DoDAF 2.0

Innoslate was developed to produce the DoDAF 2.02 viewpoints (see Figure 1). Innoslate 4 now captures all the necessary information to produce any DoDAF model. Visualizations (diagrams and matrices) are available directly through the DoDAF Dashboard. Innoslate 4.1 introduced a new view for the DoD Architecture Framework. This view provides access to all the DoDAF models and views using the same basic approach as in previous version, where the labels designate particular Innoslate diagrams or documents as the appropriate DoDAF product.

The new view provides the products in a similar way to Innoslate's Diagrams and Documents Views. The top portion of the view (see Figure 2) displays the most recent DoDAF products in the order of when they were last saved. You can also create a brand-new product by selecting the blue "New DoDAF Product" button at the top right of the screen.

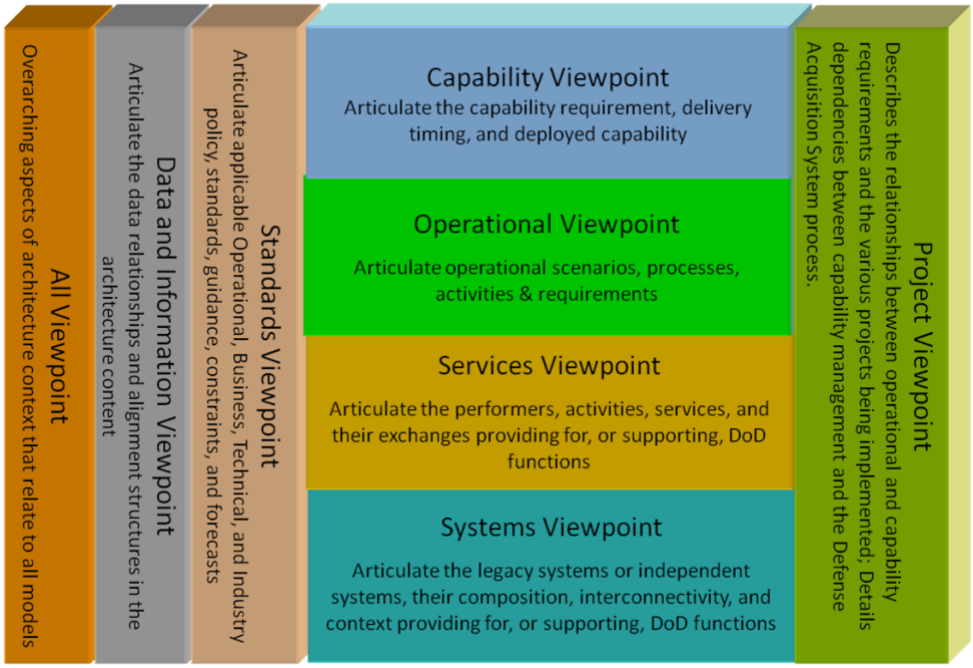


Figure 1. DoDAF 2.02 Viewpoints

The labels needed to distinguish between viewpoints are automatically created when you select the dashboard. Innoslate applies these labels to the model entities when you create them from the "New DoDAF Product" menu.

Please note that the terms models, views, and viewpoints have become a key part of the DoDAF definition for architecture and architecture description. Figure 3 shows these relationships. The models (previously called products) are abstract descriptions of the information needed to represent a portion of the overall architecture. When the models are combined with the appropriate data, they form the views. A viewpoint, then becomes a collection of views. We also call the individual views products of the architecture analysis, so the term used in Innoslate is products.

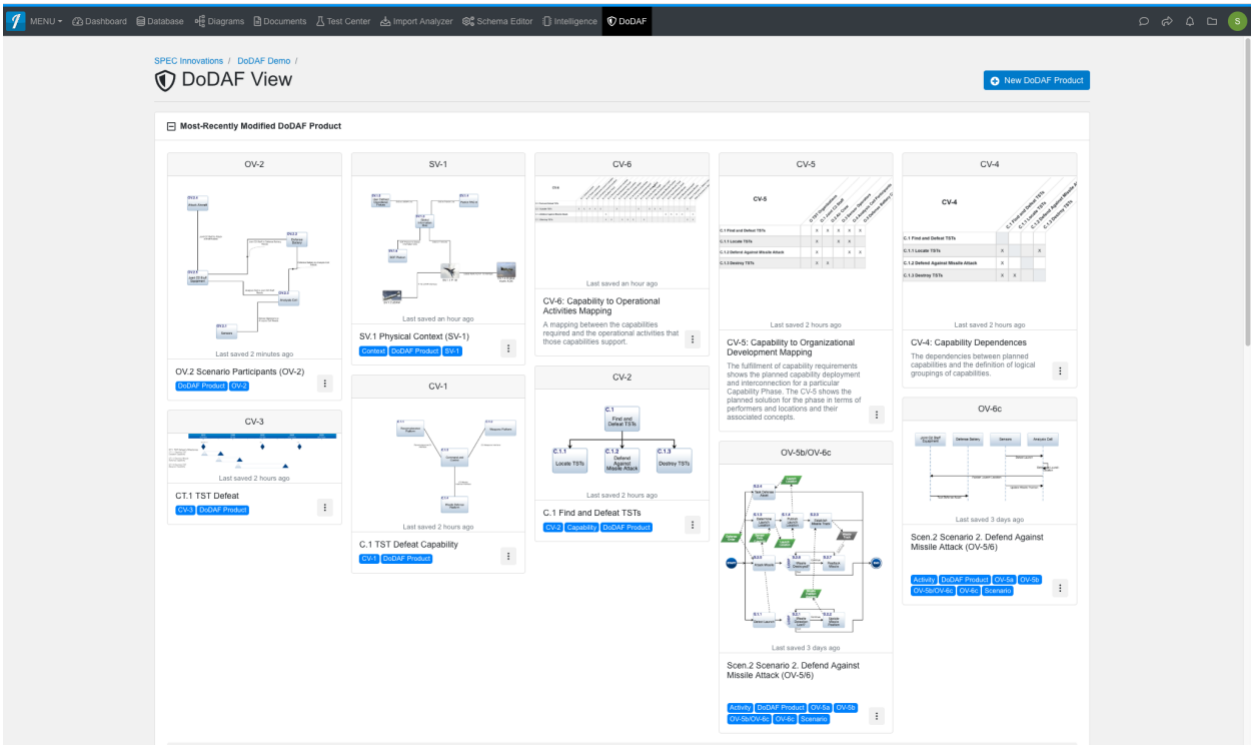


Figure 2. Innoslate 4's DoDAF View – Most Recently Modified Panel

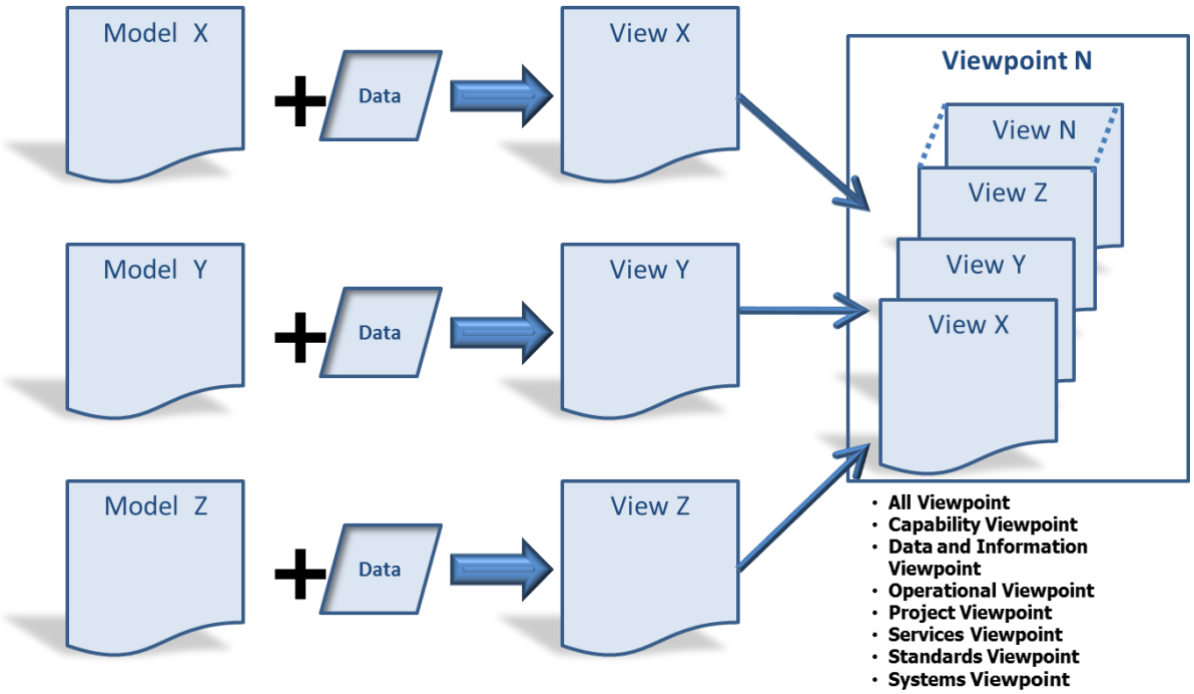


Figure 3. DoDAF 2.02 Terminology: Models, Views and Viewpoints

Note also that to have a diagram show up as in the DoDAF dashboard, it only needs the label "DoDAF Product" and the label of the view, e.g. "CV-2" for the Capability Taxonomy, which is a hierarchy diagram.

Converting from 3.9 to 4.1

If you have been using the previous version of Innoslate and want to use the new version, you will first have to export your project. We suggest using the ".inno" option, found in the Enterprise version. That export includes all the pictures and files uploaded to the tool. To export the database in version 3.9, select Manage Projects from the pull down menu (top right of the application frame, next to your name). Find the project you want to export and then select the ".xml" or ".inno" export option. The file will be downloaded where you select it.

Once you have the ".inno" or ".xml" file, open a new project in Innoslate 4.1 or greater. Then select the DoDAF Dashboard from the Menu (you may want to "pin" it also at this time). That will generate all the labels correctly. Then import the export file using the Import Analyzer. If you have any difficulty, please contact Support (support@innoslate.com).

Accessing All DoDAF Products

All the DoDAF products produced can be found in the lower portion of the DoDAF Dashboard (see Figure 4).

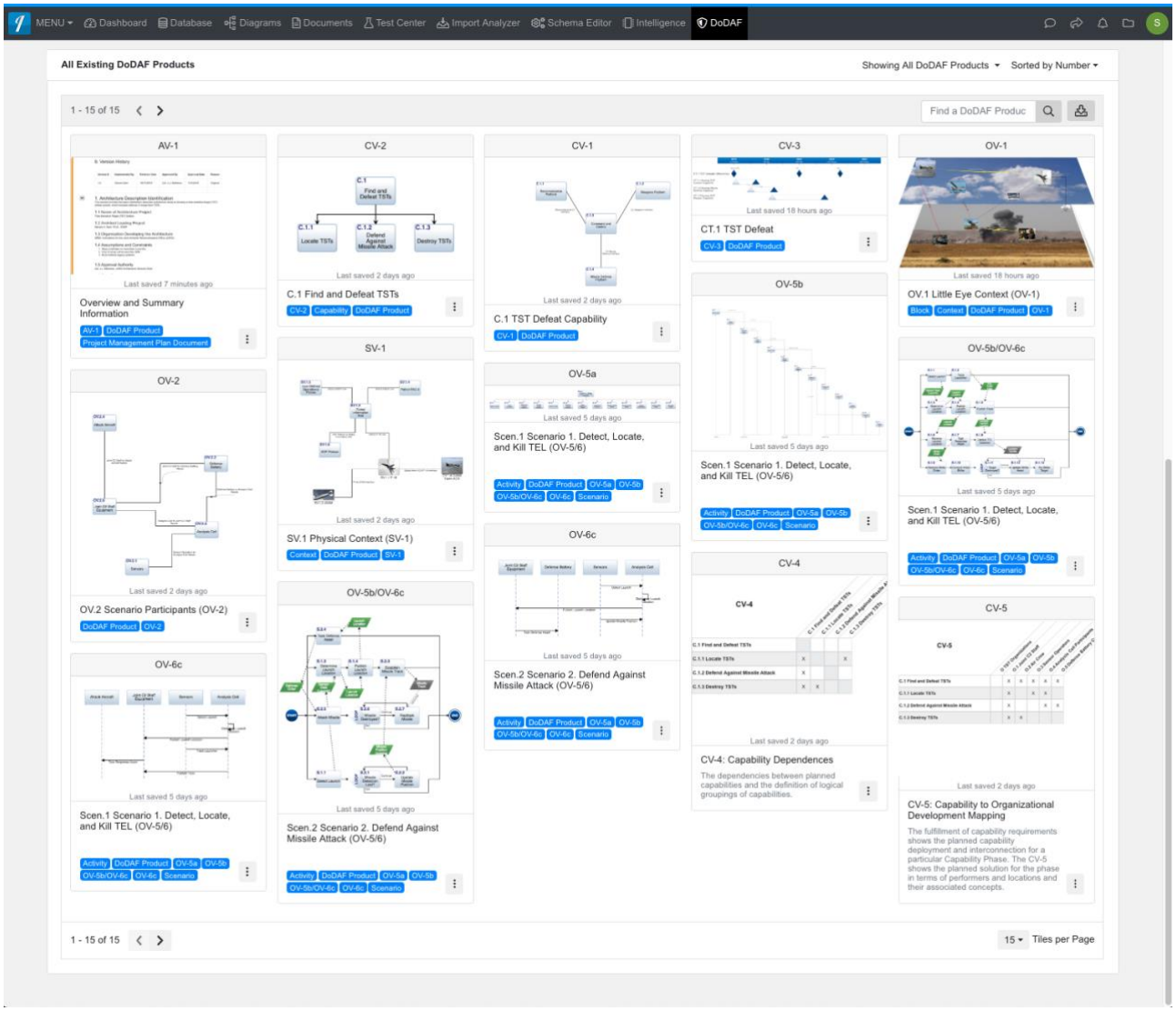
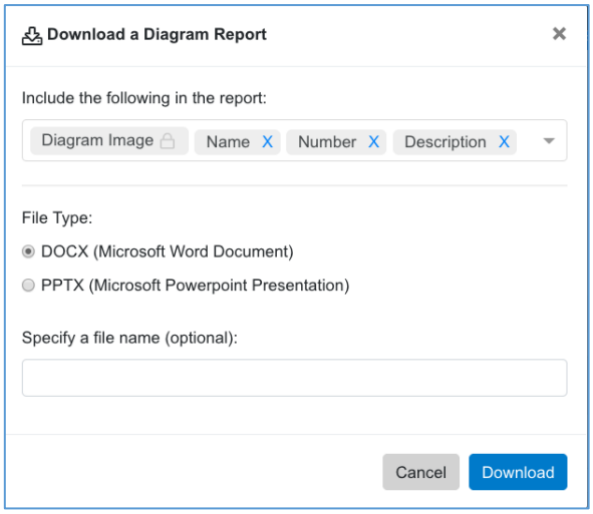


Figure 4. The lower portion of the DoDAF Dashboard provides access to all products generated.

In this view, you can select the specific viewpoint (such as "All OV Products Only") and/or model using the "Showing All DoDAF Products" pull-down menu at the top of this panel. You can also search for specific products using the search field ("Find a DoDAF Product") below. Right next to this search field is a report download button. This button will provide a pop-up menu (see figure on right) to create a MS Word or MS PowerPoint file with the pictures and information you select in the "Include the following in the report:" panel. You also have the option of specifying a filename.



The following sections will go through each of the viewpoints and discuss how to best generate those products.

All Viewpoint (AV) Products

The AV DoDAF-described models that capture the scope of the architecture and where the architecture fits in relationship to other architectures. Another use of the All Viewpoint is for the registration of the architecture to support the net-centric goals of making Architectural Descriptions visible (Discoverable). The specific AV Products are discussed below.

AV-1: Overview and Summary Information

The AV-1 is the overall architecture plan. Innoslate 4.1 has a template for this plan that meets the DoDAF 2.02 criteria. Use the DoDAF Dashboard to create and access this template by selecting it from the "New DoDAF Products" menu or, if previously generated, from either the recent products panel or All Existing DoDAF Products panel. Using this template, you will be placed into the Document View for that document (see Figure 5).

You can then edit the document as you would in any word processing tool, but you are creating entities in the database that can then be related to other entities in the database. For example, later in the architecture development you will have findings (Section 8 of the AV-1). You can then trace the individual findings back to the Assets (Performers) or Actions (Activities) that caused or resolved the findings. You could also tie them to Risk entities, if you capture Risk as part of your analysis.

If you prefer to write a completely separate AV-1 document in MS Word, then you can still upload it as an Artifact into the Innoslate Database to enable later linking between it and the database.

AV-2: Integrated Dictionary

Since the AV-2 is the architecture repository with definitions of all terms used (which includes the relationships between entities), it essentially requires the entire database or the XML output from that database to satisfy this product's requirement. In Innoslate 3.9, we created the DoDAF MetaModel 2.0 (DM-2) Physical Exchange Specification (PES) file. Most everyone wanted a glossary report instead, so we now have that as our primary AV-2 product, as shown in Figure 6. As you can see in this figure, you are redirected to the Database View, which orders the list by number and shows only the Statements with an Acronym label. You can add items to this list using the "New Entity" button. Make sure you attach the "Acronym" label to any new entities or they will not appear in the view.

If the PES file is needed, we can add that feature back as a report upon request.

AV-1 Screenshot:

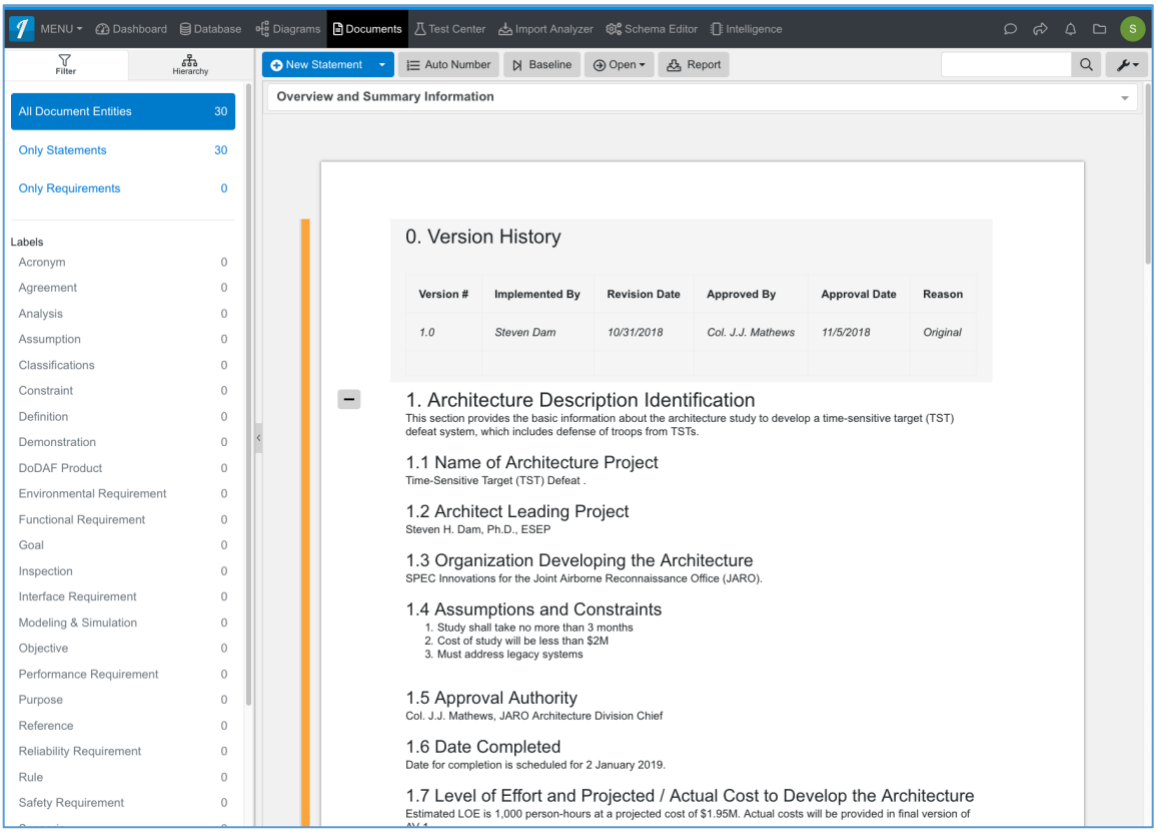


Figure 5. Create your AV-1 directly from within Innoslate.

AV-2 Screenshot:

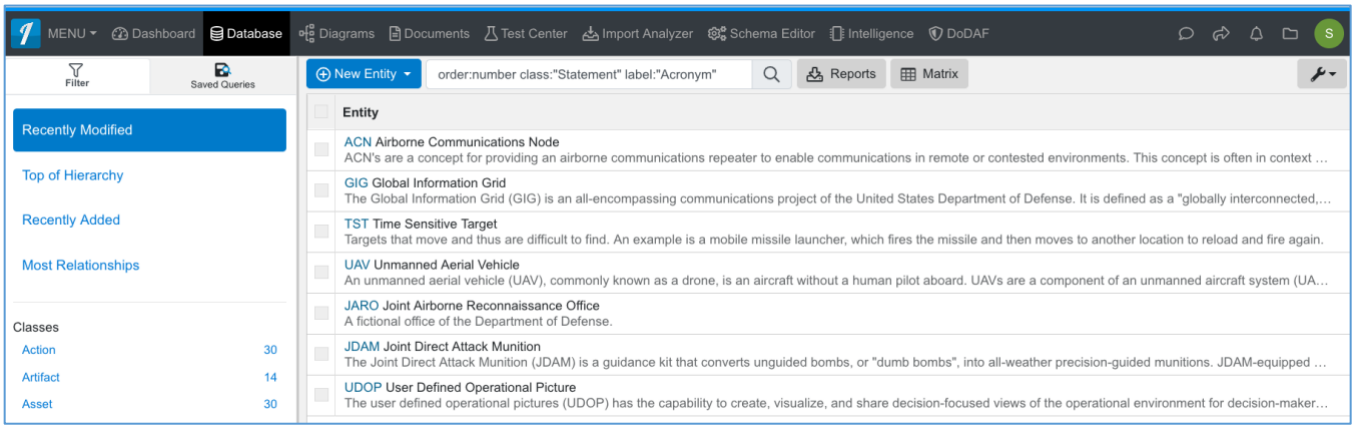


Figure 6. The AV-2 can be used to develop you glossary and list of acronyms.

Capability Viewpoint (CV) Products

The CV DoDAF-described models are intended to provide support to various decision processes within the Department, one of which is portfolio management. Since the DoD has moved toward the delivery of capabilities, these models take on a more important role. Developing an architecture that includes the relationships necessary to enable a capability thread is essential to improving usability of architectures, as well as increasing the value of federation. The specific CV Products are discussed below.

CV-1: Vision

The CV-1 uses an Asset Diagram for the picture shown in Figure 7. You can drag Assets (capability implementations) onto the canvas and then connect them using the green circles that appear when you click on the asset. Just click and drag the green dot (line) to another Asset and the connection is made. Click on individual Assets to add numbers and descriptions to them.
This diagram can be used as the basis for the OV-1 or SV-1 as well.

CV-1 Screenshot:

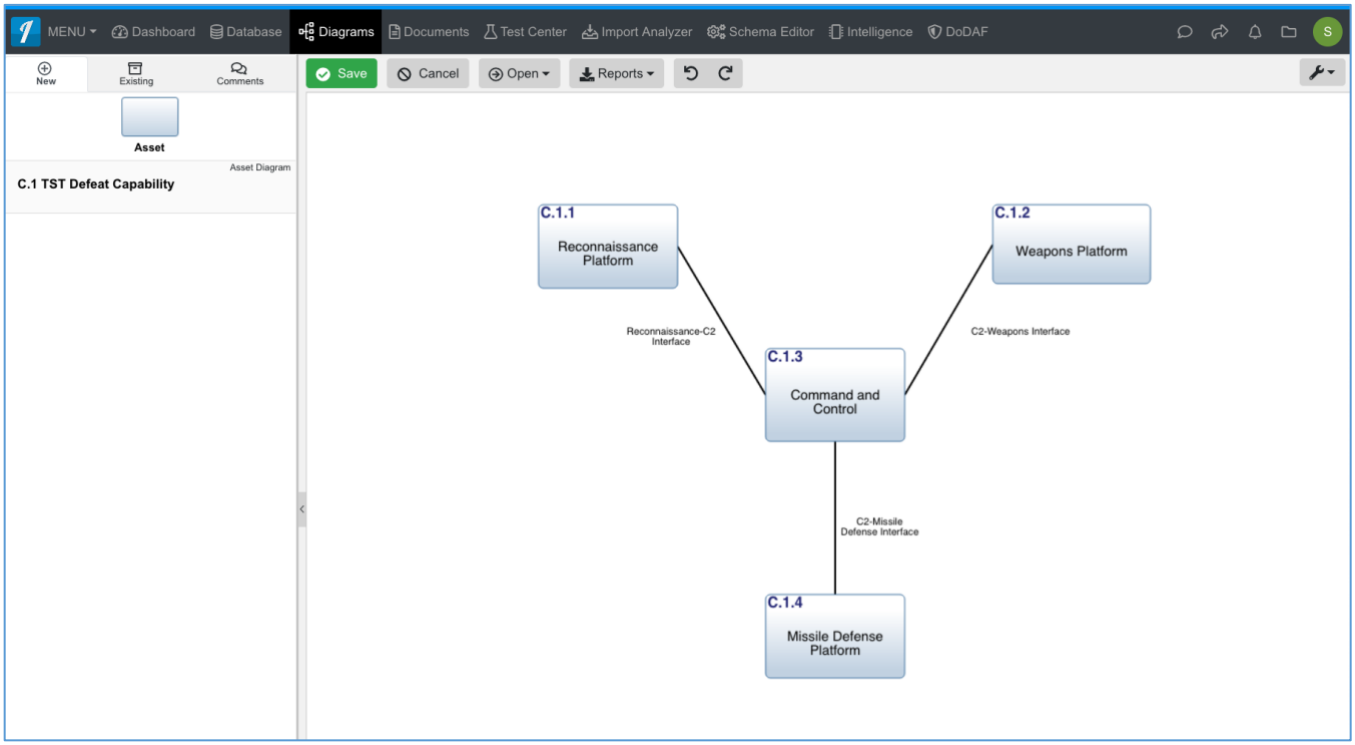


Figure 7. Innoslate uses the Asset Diagram to create the CV-1 product.

CV-2: Capability Taxonomy

The CV-2 is essentially a hierarchy diagram of the capabilities. Since capabilities are Action Class entities with the label, “Capability,” this taxonomy can also include any further decomposition of Actions to include Activities, Service Functions, and System Functions. To limit the diagram to just the capabilities, you can select the appropriate level using the tool button to the far right of the diagram in Figure 8. Note that this fully interactive diagram provides access to the description and other information about the capability. Use the drag and drop feature for new entities as well.

CV-2 Screenshot:

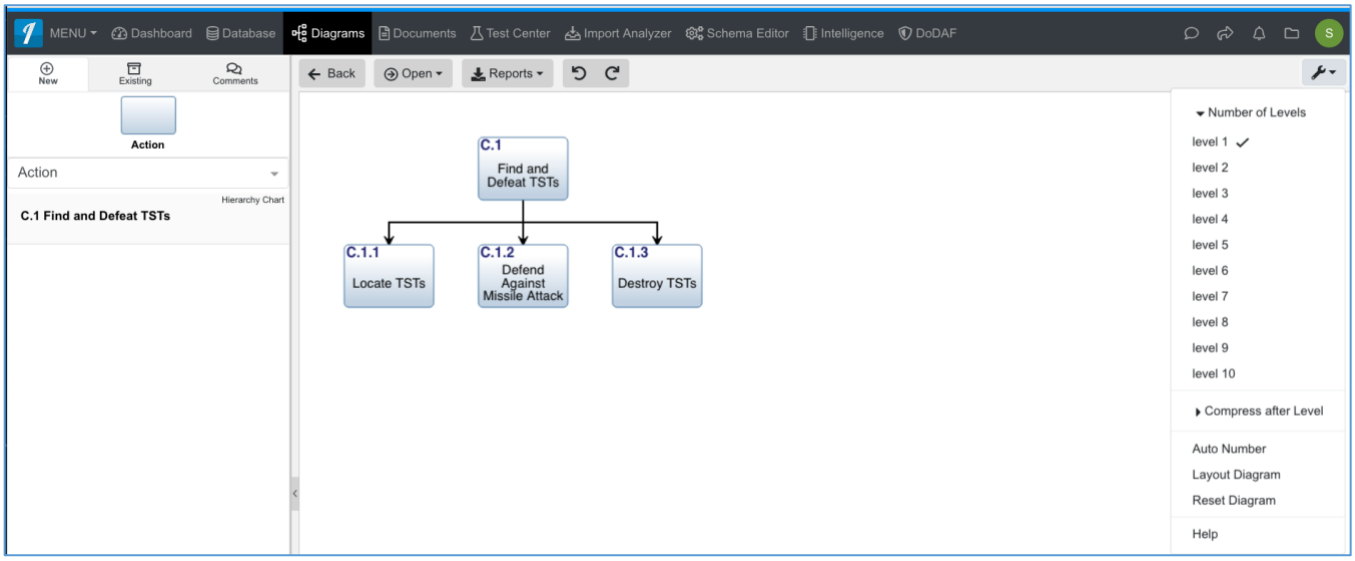


Figure 8. The CV-2 uses a hierarchy chart to visualize the capability decomposition.

CV-3: Capability Phasing

The CV-3 shows the phasing of capabilities for the project. The CV-3 uses Innoslate's Timeline Diagram to show the phasing information as seen in Figure 9. Milestones are Time class entities. The individual timelines are Actions with the ability to set the start time and duration using the timelines. As with all these views, text from the description field can be modified. Also, note that you can indicate dependences using the line between timelines. Make sure that the Timescale (top button next to "Reports") is set to include all the Time and Action elements of interest. Entities from previous times will not appear on the graph.

Note that since these timeline entities are Actions, you can also create an Action Diagram directly by using the Open pull-down button. From there you can execute the model using the discrete event or Monte Carlo simulators to obtain the dynamic timeline.

CV-3 Screenshot:

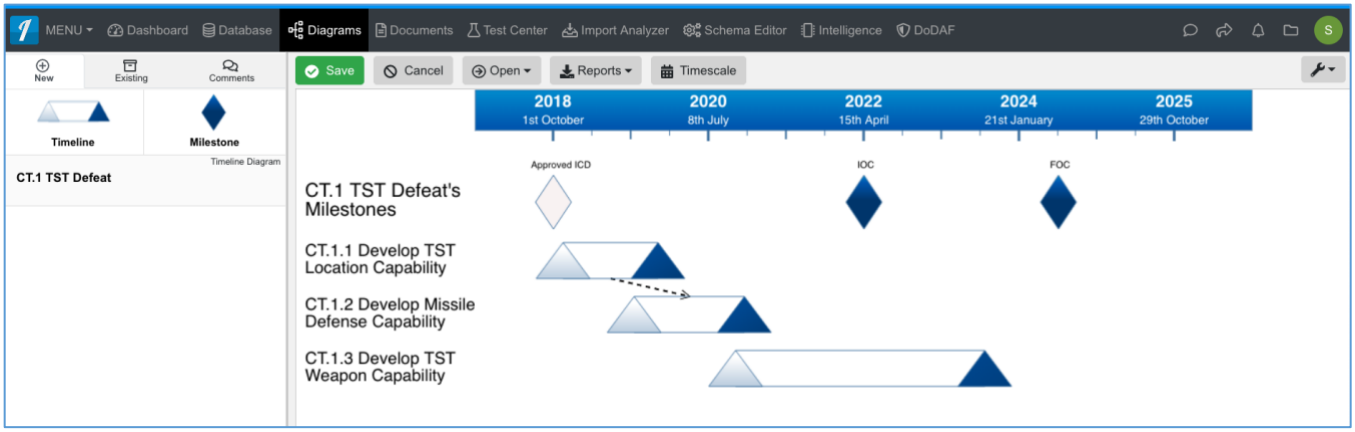


Figure 9. The new Timeline Diagram improves the CV-3 modeling.

CV-4: Capability Dependences

This matrix shows how the capabilities depend on one another (see Figure 10). Click the intersecting rows and columns that you deem appropriate and the necessary relationships are automatically established when you save the diagram. Note that the capabilities must have been added through the CV-2 or the database (Action entity with a "Capability" label) before they will appear on the matrix.

CV-4 Screenshot:

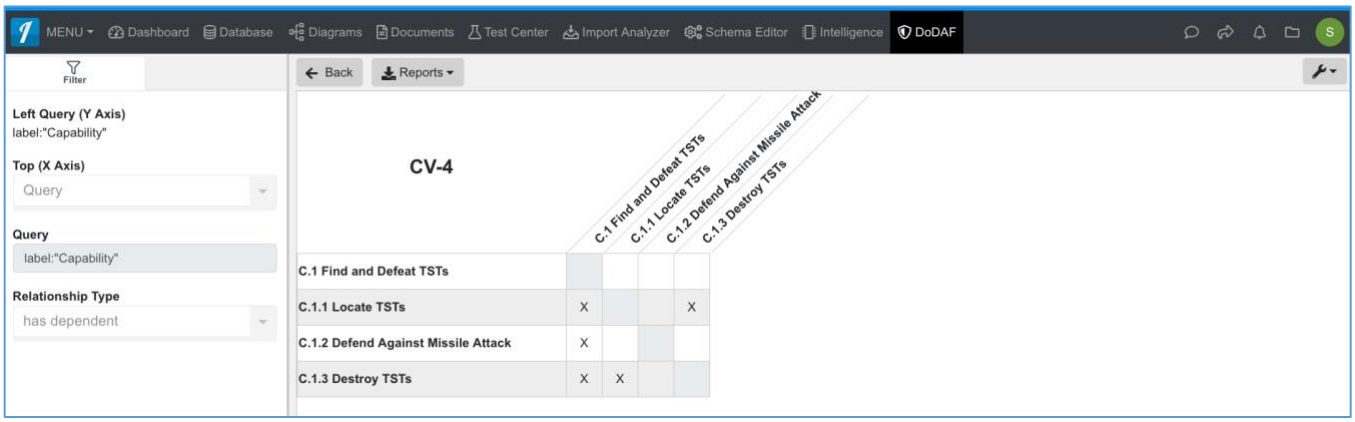


Figure 10. The Innoslate Traceability Matrix provides the CV-4 modeling capabilities.

CV-5: Capability to Organizational Development Mapping

The CV-5 Capability to Organizational Development Mapping matrix is shown in Figure 11. As in any other matrix you can select the entities and modify their attributes and metadata (including labels and pictures). Note that the Organizations must already be provided in the database (Assets with an "Organization" label) prior to their appearing in the table. These can be created using the OV-4.

CV-5 Screenshot:

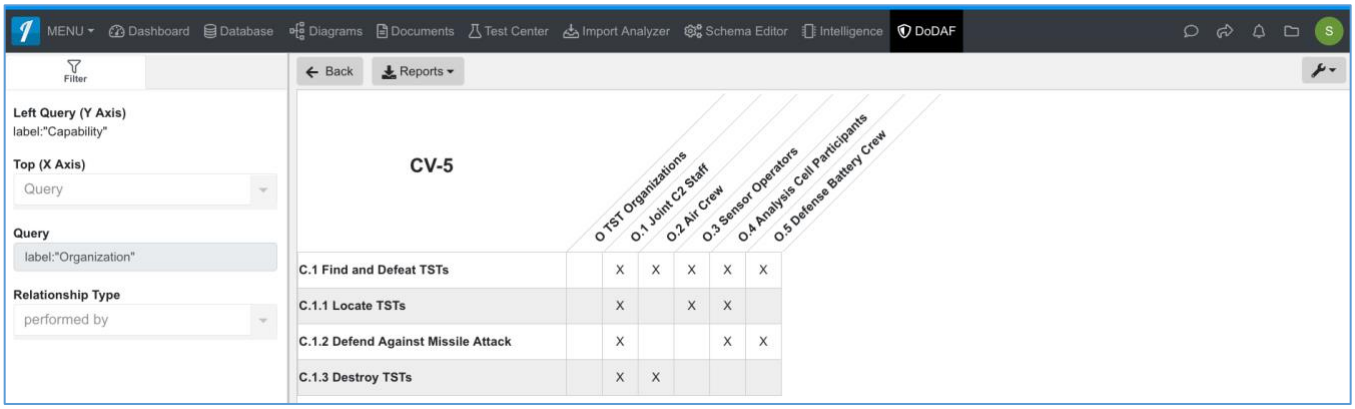


Figure 11. We suggest creating the OV-4 before developing the CV-5.

CV-6: Capability to Operational Activities Mapping

The CV-6 Capability to Operational Activities Mapping matrix can be seen in Figure 12. As with all these matrices, reports in Microsoft Excel spreadsheets are available. We recommend not trying to develop this matrix until the operational activities have been developed through the OV-5 or OV-6.

CV-6 Screenshot:

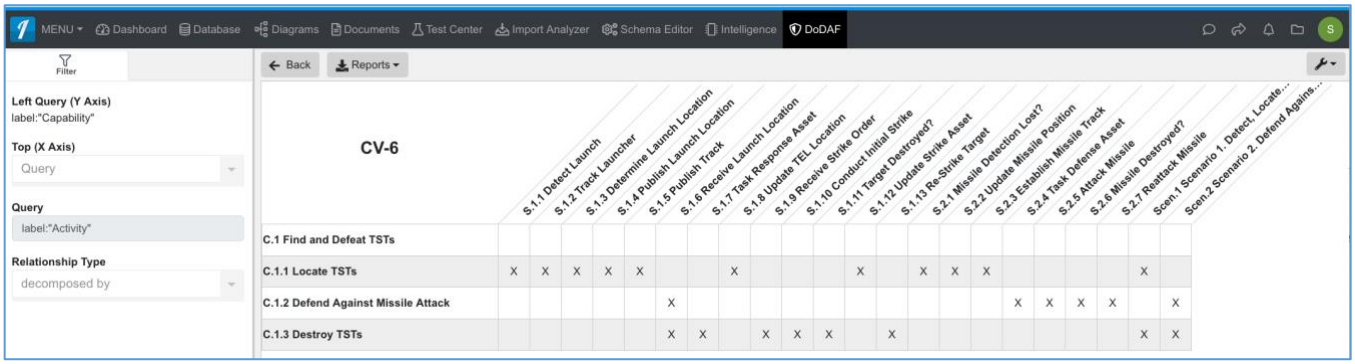


Figure 12. Develop the OV-5 prior to creating this diagram.

CV-7: Capability to Services Mapping

The CV-7 Capability to Services Mapping matrix is shown in Figure 13. Again, you may want to create the Services themselves via the SvcV-1 first.

CV-7 Screenshot:

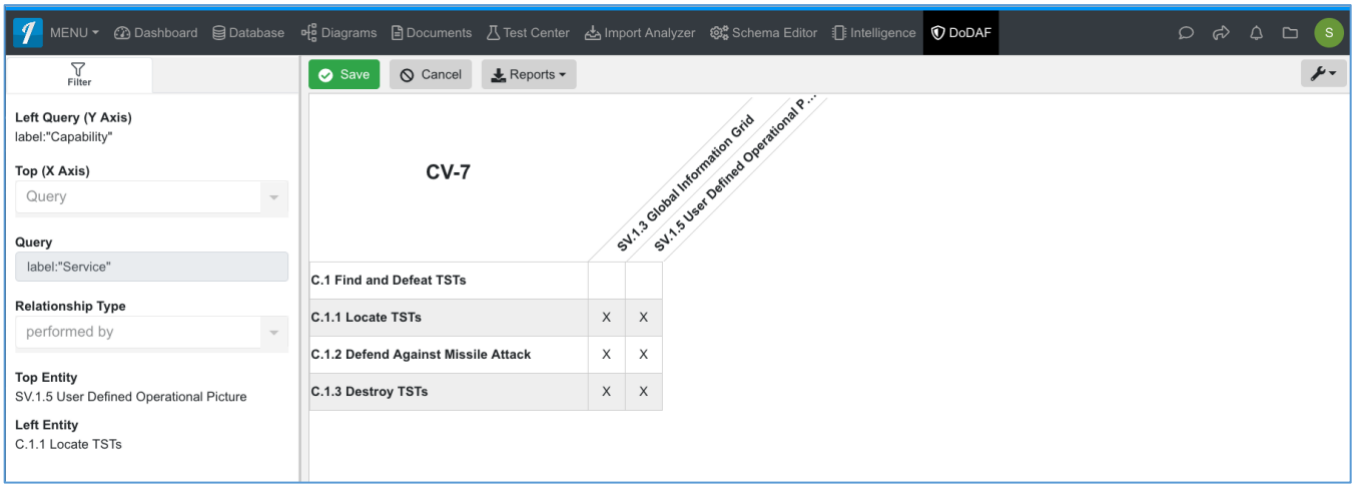


Figure 13. Create services first.

Data and Information Viewpoint (DIV) Products

The DIV DoDAF-described models provide the means of ensuring that only those information items that are important to the organization's operations and business are managed as part of the enterprise. They are also useful foundations for discussion with the various stakeholders of the architecture (e.g., decision-makers, architects, developers). These stakeholders require varying levels of detail to support their roles within the enterprise. The DIV Products are discussed below.

Note that Innoslate implements all the DIV products as Class Diagrams. Alternative solutions will be discussed for each of these products.

DIV-1: Conceptual Data Model

The DIV-1 Conceptual Data Model in Innoslate is expressed as a Class Diagram (see Figure 14). Usually at this stage of development, the individual classes themselves might be all that can be identified. In the example below, a few attributes have been added. If you prefer, you can create a list of classes (as Assets) or Input/Output entities to capture the list of information needed.

DIV-1 Screenshot:

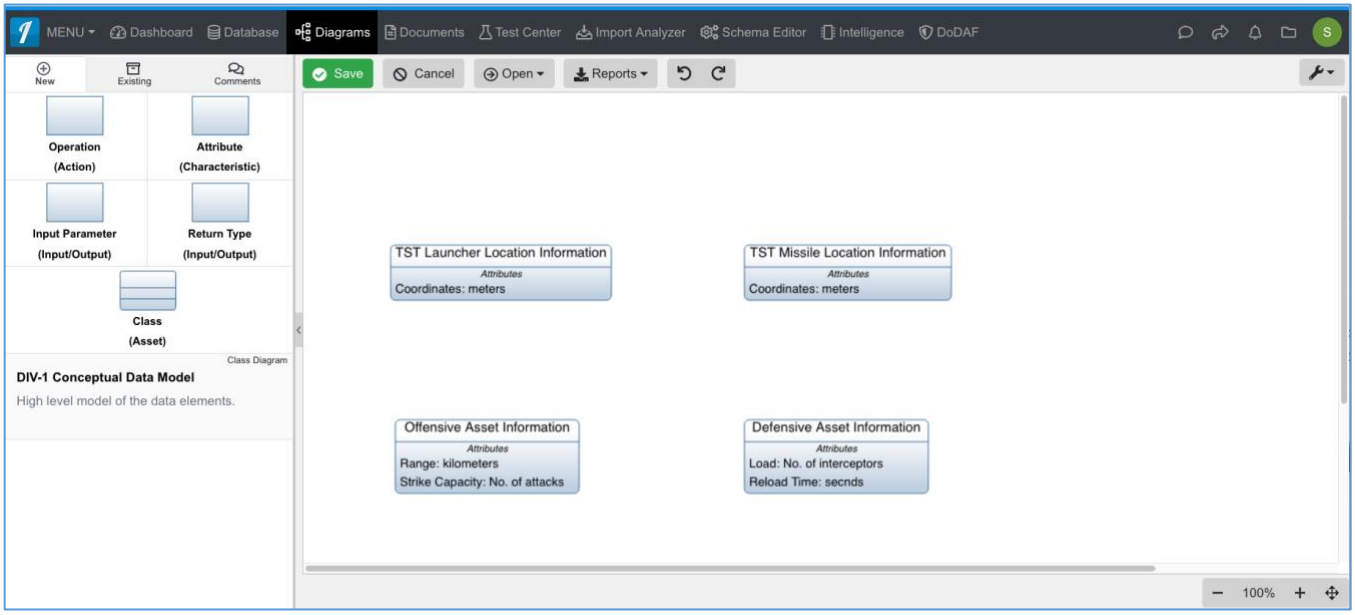


Figure 14. The DIV products use the UML Class Diagram from Innoslate.

DIV-2: Logical Data Model

In the Logical Data Model (DIV-2) you may begin to add more details concerning the attributes and operations (Actions). You can use the Existing tab to drag existing entities (Actions, Assets, Characteristics, and Input/Outputs) onto the diagram. If they have been developed in other viewpoints, such as the OV-5, which is shown in the example below (see Figure 15).

DIV-2 Screenshot:

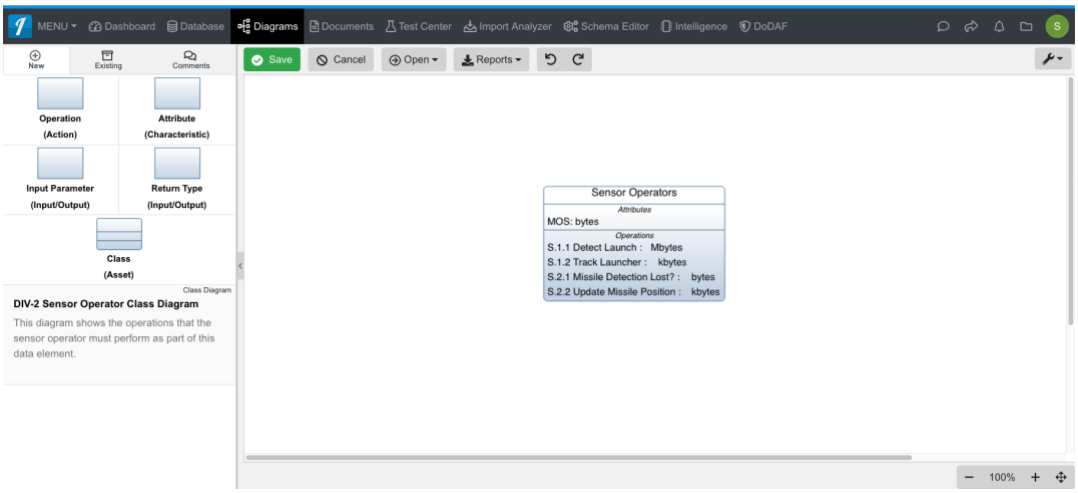


Figure 15. More detail on specific data elements will be provided for the DIV-2

DIV-3: Physical Data Model

In the Physical Data Model you can add the level of detail needed to develop Class Diagram data entities (see Figure 16). In addition, the DIV-3 is often developed in a specific format (e.g., message structure) or as a set of XML tags. This model is usually developed as a part of a code development project and thus can be captured as an Artifact in the database. To use Innoslate to perform this task, a user could use the Class Diagram or simply use a report to generate a table of the Input/Output elements.

DIV-3 Screenshot:

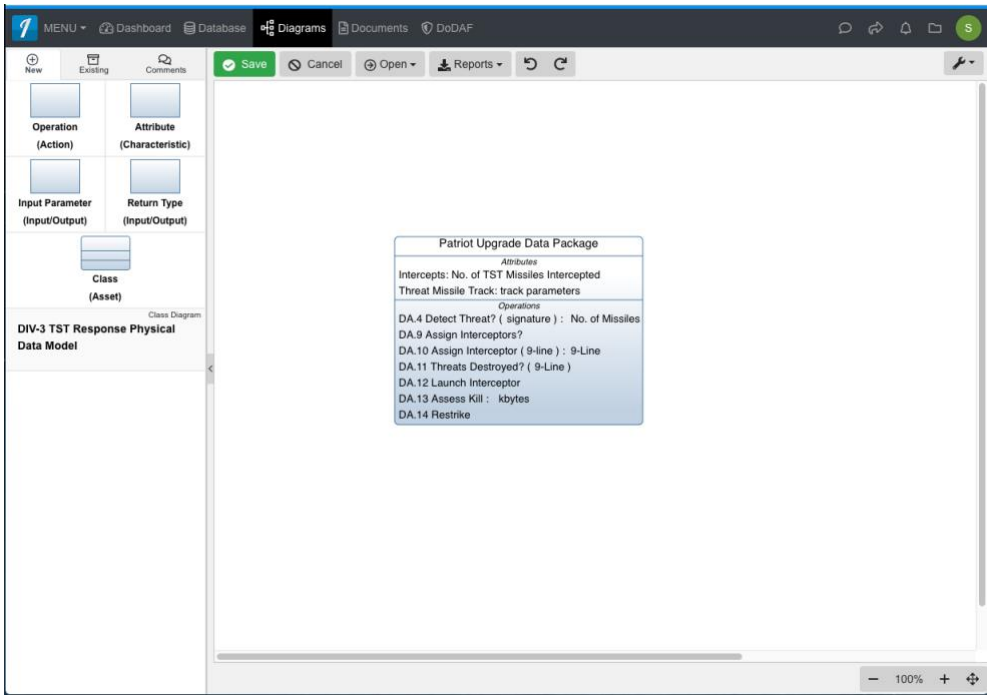


Figure 16. The Physical Data Model in Innoslate also uses the Class Diagram, but other forms can be captured as Artifacts or links to a Software Integrated Development Environment (IDE).

Operational Viewpoint (OV) Products

The OV DoDAF-described models may be used to describe a requirement for a "To-Be" architecture in logical terms, or as a simplified description of the key behavioral and information aspects of an "As-Is" architecture. The OV DoDAF-described Models can re-use the capabilities defined in the Capability Viewpoint and put them in the context of an operation or scenario (both are Actions, with a Capability or Activity label and can use the "decomposed by" relationship to link them). The OV DoDAF-described models can be used in a number of ways, including the development of user requirements, capturing future concepts, and supporting operational planning processes. Each OV Product type is discussed below.

Note that the "New DoDAF Product" button will require a new root Action or Asset in many of these diagrams. If you want a subsequent view, then you need to add the appropriate label to the root manually. For example, if I create the OV-5b/OV-6c combined view, I need to only add the other labels (OV-5a, OV-5b, OV-6c) to the root and then open the equivalent diagrams (Hierarchy, IDEF0, and Sequence, respectively) to create these as products in the DoDAF View. Also, recognize that you must save each of these diagrams, which may cause you to have to make a change. Otherwise the diagram "chip" does not get created and therefore isn't available for the DoDAF View.

OV-1: High-Level Operational Concept Graphic

The OV-1 product comes from the Innoslate Asset Diagram. When you select "Create New OV-1 Asset Diagram" you will be presented with the Asset Diagram palette. You can add Assets and connect them together to show interfaces. For the OV-1, you can include pictures for the Assets and turn the lines into lightning bolts, binary (1s and 0s) or dashed line. Add a pretty background from your favorite drawing tool using the "Change Background" button at the bottom of the frame. Figure 17 below shows an example of an OV-1 in Innoslate.

OV-1 Screenshot:

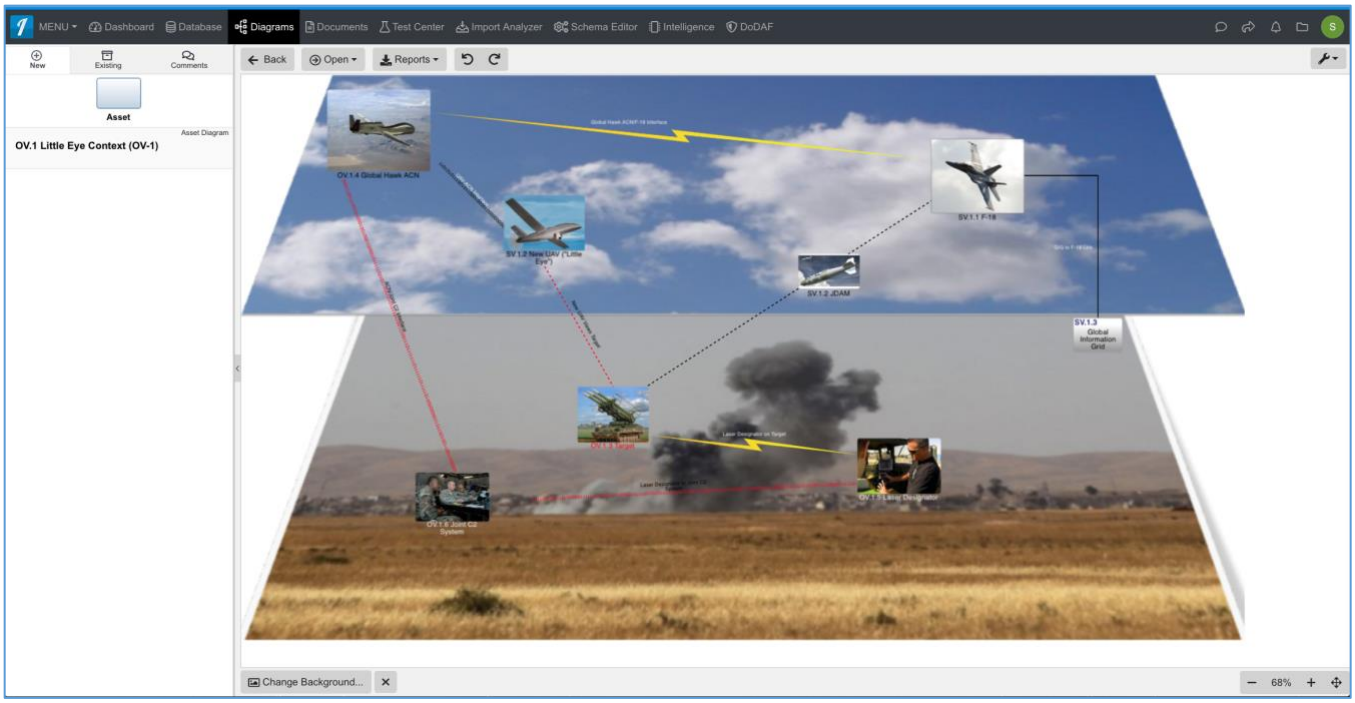


Figure 17. The High Level Concept Diagram in Innoslate uses the Asset Diagram where you can include a picture background.

OV-2: Operational Resource Flow Description

The OV-2 uses Innoslate's Physical I/O Diagram. This diagram provides a way to define the Input/Outputs that flow between operational nodes (Assets). It also forces the user to define the Conduit that transfers the I/O, as well as the generating and receiving activities (Actions). See the SV-2 for more details. See Figure 18 below.

OV-2 Screenshot:

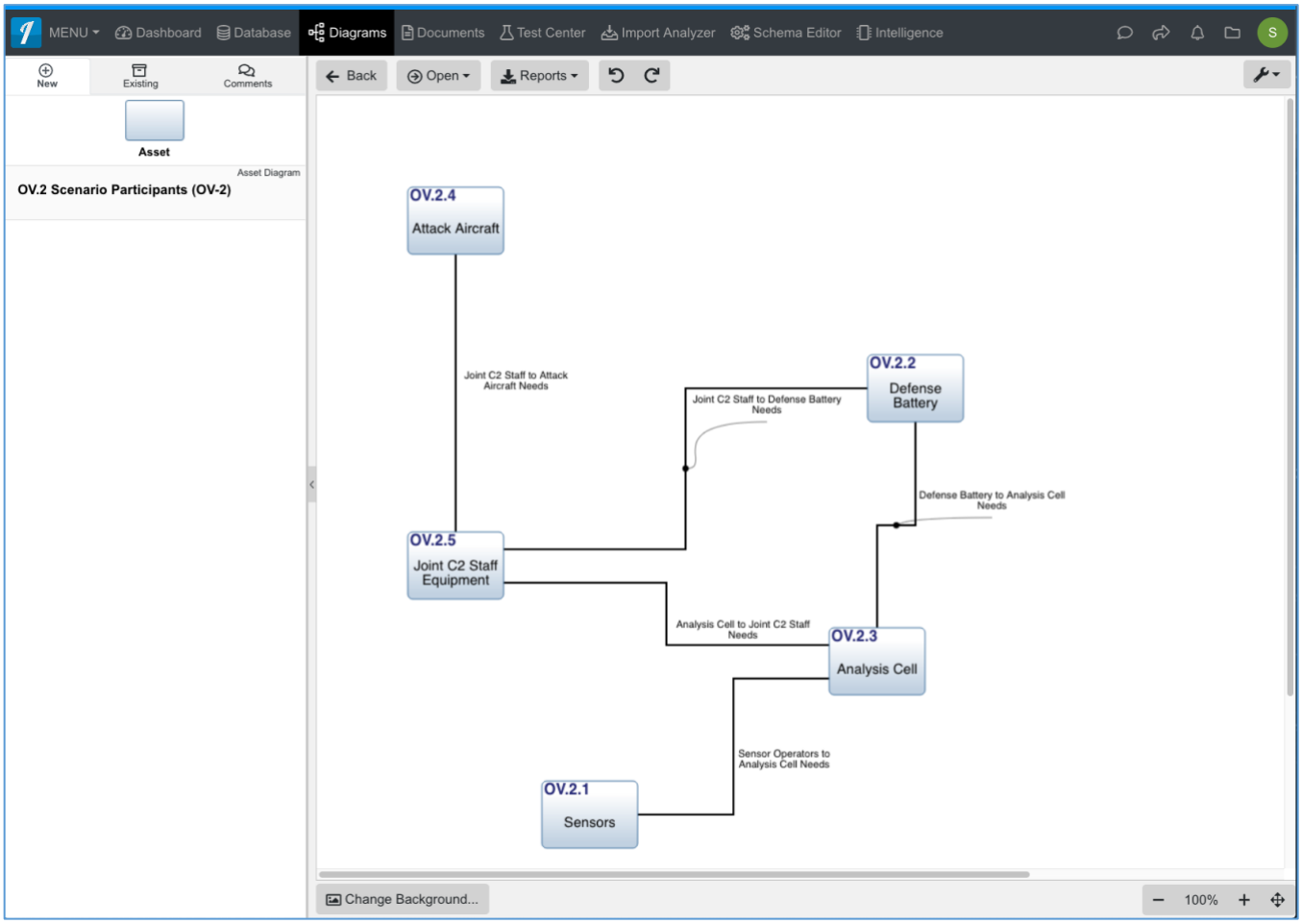


Figure 18. The Operational Resource Flow Diagram in Innoslate uses the Physical I/O Diagram, which helps you define the Input/Output, Conduits, and related Actions between Assets.

OV-3: Operational Resource Flow Matrix

The OV-3, Operational Resources Flow Description, is completely new in Innoslate 4. It uses the Database View technology from Innoslate to provide an interactive table, which you can adjust and modify as desired. It builds from the OV-1 diagram by using the Conduits from that diagram as the first column of the table. The Input/Outputs associated with the Conduit from the information in the next 4 columns, which consists of the number, name, size, and units of the Input/Output entity. Input/Outputs are related to the Conduit through the "*transfers*" relationship, which can be seen on the sidebar when selecting a particular row. If you create relationships this way, you may have to refresh the browser to see these changes.

The next two columns show the number and name of the Action that generated the Input/Output entity. The two columns after that show the number and name of the Asset that performs the Action.

The last four columns show the Action and Asset that receive the Input/Output entity.

All these fields can be edited directly.

Note that this format is essentially identical for the SV-6/SvcV-6.

Figure 19 provides an example of the new OV-3.

OV-3 Screenshot:

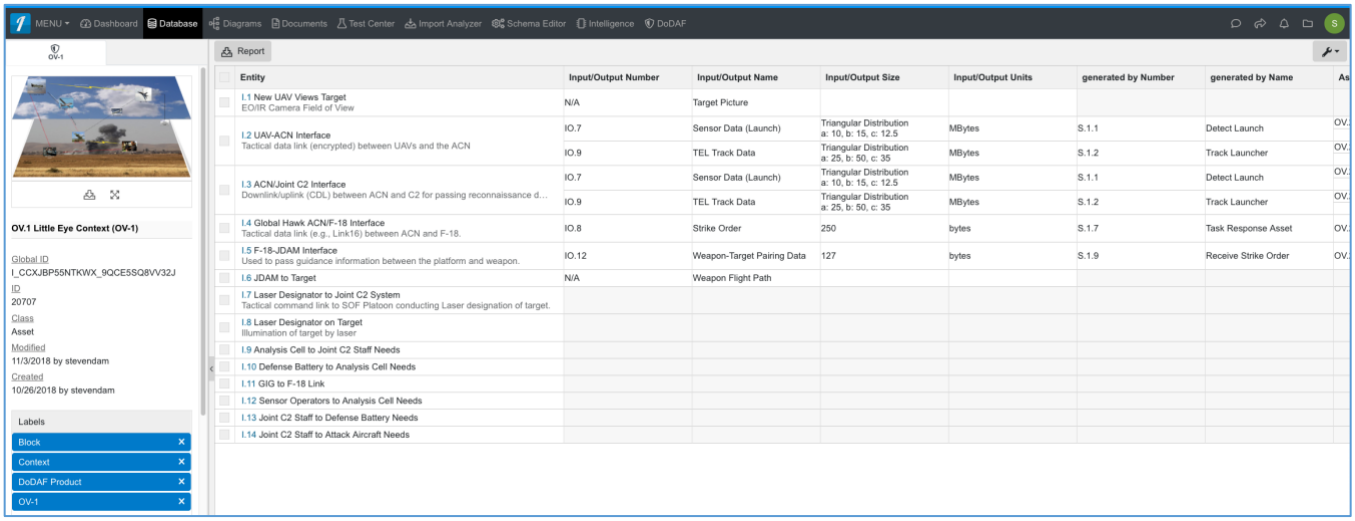


Figure 19. The Operational Resource Flow Matrix uses a special version of Innoslate's Database View, which was developed specifically for the relationships needed to show all the appropriate columns.

OV-4: Organizational Relationships Chart

The organization chart is a hierarchy diagram available under the Asset class. This diagram only shows the *decomposed by* relationship between organizations for lines of authority. See Figure 20 for an example.

OV-4 Screenshot:

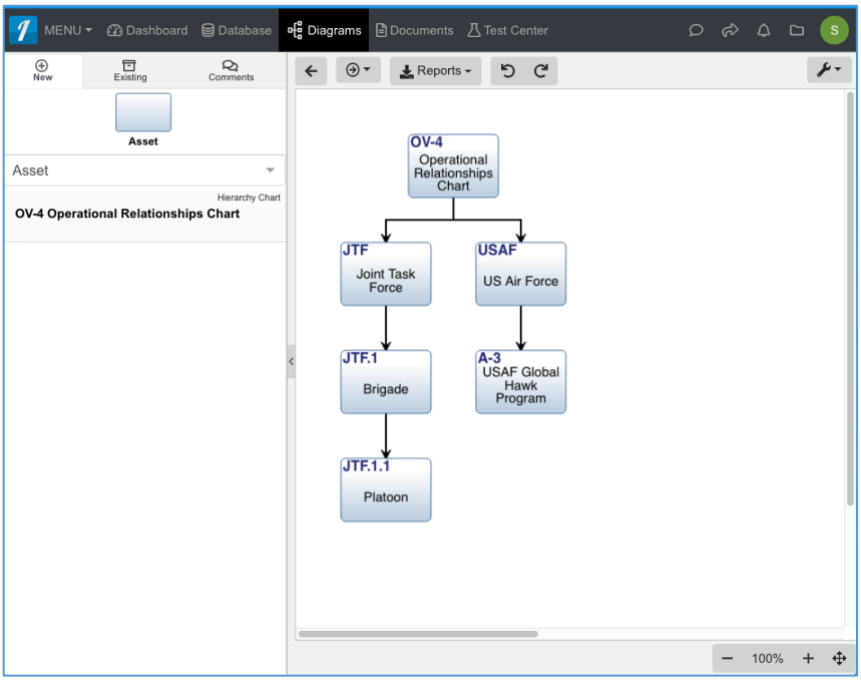


Figure 20. The Organizational Relationships Chart uses Innoslate's Hierarchy Chart to show direct lines of authority.

OV-5a: Operational Activity Decomposition Tree

The OV-5a shows the decomposition of Actions using Innoslate's hierarchy diagram. Like all the other diagrams this one can use the drag and drop feature to build it and the sidebar feature to change attributes and metadata. An example of the OV-5a in Innoslate is shown in Figure 21.

OV-5a Screenshot:

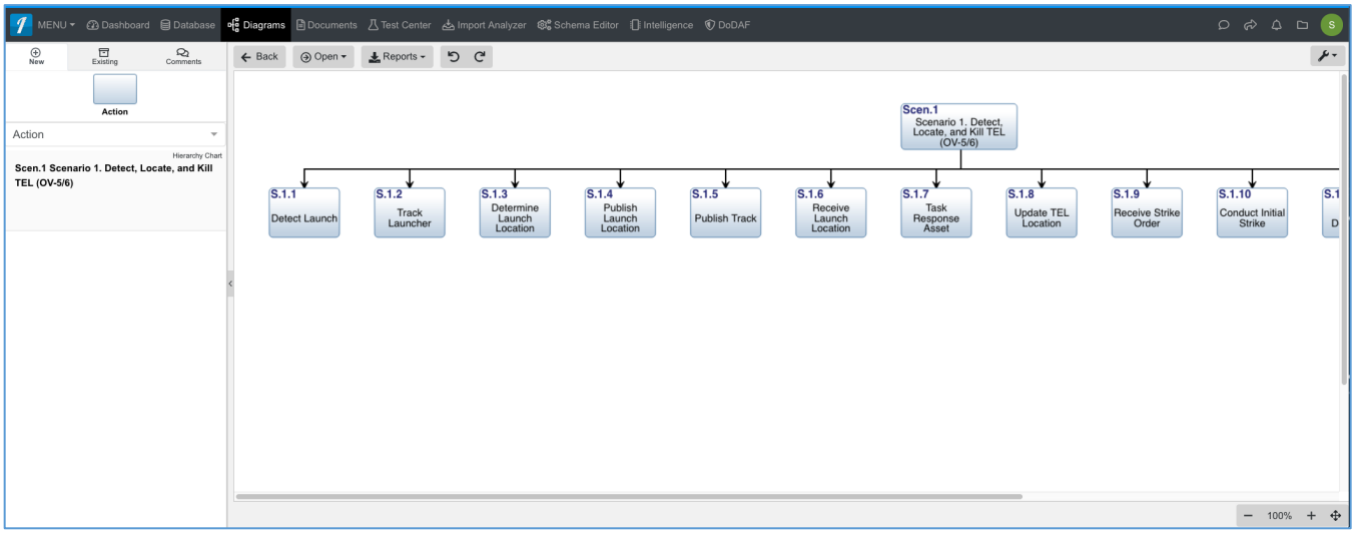
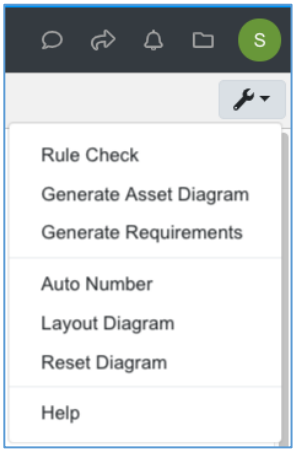


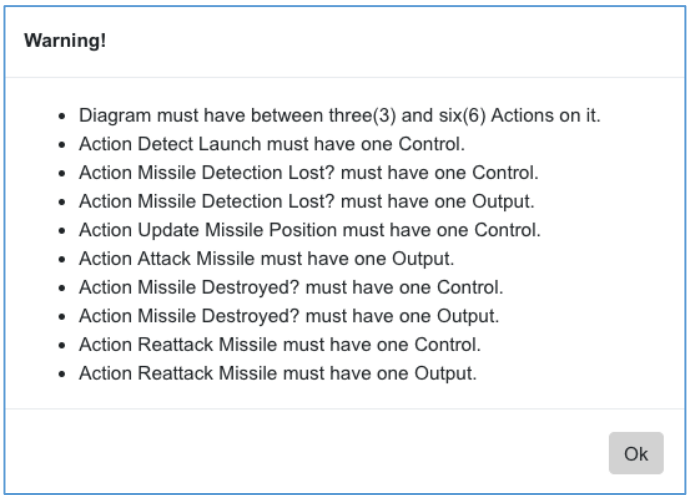
Figure 21. The Operational Activity Decomposition Tree uses Innoslate's Hierarchy Chart.

OV-5b: Operational Activity Model

The OV-5b is shown in Figure 22 using Innoslate's IDEF0 modeling diagram. This diagram includes a "Rule Check" feature that provides the warning messages when the diagram does not meet the IDEF0 standard. A portion of the warning messages is shown on the right.

To access the rule check, look for the wench icon in the top right corner of the diagram.





OV-5b Screenshot:

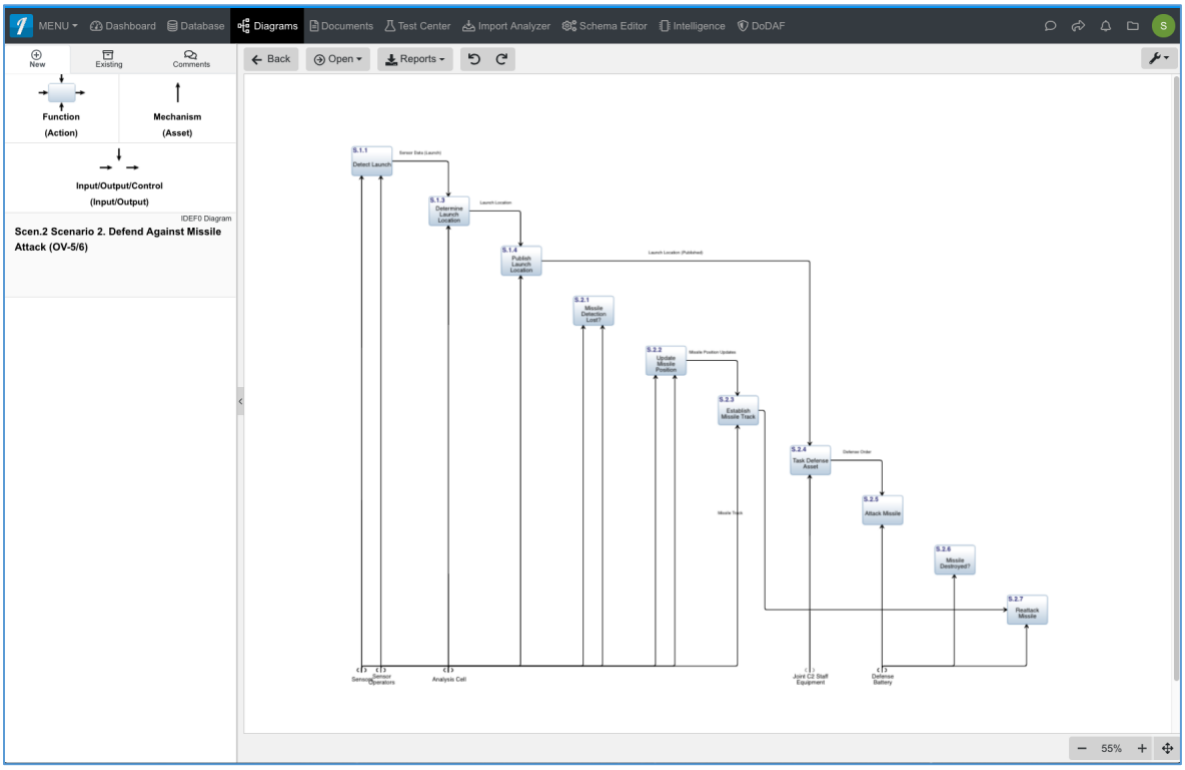


Figure 22. The Operational Activity Model uses Innoslate's IDEF0 diagram to show the Input/Outputs between the activities (Actions).

OV-6c: Event-Trace Description

To provide the OV-6c, Innoslate uses the Sequence Diagram, an example of which can be seen in Figure 23. This diagram works with all the other diagrams, drawing itself from the same data provided in the other models.

OV-6c Screenshot:

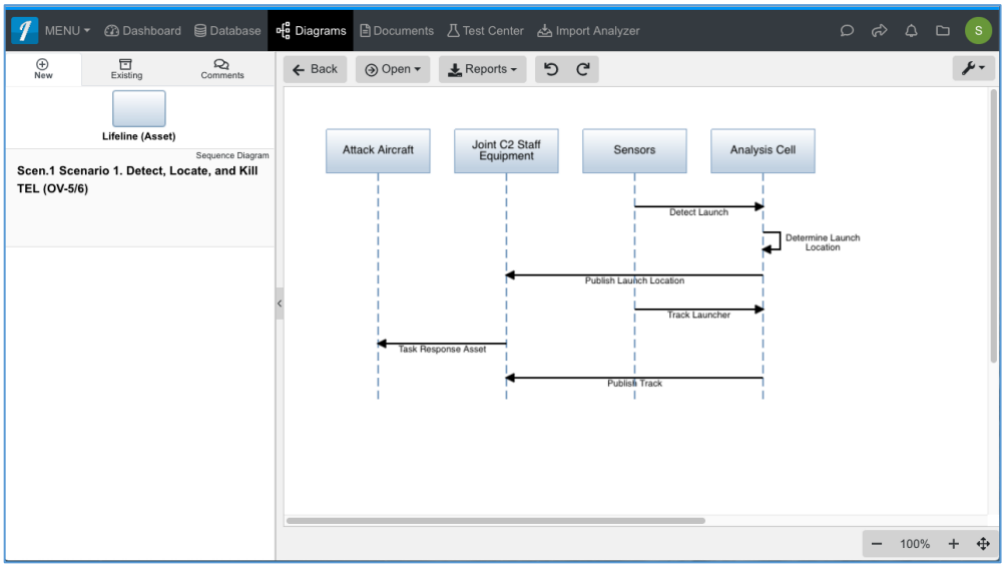


Figure 23. The Event-Trace uses Innoslate's Sequence Diagram to show the activity (Actions) sequence between operational nodes (Assets).

Combined OV-5b/OV-6c

A perhaps more useful way to view the activity model, is through the combined OV-5b and OV-6c, since in general the data flow between activities and the sequencing of activities depend on each other. To provide this "fit-for-purpose" view, we use Innoslate's Action Diagram, shown below. You can also add Resources and drag Assets to branches, which then automatically creates the "performed by" relationship between the Action and Asset. Note also that this diagram can be executed using the built-in discrete event and Monte Carlo simulators. Figure 24 provides an example of this fit-for-purpose view.

OV-5b/OV-6c Screenshot:

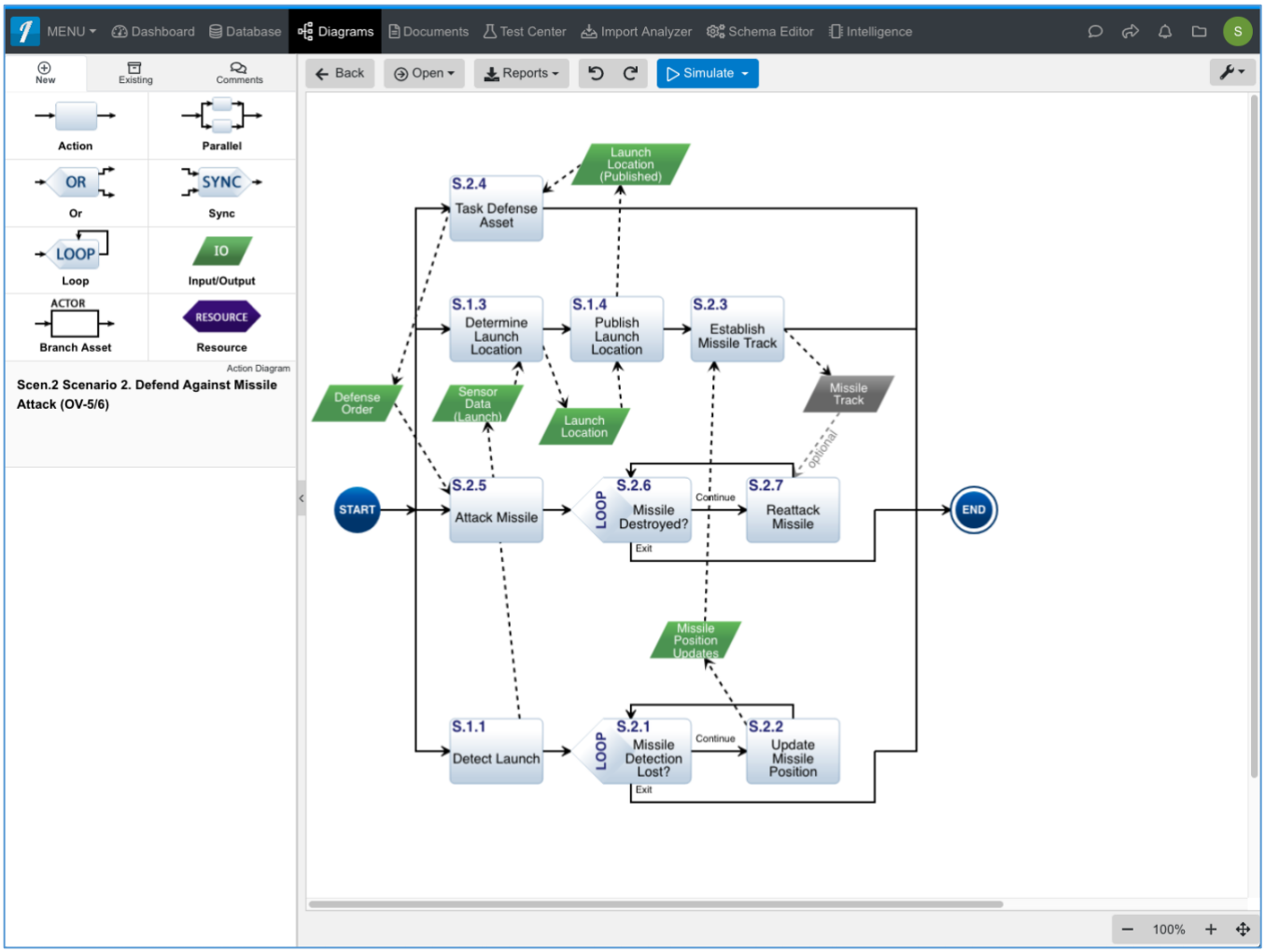


Figure 24. The Combined OV-5b/OV-6c uses Innoslate's Action Diagram to show the integrated sequencing and data flow, thus providing a more complete process modeling capability.

Project Viewpoint (PV) Products

The PV DoDAF-described Models contain information that improves DoDAF's support to the portfolio management process. It is important to be able to look across portfolios (i.e., groups of investments) to ensure that all possible alternatives for a particular decision have been exhausted to make the most informed decision possible in support of the Department. Relating project information to the responsible organizations, as well as to other projects, forms a valuable architecture construct that supports PM. The specific PV Products are discussed below.

PV-1: Project Portfolio Relationships

The PV-1, Project Portfolio Relationships, use the Traceability Matrix to show the projects that are performed by various organizations (see Figure 25 for an example). All Assets with the "Organization" label will be shown as the column headings. The projects must be children of a root Action entity (see Figure 26 for the Entity View of the root entity associated with these projects). In this case, this root entity is the same as the one used in the PV-2 timeline, discussed in the next section. We recommend developing the PV-2 and OV-4 first, then create this matrix.

PV-1 Screenshot:

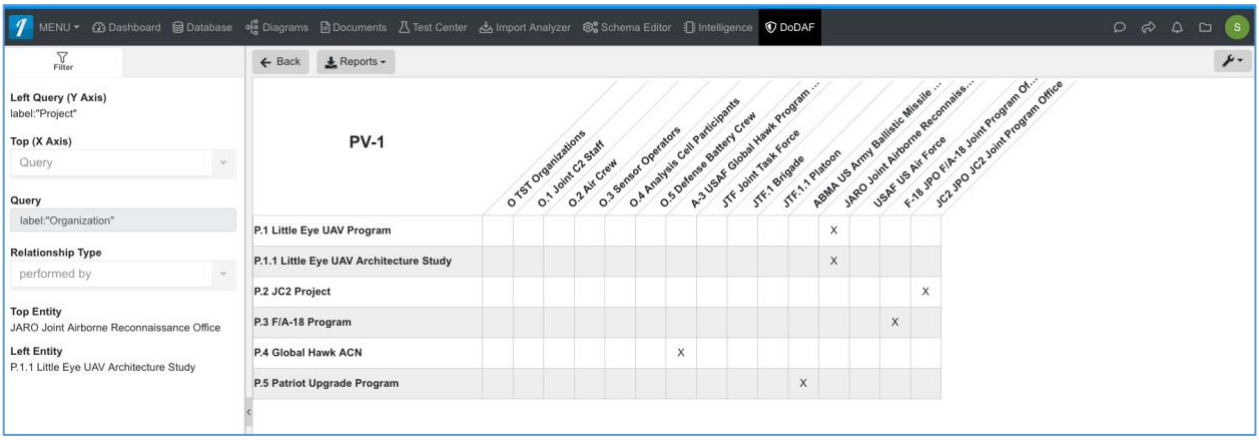


Figure 25. The Combined OV-5b/OV-6c uses Innoslate's Action Diagram to show the integrated sequencing and data flow, thus providing a more complete process modeling capability.

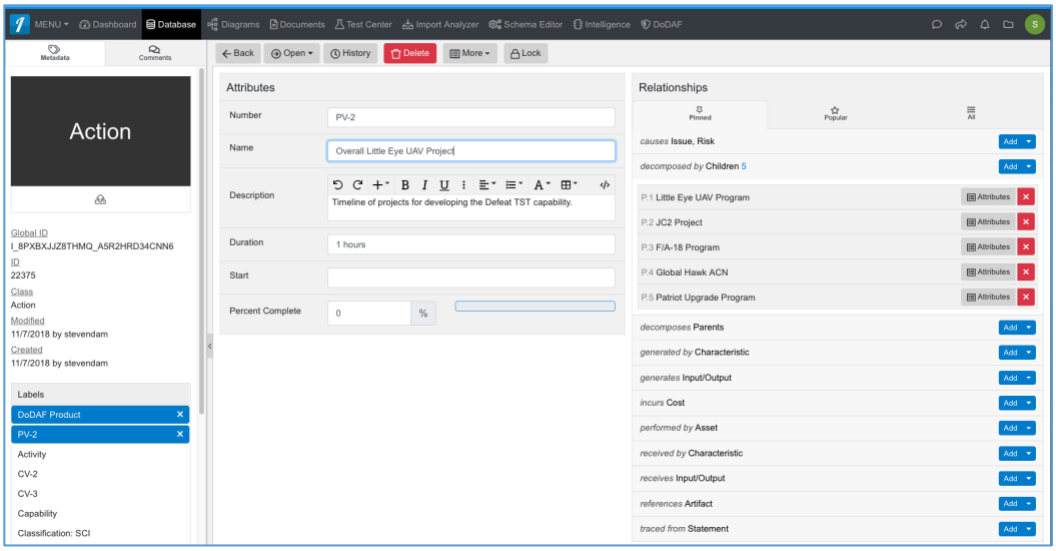


Figure 26. Use the Entity View to ensure that the appropriate root entity has the set of projects needed for the PV-1.

PV-2: Project Timelines

The PV-2 shows key milestones in the project. Innoslate provides this new Timeline Diagram, with drag and drop capabilities, so that you can build this model with ease. See Figure 27. You can also view this root action in the Action Diagram, and thus create a more robust project plan, with the help of the simulators to create a dynamic timeline, which can be resource constrained to produce a cost estimate.

PV-2 Screenshot:

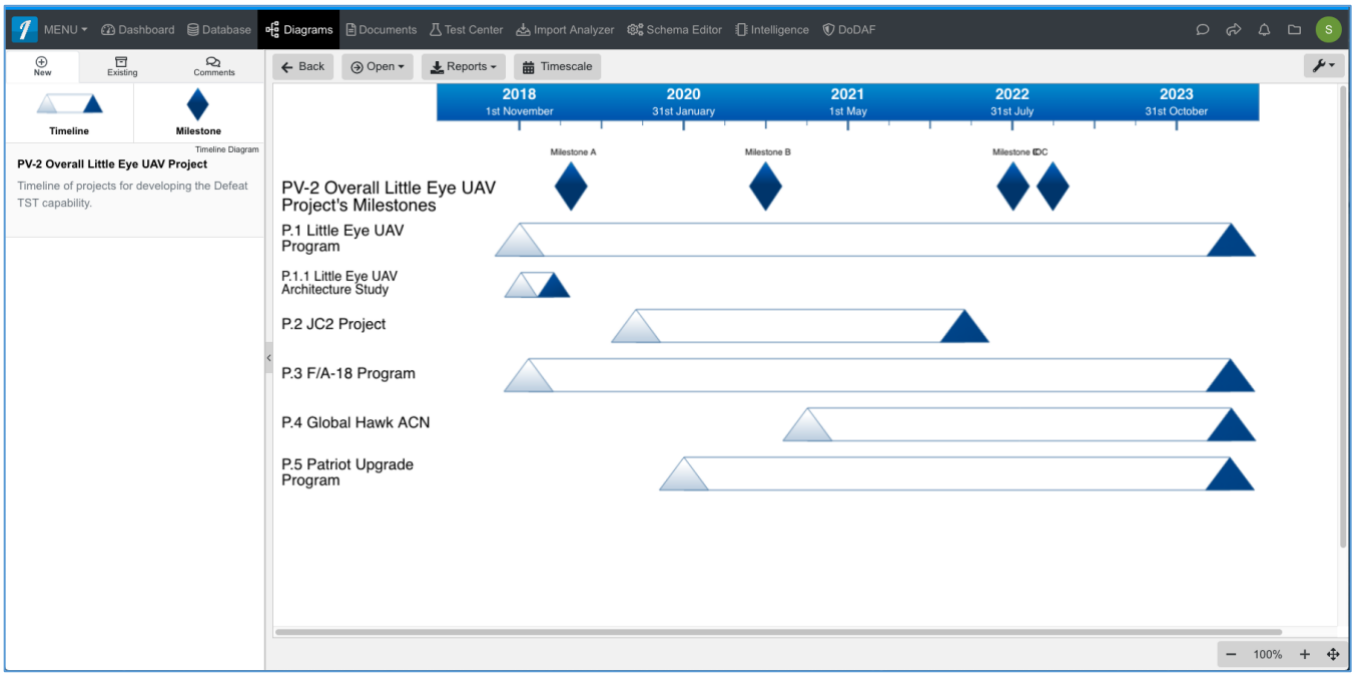


Figure 27. The Project Timelines uses Innoslate's Timeline Diagram to develop the project milestones and program timelines.

PV-3: Project to Capability Mapping

The PV-3 uses Innoslate's Traceability Matrix to map between the projects and capabilities. Again, remember that the projects and capabilities need to be created first, and then the matrix is populated with those entities. These projects must be part of a hierarchy and the capabilities must have the "Capability" label associated with each of them to obtain this view. To create a link between the two, simply click the box that intersects the project and capability of interest and an "X" will appear. Once saved, this creates the relationship (related to/relates) between the two entities. Figure 28 provides an example of the PV-3.

PV-3 Screenshot:

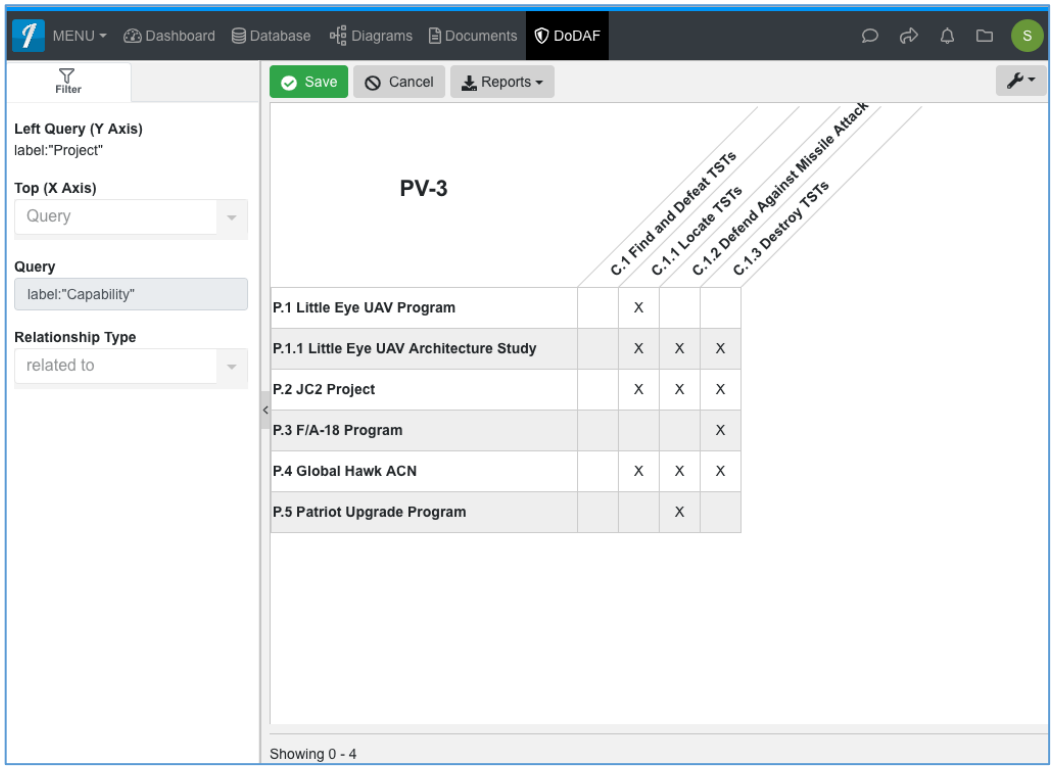


Figure 28. The Project to Capabilities Mapping uses Innoslate's Traceability Matrix to connect projects and capabilities.

Services Viewpoint (SvcV) Products

Within the development process, the service models describe the design for service-based solutions to support operational requirements from the development processes (JCIDS) and Defense Acquisition System or capability development within the JCAs. The specific SvcV Products are discussed below. Many of the SvcV products use exactly the same Innoslate diagrams as the SV products, so in this section we will only show the key different ones: SvcV-3a, SvcV-3b, and SvcV-5.

Note that the "New DoDAF Product" button will require a new root Action or Asset in many of these diagrams. If you want a subsequent view, then you need to add the appropriate label to the root manually. For example, if I create the SvcV-4/SvcV-10c combined view, I need to only add the other labels (SvcV-4a, SvcV-4b, SvcV-10c) to the root and then open the equivalent diagrams (Hierarchy, IDEF0, and Sequence, respectively) to create these as products in the DoDAF View. Also, recognize that you must save each of these diagrams, which may cause you to have to make a change. Otherwise the diagram "chip" does not get created and therefore isn't available for the DoDAF View.

SvcV-3a: Systems-Services Matrix

The SvCV-3a provides a quick overview of the resource interactions between systems and services. As such it is similar to other matrices we have seen. Figure 29 below is a notional example.

SvcV-3a Screenshot:

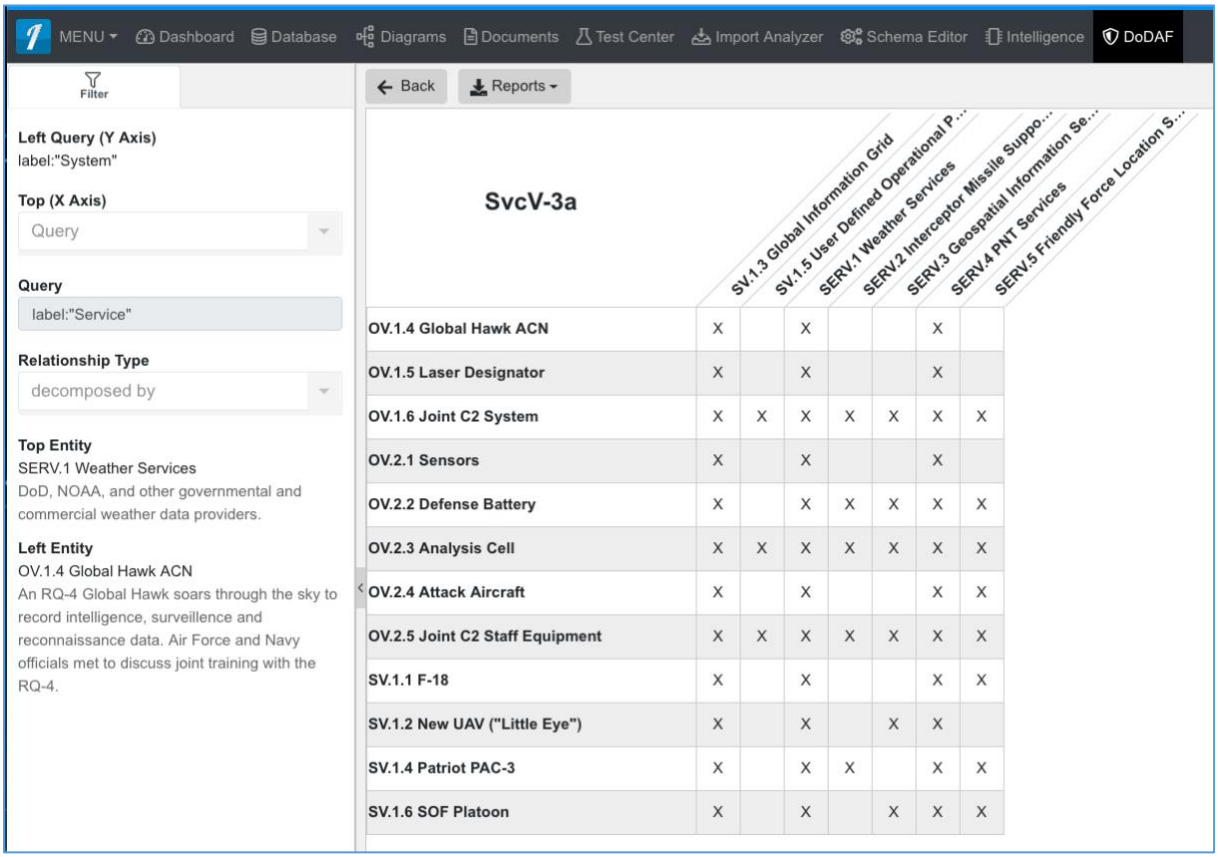


Figure 29. The Systems-Services Matrix uses Innoslate's Traceability Matrix to connect systems and services.

SvcV-3b: Services-Services Matrix

The SvcV-3b shows the resource flow from Service to Service. Again, you can designate the origin of the flow from the Service row to the Service column using the technique in SvcV-3a. The diagram in Figure 30 provides a notional example.

SvcV-3b Screenshot:

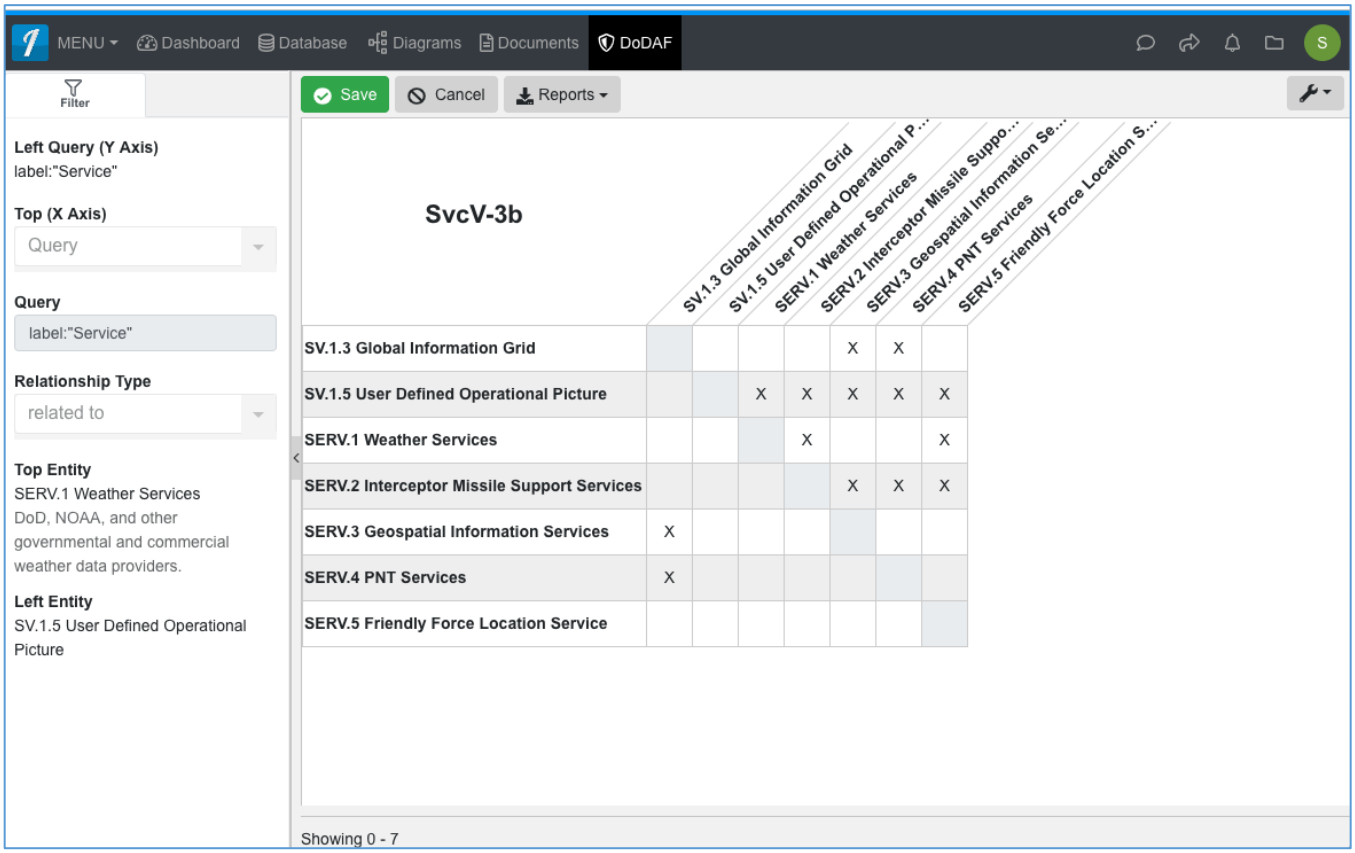


Figure 30. The Services-Services Matrix uses Innoslate's Traceability Matrix to connect services to each other.

SvcV-5: Operational Activity to Services Traceability Matrix

The SvcV-5 shows the mapping of operational activities to services. Note, when clicking the "X" in the box, Innoslate saves this information using the "performed by" relationship. This relationship may or may not be what you want for the purposes of functional traceability and may conflict with other allocations. Be sure to view the information in other forms, such as Spider Diagram to ensure you have established the relationships you want. Figure 31 provides an example of the SvcV-5 matrix.

SvcV-5 Screenshot:

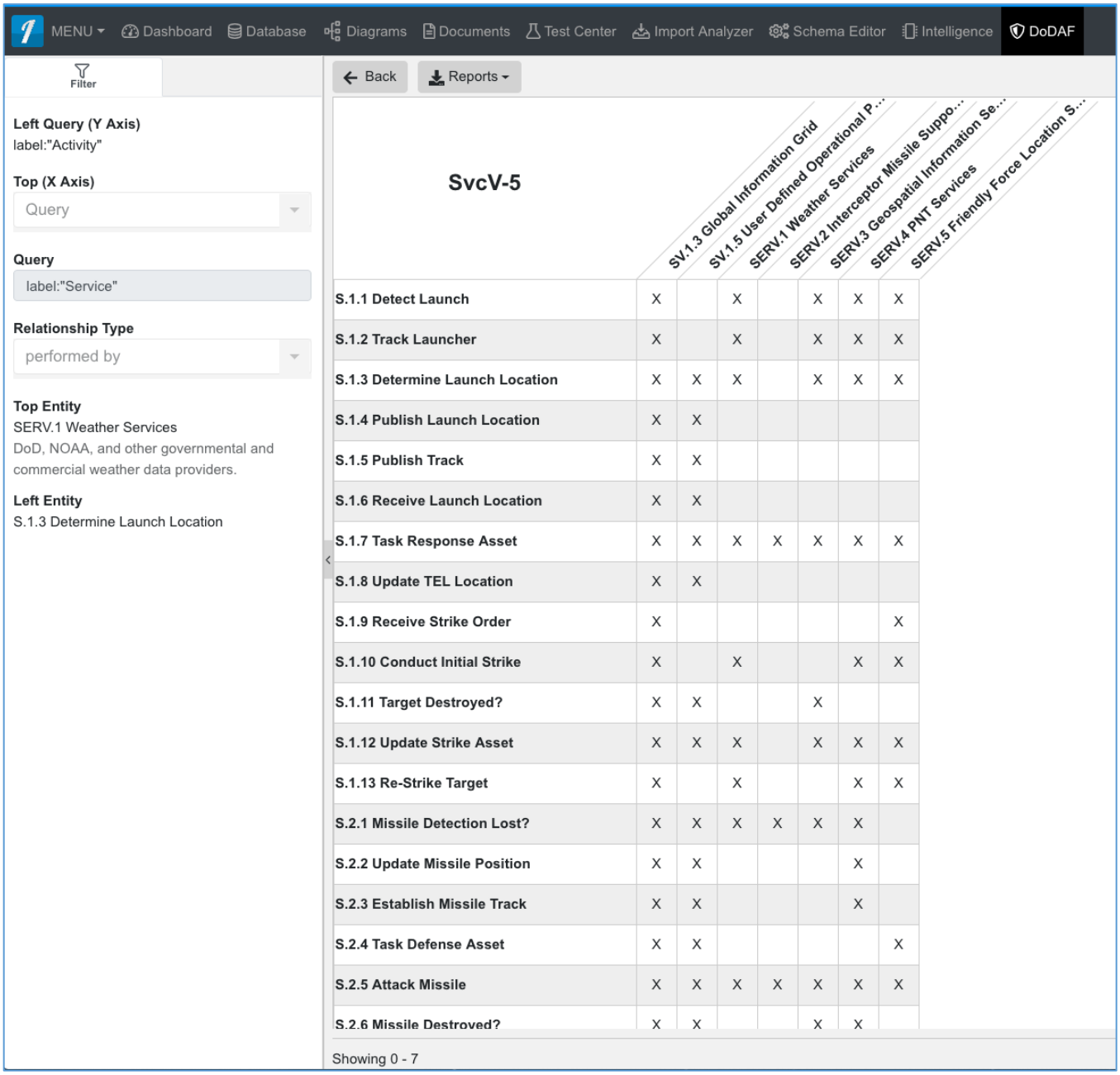


Figure 31. The Operational Activities to Services Matrix uses Innoslate's Traceability Matrix to connect operational activities (Actions) to services (Assets).

Systems Viewpoint (SV) Products

Within the development process, the DoDAF-described Models describe the design for system-based solutions to support or enable requirements created by the operational development processes (JCIDS) and Defense Acquisition System. The specific SV Products are discussed below.

Note that the "New DoDAF Product" button will require a new root Action or Asset in many of these diagrams. If you want a subsequent view, then you need to add the appropriate label to the root manually. For example, if I create the SV-4b/SV-10c combined view, I need to only add the other labels (SV-4a, SV-4b, SV-10c) to the root and then open the equivalent diagrams (Hierarchy, IDEF0, and Sequence, respectively) to create these as products in the DoDAF View. Also, recognize that you must save each of these diagrams, which may cause you to have to make a change. Otherwise the diagram "chip" does not get created and therefore isn't available for the DoDAF View.

SV-1: Systems Interface Description

The SV-1 is represented in Innoslate as an Asset Diagram. Usually this diagram is a simple box and line diagram of the physical instantiations of the operational elements, in particular hardware and software systems, as well as the specific operators of the equipment. However, nothing keeps you from making it more interesting by including pictures and lightning bolt, just like the OV-1. Figure 32 shows an example of this SV-1 with a few pictures.

SV-1 Screenshot:

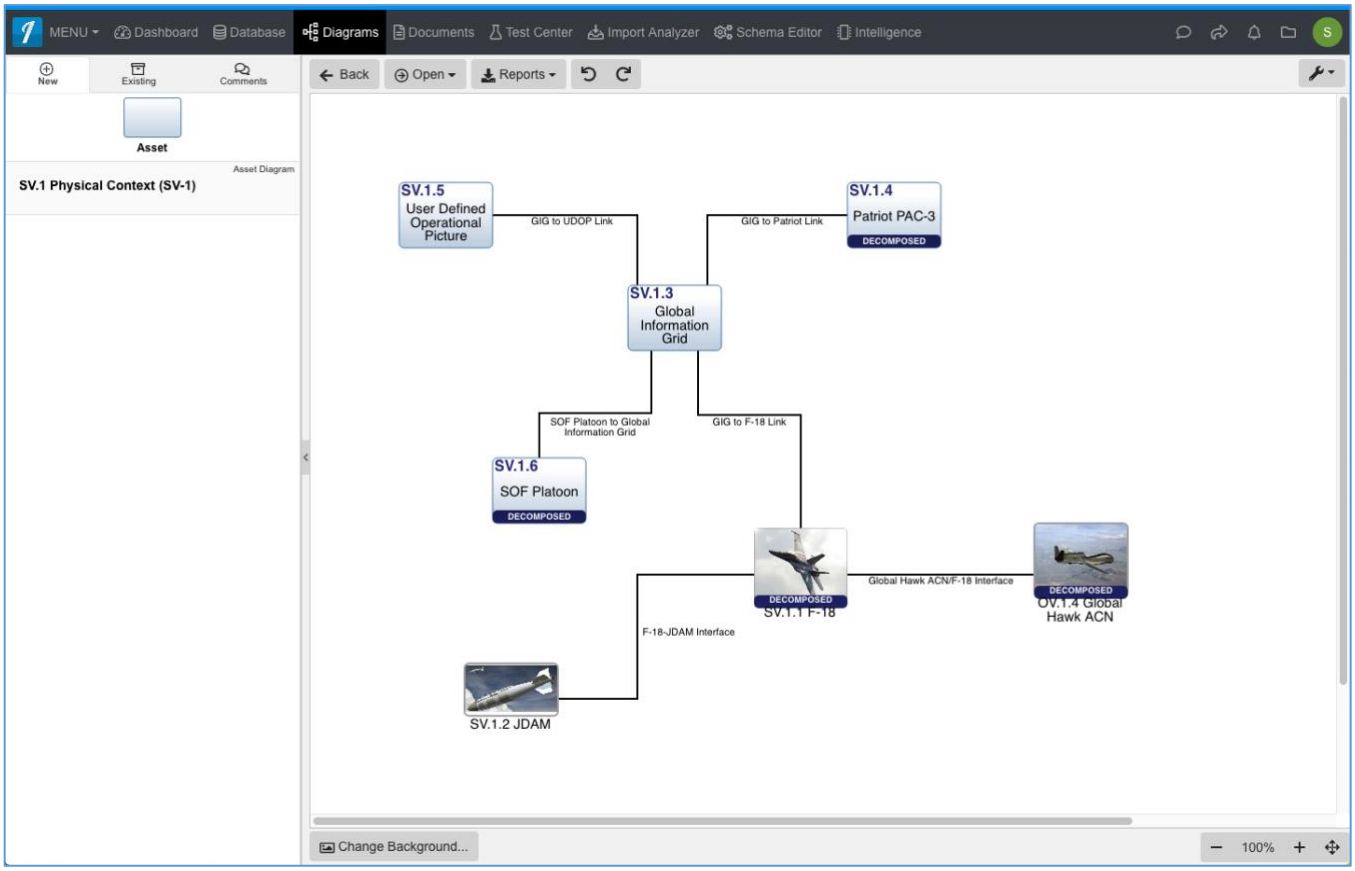


Figure 32. The Systems Interface Description uses Innoslate's Asset Diagram to show the systems (Assets) and their interfaces (Conduits).

SV-2: Systems Resource Flow Description

Note that this diagram is similar to the SV-1, except that it focuses on the communications mechanisms. As such, we now use the Innoslate Physical I/O Diagram for this view. Figure 33 shows an example of the SV-2. Note that there are solid lines and dashed lines in the diagram. The solid lines indicate Input/Output entities that connect the Assets.

SV-2 Screenshot:

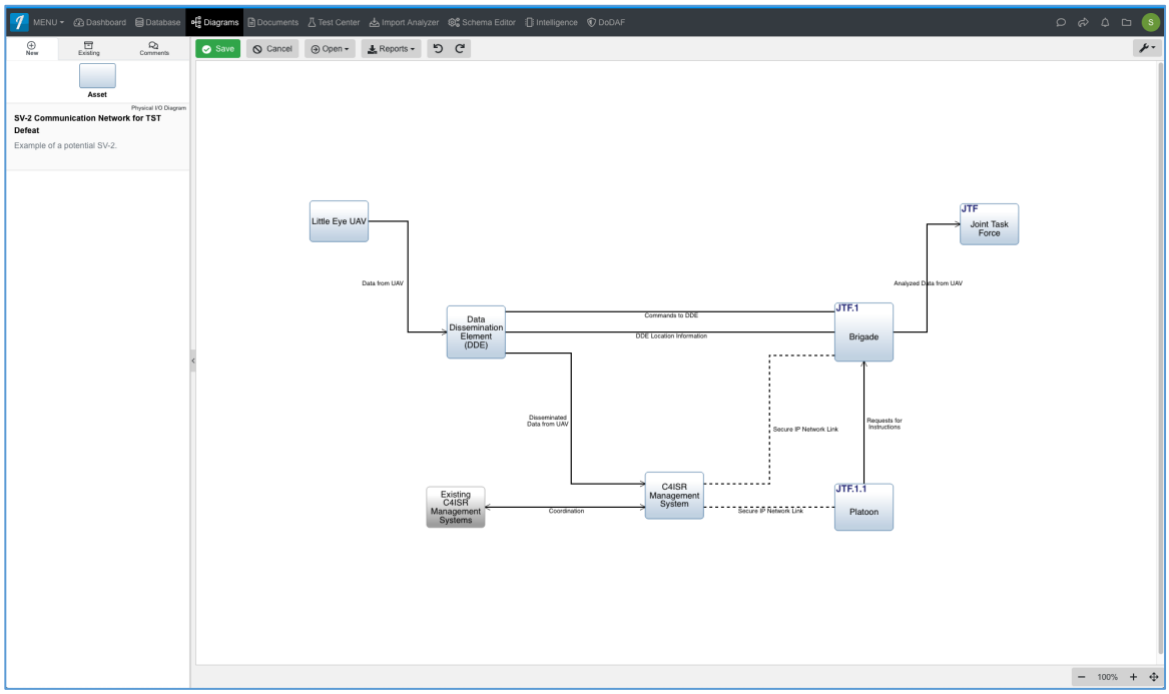
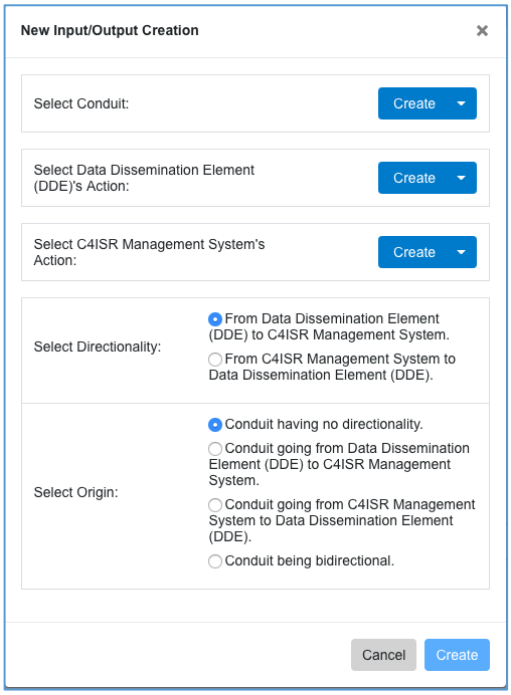


Figure 33. The Systems Resource Flow Description uses Innoslate's Physical I/O Diagram to show the systems (Assets) and their data flows (Input/Output).



If you are using this diagram for the first time to connect the Assets with Input/Outputs (the green circle on the Asset box selected can be dragged to another Asset), it will pop-up a dialog to help you better define the other entities needed to complete the model. These entities are the Conduit that transfers the Input/Output, and the Actions that send and receive the Input/Output for each Asset (see example left).

The dashed lines are Conduits that have already been defined in another diagram, such as the Asset Diagram. To see just the Assets with the Conduits, select from the Open button the Asset Diagram and you will see in Figure 34. Here was were the Conduits were defined separately from the Physical I/O Diagram shown above.

Note that since you are defining Actions in this view, they can and should be used later in other DoDAF views, such as the SV-4.

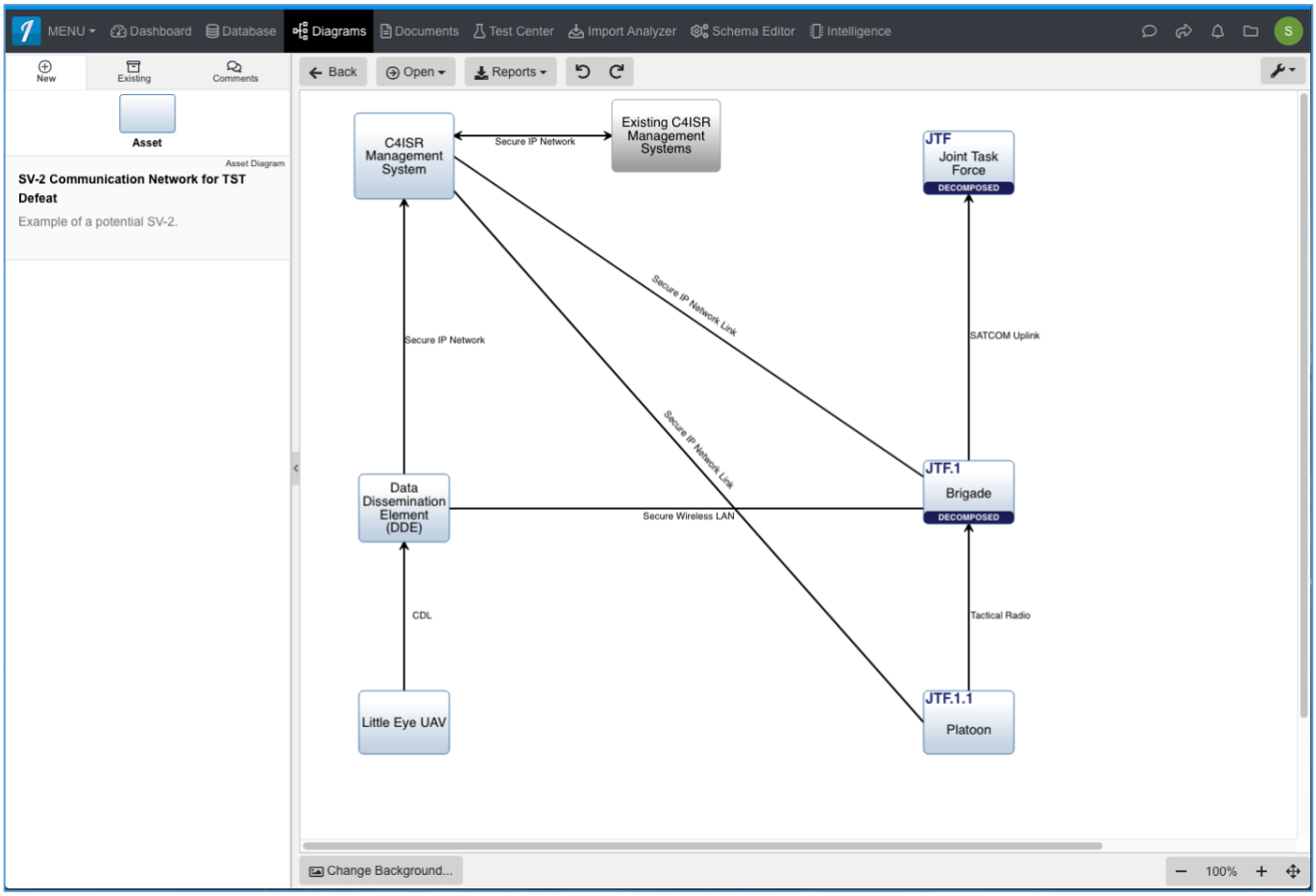


Figure 34. Innoslate's Asset Diagram provides a way to see only the Conduits for the system resource flows.

SV-3: Systems-Systems Matrix

The SV-3 shows the resource flow from System to System. Currently we are showing this as Physical I/O Diagram, but in a future release we will use the more traditional I2 (Interfaces squared) Diagram. The I2 Diagram has not been rewritten for Innoslate 4 at this time but will be available in a few months. Note that the information content will be essentially the same, only in a matrix form, not a diagram form. Figure 35 provides a notional example of the SV-1 converted to a Physical I/O Diagram. You can easily go back and forth with these diagrams by selecting the other diagram in the "Open" button.

SV-3 Screenshot:

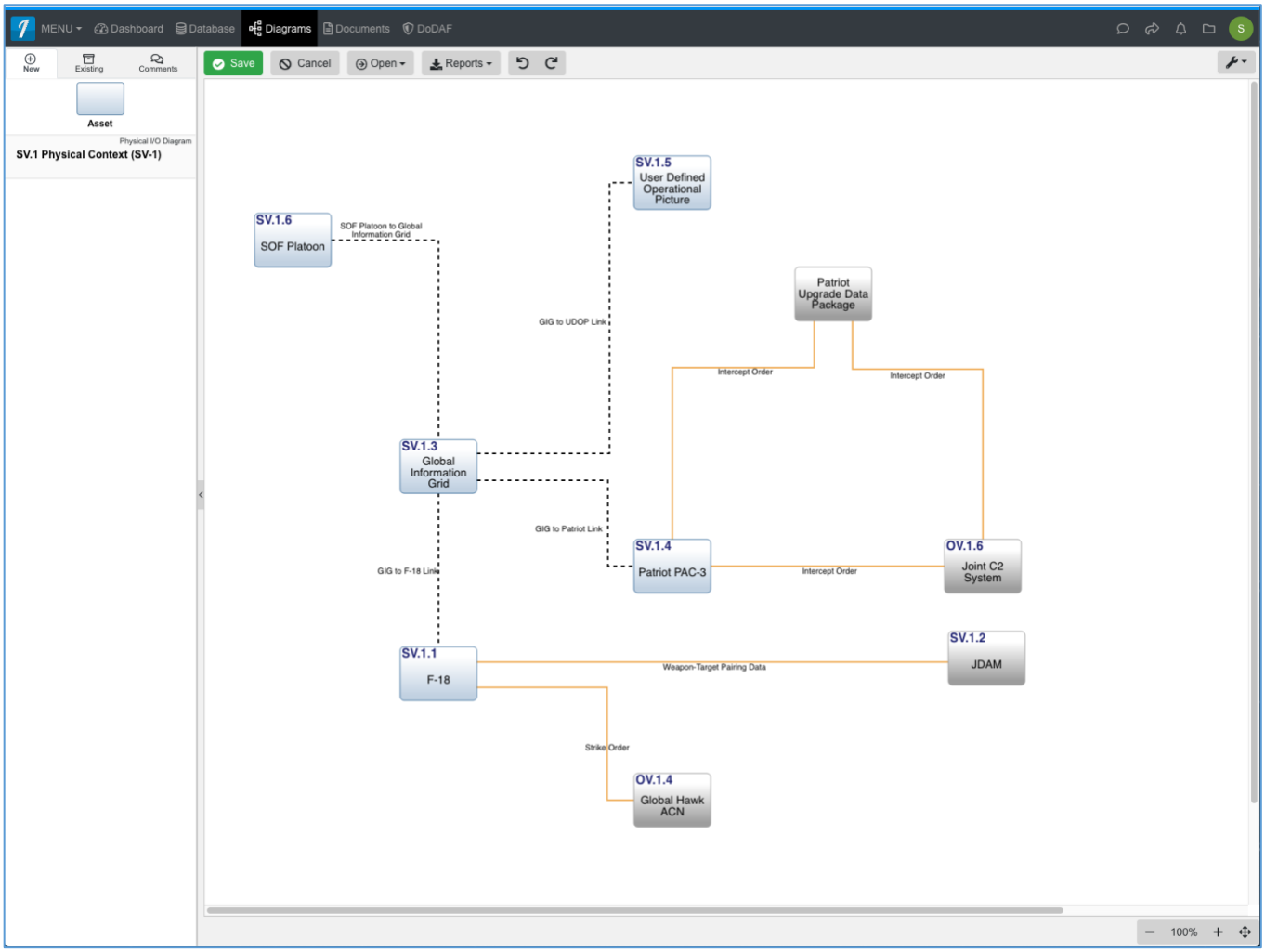


Figure 34. Innoslate's Physical I/O Diagram provides a temporary view of the SV-3 information.

SV-4a: Systems Functionality Description – Hierarchy Diagram

The SV-4a is shown in Figure 35 using Innoslate's hierarchy diagram. Note you can create this using a new root or from previous roots by applying labels.

SV-4a Screenshot:

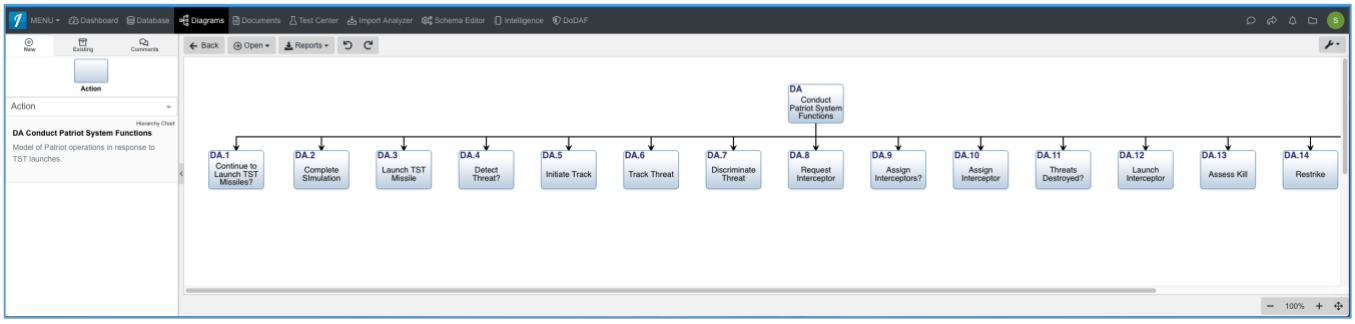


Figure 35. Innoslate's Hierarchy Diagram provides systems functionality decomposition.

SV-4b: Systems Functionality Description – Data Flow

The SV-4b is shown in Figure 36 using Innoslate's IDEF0 modeling diagram. This diagram includes a "Check" feature that provides the warning messages when the diagram does not meet the IDEF0 standard. See the discussion above on the OV-5b for an example of the warning messages.

SV-4b Screenshot:

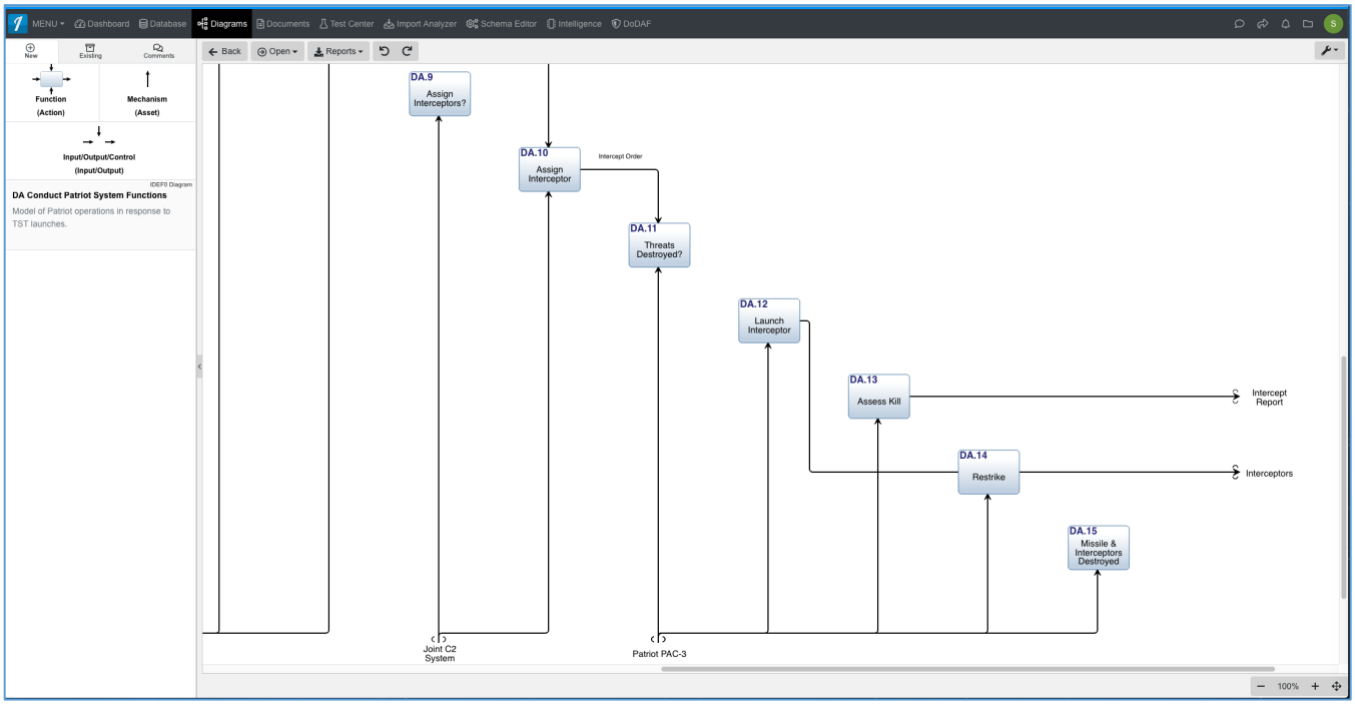


Figure 36. Innoslate's IDEF0 Diagram provides systems functionality data flows.

SV-4/SV-10c

A perhaps more useful way to view the activity model, is through the combined SV-4b and SV-10c, since in general the data flow between system functions and the sequencing of the system function depend on each other. In this view, you can also add resources and decision points can use built-in scripts to determine branching triggered by resource values. For example, if you wanted to keep track of missiles launched to model when you need to reload the launcher, this provides an easy way to model such situations. You can see the resources as purple hexagons in the example shown in Figure 37.

SV-4/SV-10c Screenshot:

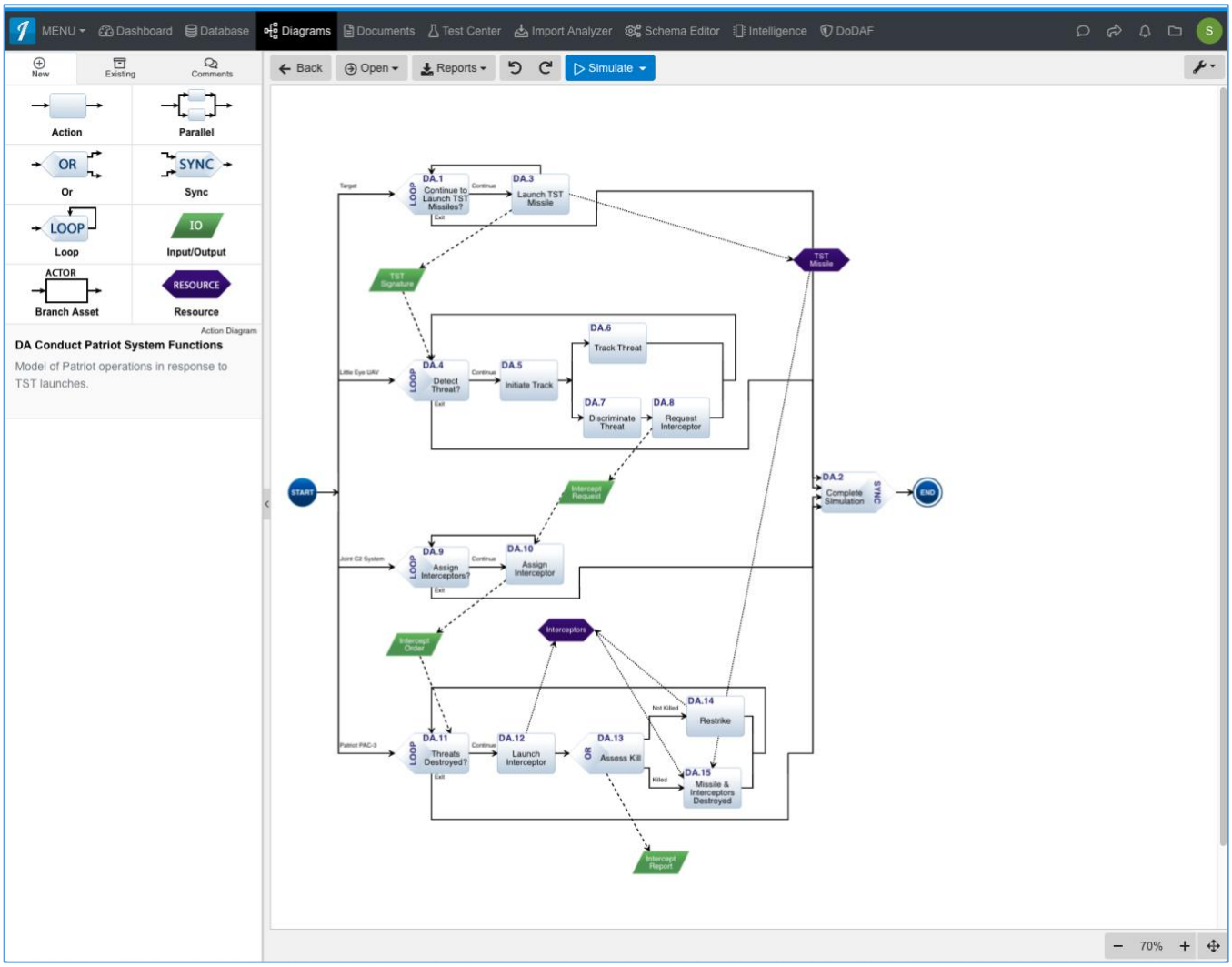


Figure 37. Innoslate's Action Diagram combines systems functionality sequencing and data flows.

SV-5a: Operational Activity to Systems Function Traceability Matrix

The SV-5a shows the mapping of operational activities to system functions. Note, when clicking the "X" in the box, Innoslate saves this information using the "decomposed by/decomposes" relationship. This relationship may or may not be what you want for the purposes of functional traceability and may conflict with other allocations. Be sure to view the information in other forms, such as Spider Diagram to ensure you have established the relationships you want. If you choose another relationship you will have to manually create this traceability diagram using that relationship. Figure 38 provides an example of the SV-5a matrix.

SV-5a Screenshot:

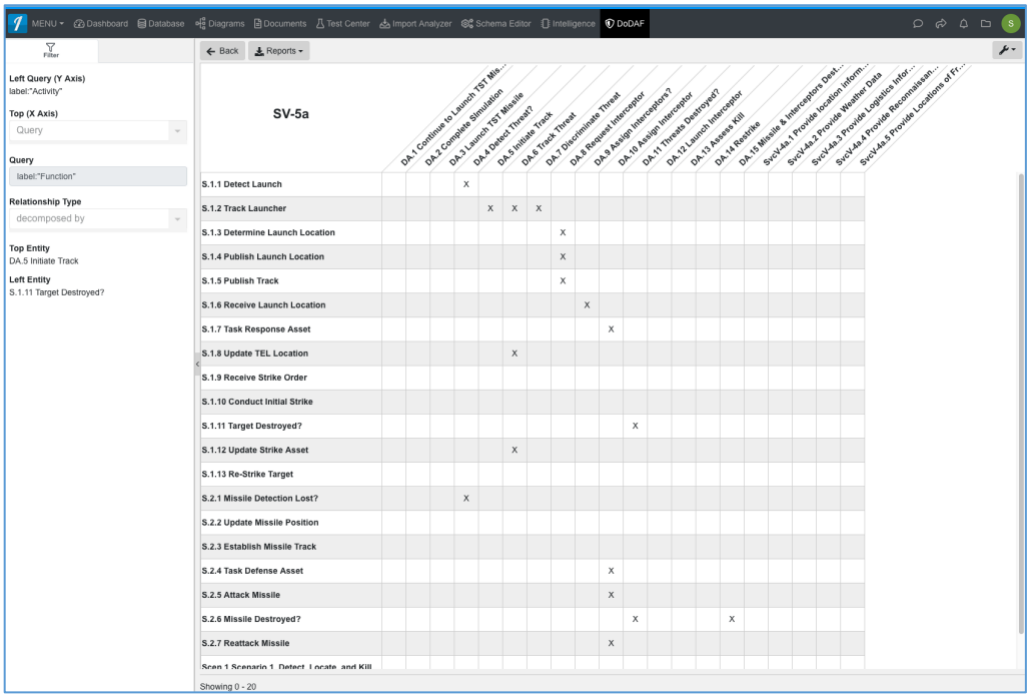


Figure 38. Innoslate's Traceability Matrix creates the decomposition relationship between operational activities and system functions.

SV-5b: Operational Activity to Systems Traceability Matrix

Similarly, to the SV-5a, this matrix shows the relationship between operational activities and the systems (performed by/performs). Figure 39 below provides an example of the SV-5b matrix.

SV-5b Screenshot:

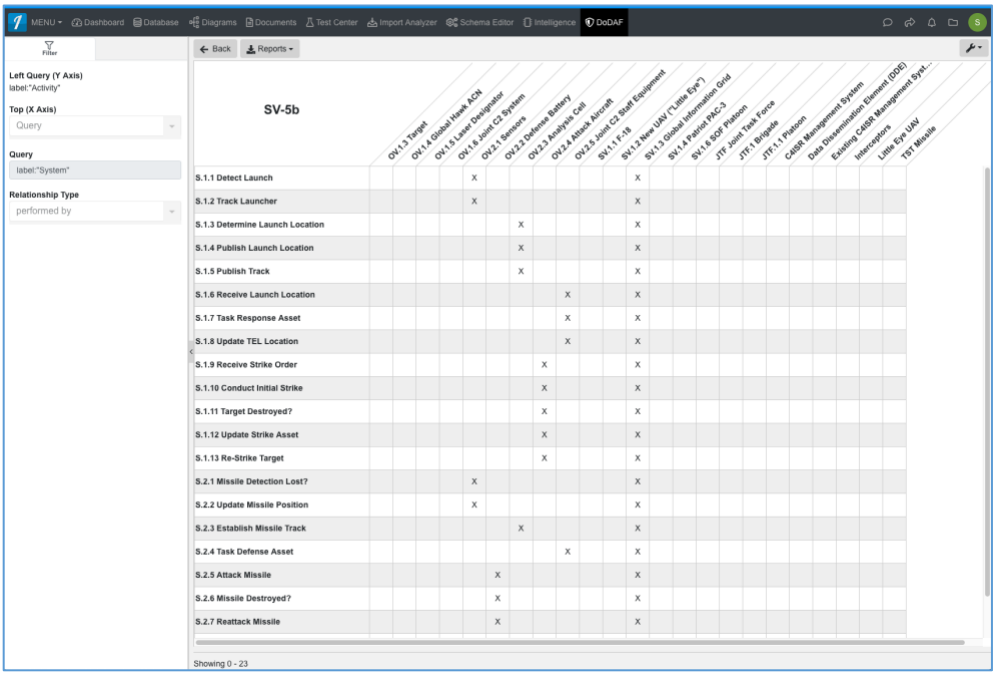


Figure 39. Innoslate's Traceability Matrix creates the "performed by" relationship between operational activities and systems.

SV-6: Systems Resource Flow Matrix

The SV-6, Systems Resources Flow Description, is completely new in Innoslate 4. It uses the Database View technology from Innoslate to provide an interactive table, which you can adjust and modify as desired. It builds from the SV-1 diagram by using the Conduits from that diagram as the first column of the table. The Input/Outputs associated with the Conduit from the information in the next 4 columns, which consists of the number, name, size, and units of the Input/Output entity. Input/Outputs are related to the Conduit through the "*transfers*" relationship, which can be seen on the sidebar when selecting a particular row. If you create relationships this way, you may have to refresh the browser to see these changes.

The next two columns show the number and name of the Action that generated the Input/Output entity. The two columns after that show the number and name of the Asset that performs the Action.

The last four columns show the Action and Asset that receive the Input/Output entity.

All these fields can be edited directly.

Note that this format is essentially identical for the OV-3/SvcV-6.

Figure 40 provides an example of the new SV-6.

SV-6 Screenshot:

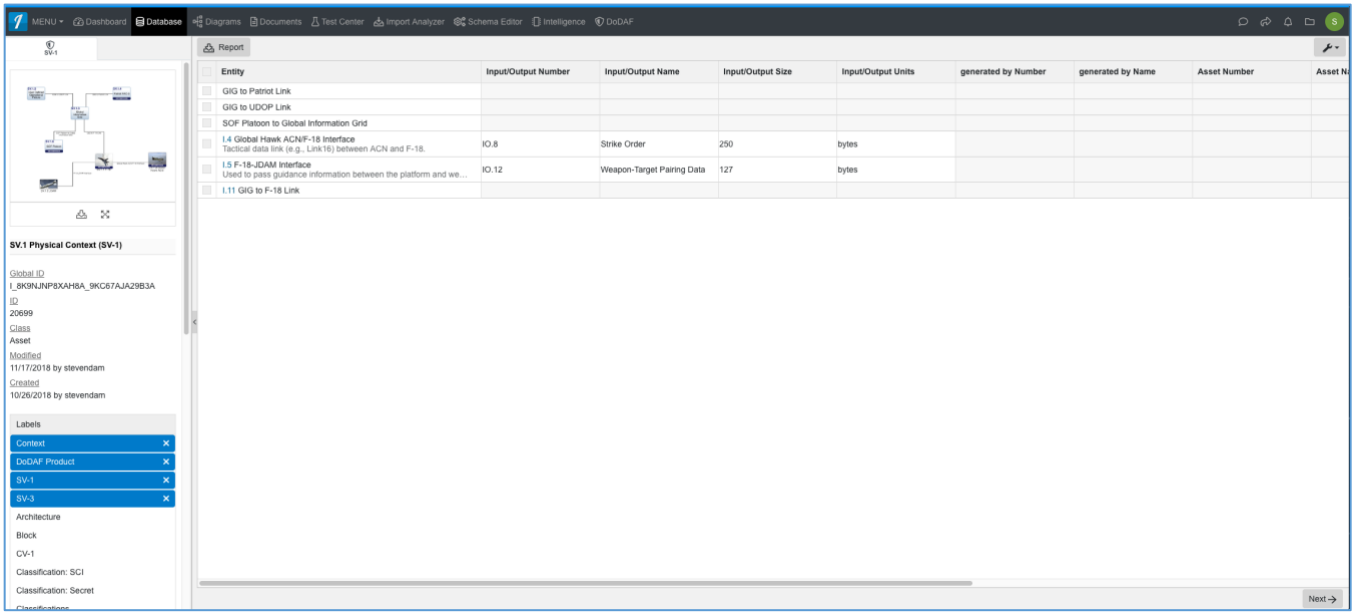


Figure 40. The Systems Resource Flow Matrix uses a special version of Innoslate's Database View, which was developed specifically for the relationships needed to show all the appropriate columns.

SV-7: Systems Measures Matrix

The SV-7 in Innoslate is also a matrix, but this time showing the relationship (specifies) between the Measures (KPPs, MOEs, MOPs, etc.) and the Systems. In this way you can relate the performance parameters with the systems. Note that you can view or modify the values of the measures at the same time as in Figure 41.

SV-7 Screenshot:

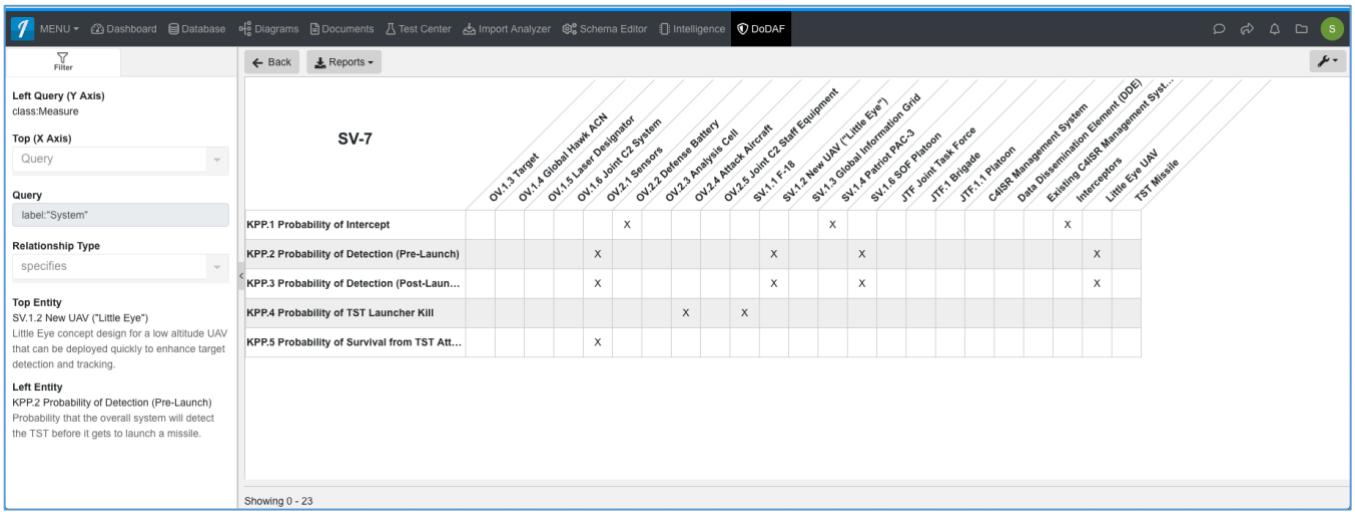


Figure 41. The Systems Measures Matrix uses Innoslate's Traceability Matrix to connect the metrics to the systems.

SV-8: Systems Evolution Description

This Innoslate Timeline Diagram provides a means to show how the system evolves over time. See Figure 42 for a notional example. Just add the milestones you want by dragging them onto the timeline, and then adjust the Start date/time. You can adjust the times by changing the date in the attributes tab (to the left of the diagram) or by dragging the milestone where you want it. Note the "Estimate Date" at the bottom shows you when the milestone occurs.

SV-8 Screenshot:

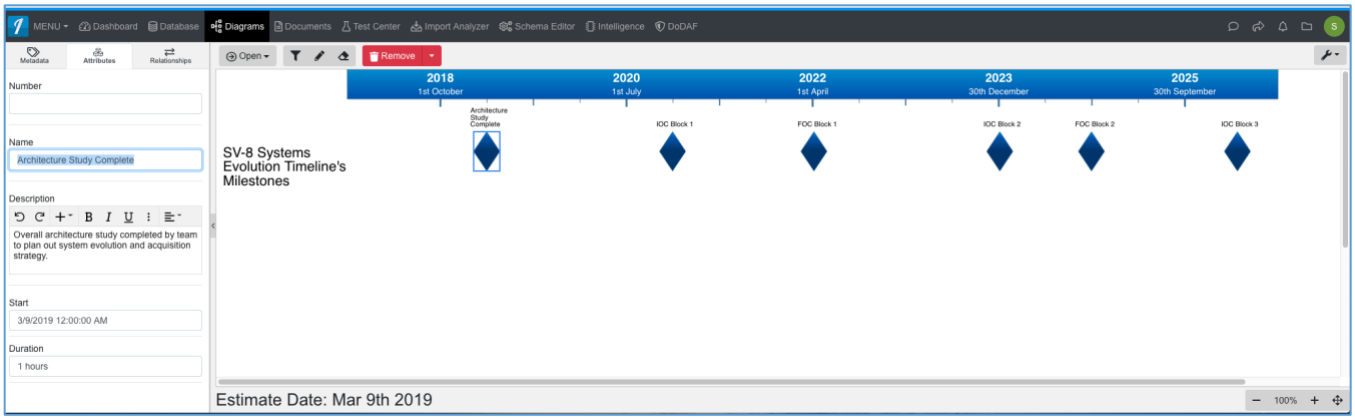


Figure 42. The Systems Evolution Description uses Innoslate's Timeline Diagram to capture the milestones for the system's evolution in time.

SV-9: Systems Technology & Skills Forecast

The SV-9 is another timeline diagram, which can show when the specific technology and skills are expected, as shown in Figure 43, for a particular system or for the overall architecture.

SV-9 Screenshot:

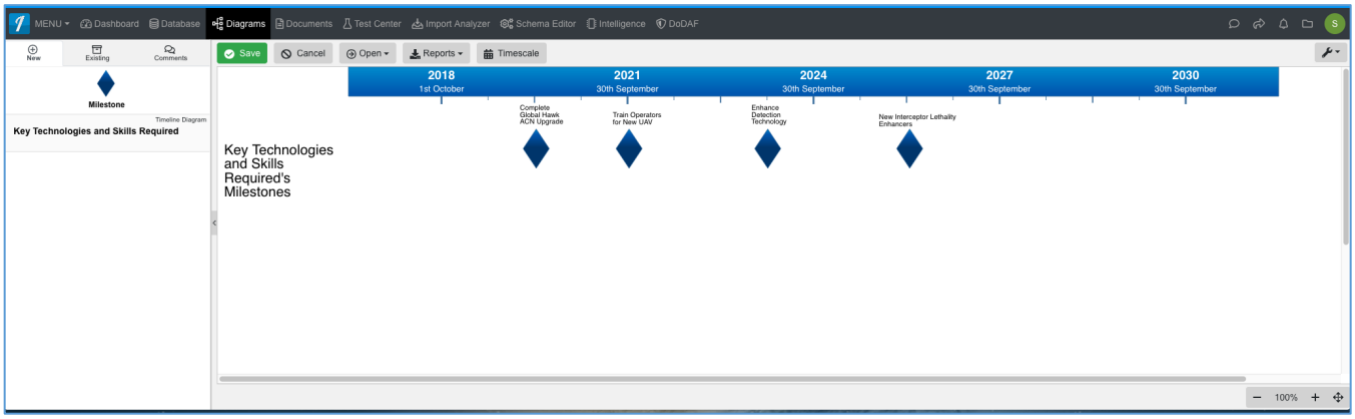


Figure 43. The Systems Evolution Description uses Innoslate's Timeline Diagram to capture the milestones for the system's evolution in time.

SV-10c: Systems Event-Trace Description

To provide the SV-10c, Innoslate uses the Sequence Diagram, an example of which can be seen below. This diagram works with all the other diagrams, drawing itself from the same data provided in the other models.

SV-10c Screenshot:

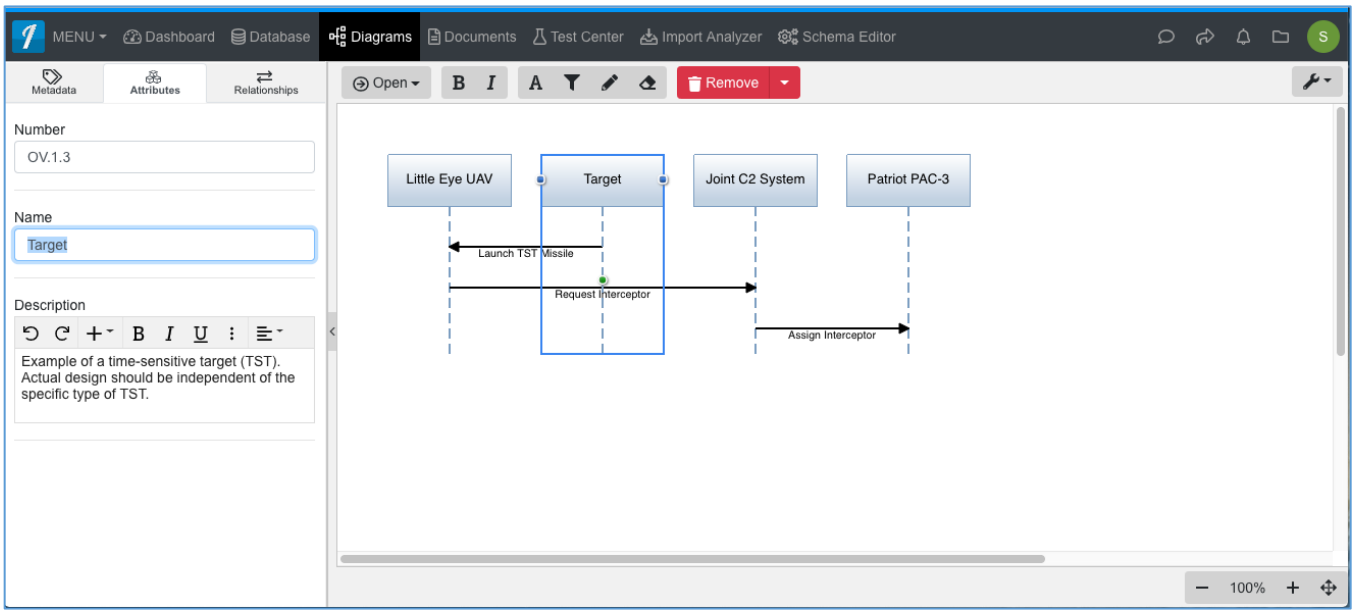


Figure 44. The Systems Event-Trace uses Innoslate's Sequence Diagram to show the activities that trigger systems.

Standards Viewpoint (StdV) Products

The Standards Viewpoint can articulate the applicable policy, standards, guidance, constraints, and forecasts required by JCIDS, DAS, System Engineering, PPBE, Operations, other process owners, and decision-makers. The specific StdV Products are discussed below.

StdV-1: Standards Profile

Innoslate provides the StdV-1 in the standard Database View, which means you can tailor this chart to match any specific needs. The default is to show the system or service and the related standards (Artifacts) using the "references" relationship. Figure 45 shows this view.

StdV-1 Screenshot:

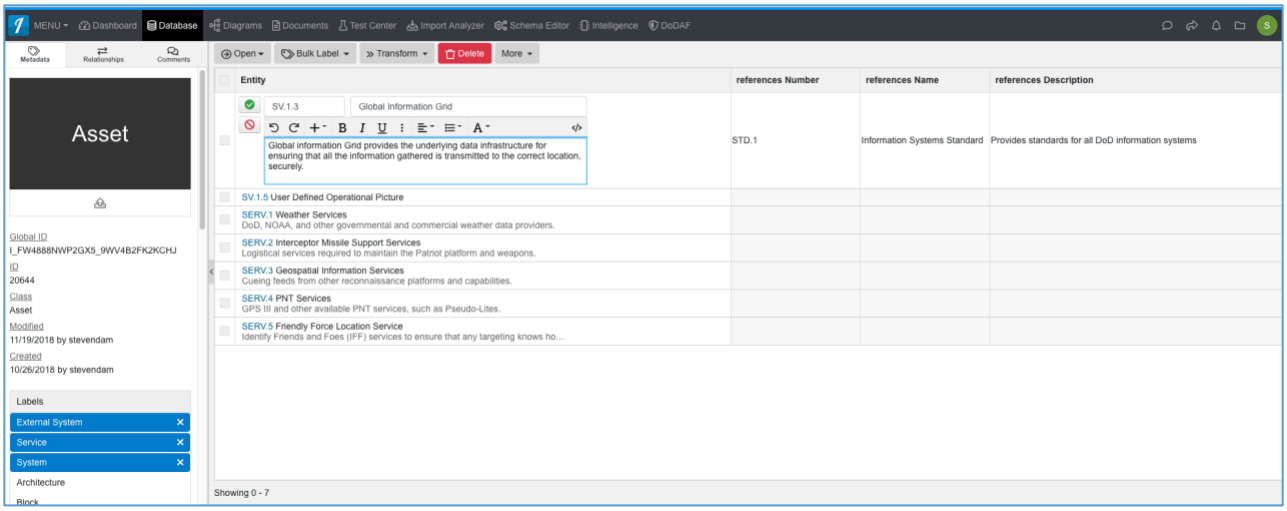


Figure 45. The Standards Profile uses Innoslate's Database View to show the systems and their related standards.

StdV-2: Standards Forecast

The final DoDAF product view, the StdV-2, is created in Innoslate using the Database View again. This time it includes the Time that the Standard occurs. This information can also be shown in a Timeline Diagram. Figure 46 shows an example.

StdV-2 Screenshot:

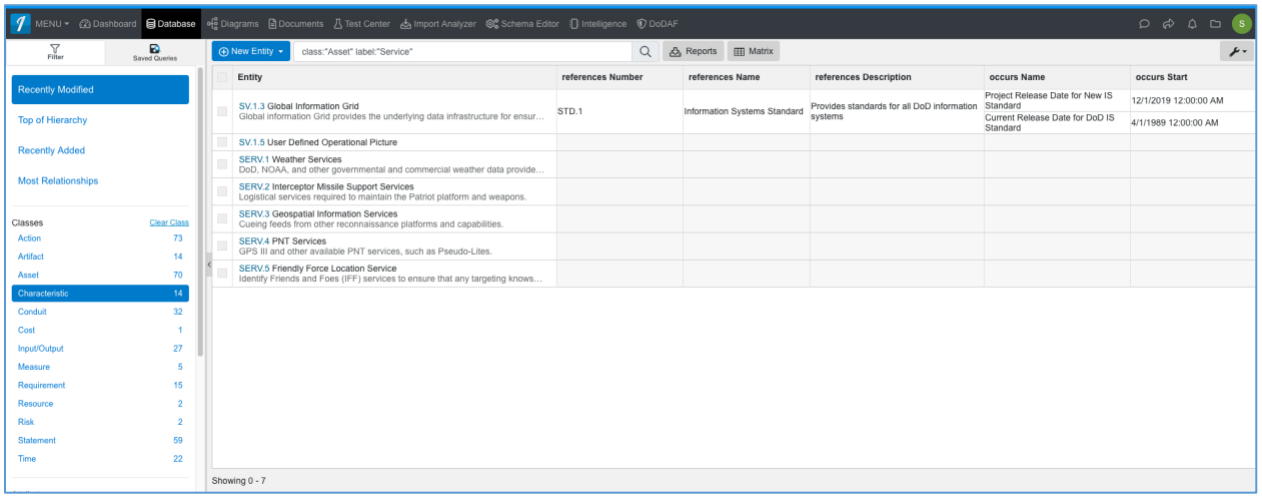


Figure 46. The Standards Forecast also uses Innoslate's Database View to show the systems, their related standards and when versions of those standards may occur.