instructions included in the appendix of the DOORS® Connector Guide.



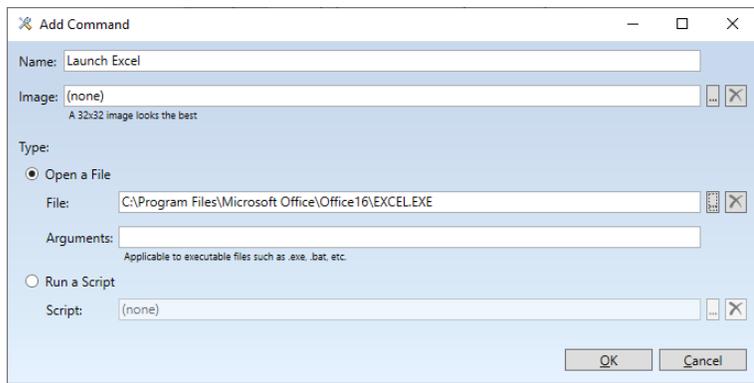
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### **Adding Custom Commands to the Ribbon**

Users now have the ability to tailor the GENESYS user interface by adding custom commands to the ribbon. A custom command can open a file, launch an application, or execute a GENESYS script.



When executing a script, the folder and entity selections in the user interface are available to the script, allowing simple or advanced operations against this information. Scripts can specify when the command is enabled in the ribbon based on the selections or any other logic desired. Scripts leverage the full power of the .NET framework and provide direct access to, and manipulation of, GENESYS data via the GENESYS API. Users have a powerful means of interacting with external applications and services, automating complex logic, or performing macro-style operations directly from the GENESYS ribbon. When combined with custom commands, scripts open a world of opportunity to personalize GENESYS to your specific needs.



## **ADDITIONAL REFINEMENTS**

### **Streamline External References**

Adding an external reference to your entity in order to supplement the textual description adds richness to the model and to the reports created from the model. We made this easier by allowing you to drag-drop files directly onto an entity. This will create a new entity in the ExternalFile class, set the attributes including file location, and then set the *augments/augmented by* relationship.

If instead you want to set an image for an entity, you can drag-drop an image file onto an entity, either in an entity list or on a diagram, which will set the image. Dropping an image onto an entity on a diagram will toggle on the Use Image option.

### **Display Folder Location**

When navigating through the different views available in GENESYS, once you find an entity, there are times when you would like to know the database folder in which the entity is located. In the property sheet view, under the properties tab, the folder path is displayed as a hyperlink. If you click on the hyperlink, a new Project Explorer pane opens with the folder and entity selected.

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### **Model Assistant Changes**

As we work with customers, we find that there are some model assistant rules that work well in specific cases, but are not necessary for all projects. In GENESYS 2020, we have set some of the rules that frequently cause confusion to inactive by default. The changes will not affect existing user settings, and they can be tailored easily by visiting the Model Assistant in the Project Explorer tree view. These rules are:

- Auto-allocate on decomposition
- Auto-relate on allocation
- Auto-inclusion on decomposition of states
- Auto-relate on inclusion

We have also added the ability to keep root functions and states synchronized when auto-maintain connector names is enabled. This means that when you change a Component name, the connected Root Function and Root States that are using the default name will be renamed as well.

## **GENESYS 2020 SCHEMA CHANGES**

### **General Changes**

1. ExternalFile is now essential. With the capability above to streamline external files, the ExternalFile class is assumed to be present in all schemas.
2. The target classes for DefinedTerm *used by* has been expanded to include all classes.

### **Interface**

The decomposability of Interfaces and Links creates overlap between a low-level logical Interface and a high-level physical Link. Given this overlap, rather than requiring two separate classes, the connection between components can be represented with a single class – Link. At more abstract levels, the Link can be treated as a logical statement of connection. At more detailed levels, the Link can be treated as the physical realization of the connection.

1. The Essentials facility now includes Link in place of Interface.
2. Added Link
  - a. *assigned to* Organization
  - b. *reported by* Document
  - c. A script has been created that will aid you in the transformation of Interfaces to Links if you decide that you want to transform them. You can find this report in the Schema Migration folder. Please see the description of the script for more details.

### **Verification**

Based upon experience, industry dialog, and internal reflection, we identified the following:

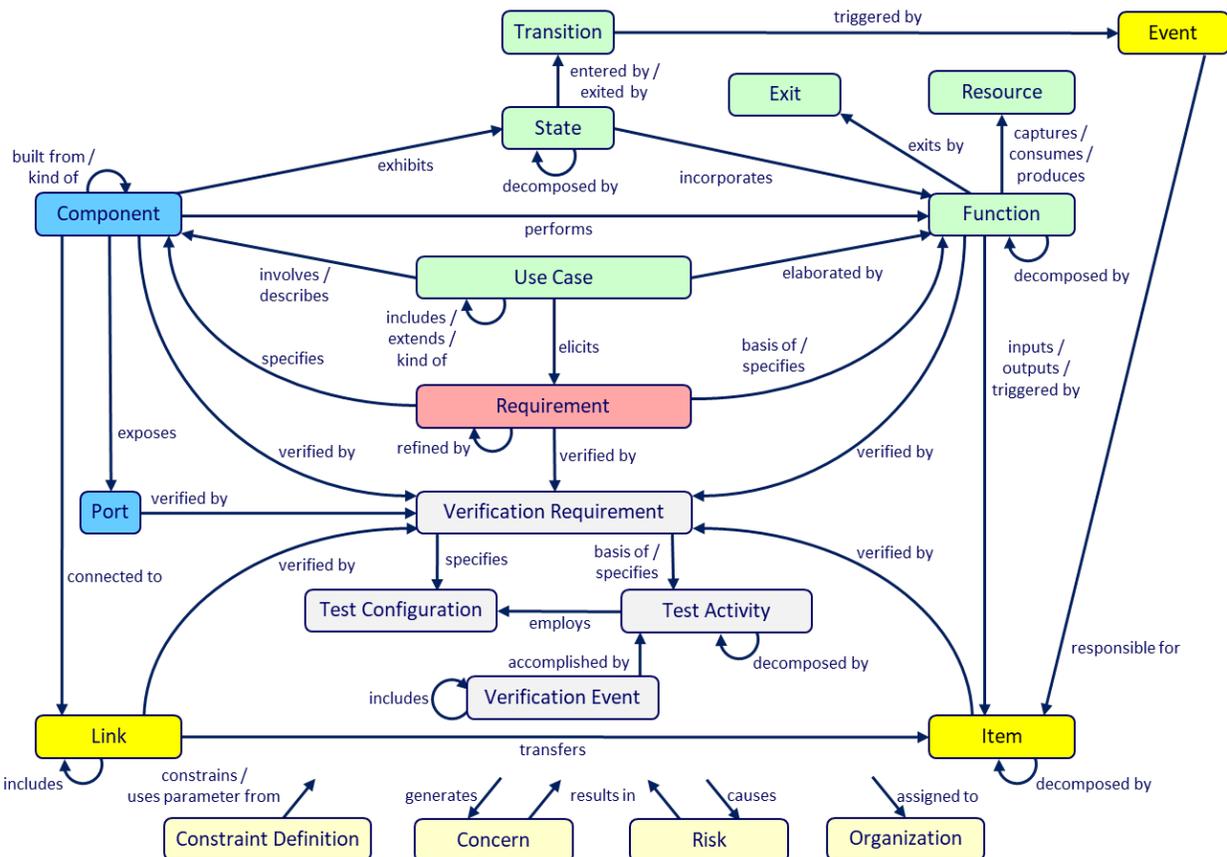
- The concepts of TestActivity and TestProcedure overlap.
- VerificationRequirement verifies Requirement (in the problem space) and Function (in the behavior space). However, VerificationRequirement does not verify any part of the physical space – Component, Link, or Port.
- The instantiation of the Needs-Behavior-Architecture (why-does-is) pattern present throughout the systems metamodel is not present in the verification dimension of the schema.
- VerificationEvent – a programmatic concept – is interjected within the definition of the test architecture.

Given these observations, GENESYS 2020 versions of the baseline schemas will include the following changes. Note, projects may continue to use prior versions of the schema with no changes to capability.

1. Data migration
  - a. Transform TestProcedure entities to TestActivity entities
  - b. Transform VerificationRequirement *executed by* (*executes*) TestActivity to VerificationRequirement *basis of* (*based on*) TestActivity

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2. Deletions
  - a. Class TestProcedure
  - b. Relation *executes / executed by*
  - c. Relation *fulfills / fulfilled by*
3. Class changes
  - a. Added to VerificationRequirement
    - i. attribute type (enumeration with possible values nil, Validation, Verification)
    - ii. *basis of (based on)* TestActivity
    - iii. *specifies (specified by)* TestActivity, TestConfiguration, TestItem
    - iv. *verifies (verified by)* Component, FullPort, Item, Link
  - b. Removed VerificationRequirement *executed by (executes)* TestActivity
  - c. Removed from VerificationEvent
    - i. *assigned to (responsible for)* Organization
    - ii. *employs (employed by)* TestConfiguration
    - iii. *fulfills (fulfilled by)* VerificationRequirement
    - iv. *supplies (supplied by)* Component, Document
  - d. Added TestConfiguration *employed by (employs)* TestActivity



### Migrating Projects from pre-2020 Schemas

Given the nature of the schema changes made in the 2020 base and Capability Architecture Definition schemas, project migration is required to transform specific classes and specific attributes. To best support this migration, GENESYS 2020 provides a schema migration utility on the Project tab. Also included is a report which details what relationships will be removed during the migration and a script which will transform Interface entities to Link entities.

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This utility is targeted at the standard Vitech schemas. If your project uses a customized schema, additional migration support may be required. If you have made schema extensions and would like to understand what special steps – if any – are required to support your extensions, please contact [Vitech Customer Support](#) with a copy of your extensions. We are happy to review these and advise you in your migration accordingly.

**Note:** You do **not** have to migrate your schema in order to make use of GENESYS 2020. You should assess your project needs, your project lifecycle, and the changes present in the 2020 schemas to determine if, and when, to migrate your schemas. Project teams nearing a major milestone or approaching conclusion should strongly consider remaining with their current schema. We recommend that others move to the 2020 schemas to take advantage of the latest improvements in the systems engineering metamodel.





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