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Using UAF to Build
An EA in System Architect

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System Architect®

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Contents

Overview

This workshop is an introduction to the practical application of Enterprise Architecture with the Unified Architecture Framework (UAF), version 1.2.

Introduction

An enterprise architecture is an important resource to consolidate, link, and analyze organizational information so that you can ‘ask it questions’ to strategize the future, and also understand how good the information is. An enterprise architecture is created by capturing different domains of the organization, including:

- Opportunities, missions, goals, strategies and tactics
- Operational Architecture – including Operational Activity models, business processes, and
- Information Systems: applications, services and data
- Technology infrastructures: networks, systems, and hardware components

Requirements

The workshop is dependent upon:

- UNICOM System Architect v 11.4.12 and upwards

You will use UNICOM System Architect to define and exploit the enterprise architecture architecture.

Important!

If you encounter problems during the course of this lab, please call the attention of the workshop instructor or any of the lab assistants.

YOUR MAIN OBJECTIVES ARE TO

- Begin an EA effort by consolidating key sources of record and "asking the architecture questions."
- Understand how an assessment of the business yields requirements for new Capabilities, which can be implemented by Operational Activities and Operational Performers, and Systems and System Functions. We'll also look at the Roadmap of new Systems.

ICONS

The following symbols appear in this document at places where additional guidance is available.

Icon	Purpose	Explanation
	Important!	This symbol calls attention to a particular step or command. For example, it might alert you to type a command carefully because it is case sensitive.
	Information	This symbol indicates information that might not be necessary to complete a step, but is helpful or good to know.
	Trouble-shooting	This symbol indicates that you can fix a specific problem by completing the associated troubleshooting information.
	Import	This symbol indicates importing information into the repository.

Lab Preparation

1. Make sure **UNICOM** System Architect 11.4.12 or later is installed.
2. Download the UAF_Workshop.zip file, unzip it, and make sure the UAF_Workshop folder is available on the desktop.

Open the EA Repository

Objectives of this Section:

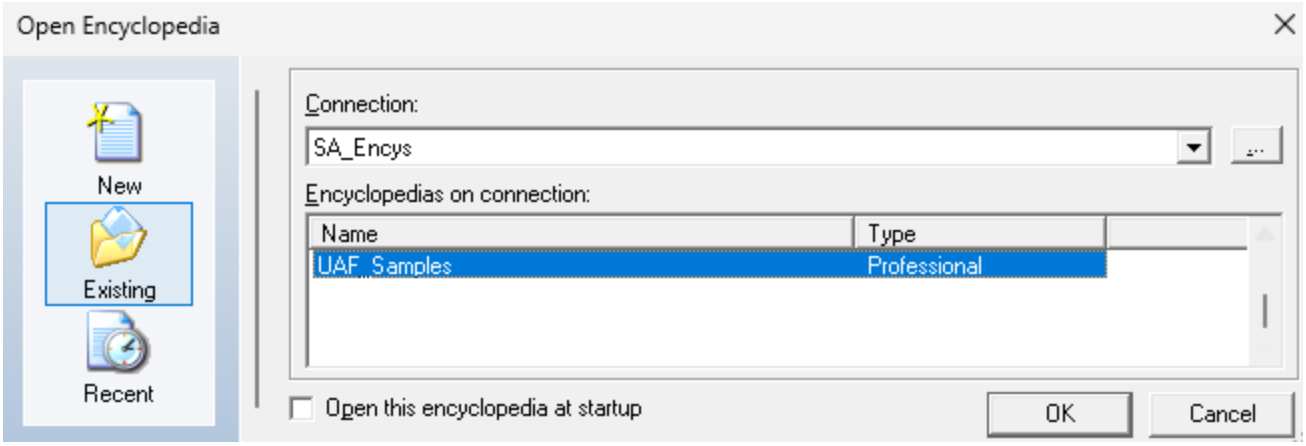
- Understand what the underlying technology the EA is stored in
- Open an 'encyclopedia' for UAF that System Architect ships with. It is the EA Repository

An encyclopedia is the name **UNICOM System Architect** uses for the enterprise architecture. It is a database on Microsoft SQL Server. The encyclopedia includes all components of your enterprise architecture, namely, the diagrams, symbols, and definitions that make up your architecture, and references to any external documents or internal documents.

Open the UAF_ Samples 'Encyclopedia'

3. In UNICOM System Architect, select **File**, **Open Encyclopedia**, or click upon the **New or open an existing encyclopedia** icon on the toolbar.

4. In the **Open Encyclopedia** dialog, for the **Connection** property, choose the existing server connection from the drop-down list. The connection serves as a pointer between the server and the encyclopedia (database) that you are creating.
5. Select the **Existing** button on the left.



6. Of the Encyclopedias listed, find and select the **UAF_Samples** encyclopedia and select **OK**. The encyclopedia will open.

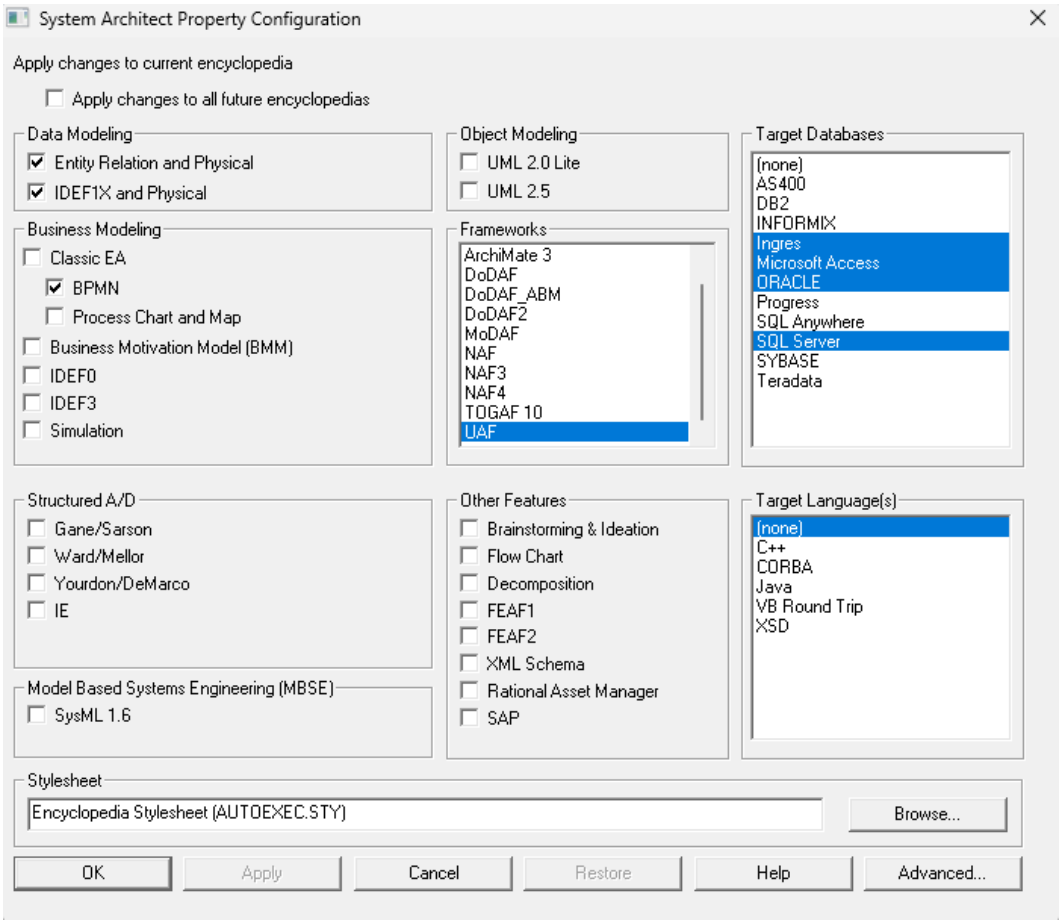
Establish Metamodel

Objectives of this Section

In this section we will:

- Examine what Framework and Methods are turned on
- Understand how to customize the metamodel

1. Select Tools, Customize Method Support, Encyclopedia Configuration. The System Architect Property dialog opens.



Framework and Methods Turned On

2. Notice that:
   - UAF is selected as the Framework.
   - For Data Modeling, Entity Relation, Physical, and IDEF1X are all selected.
   - For Business Modeling, BPMN is selected.
   - A number of Target Databases are selected – including Oracle and Microsoft SQL Server.

- A number of methods are not turned on – including UML 2.0 Lite, UML 2.5, sysML 1.6, Brainstorming, or any of the Structured Analysis/Design techniques.

You can at any time come into this dialog and select/unselect methods – then reopen the encyclopedia for the changes to take effect. The one thing you cannot change is the Framework, as each framework has an extensive metamodel, and you cannot simply flip from one to another.

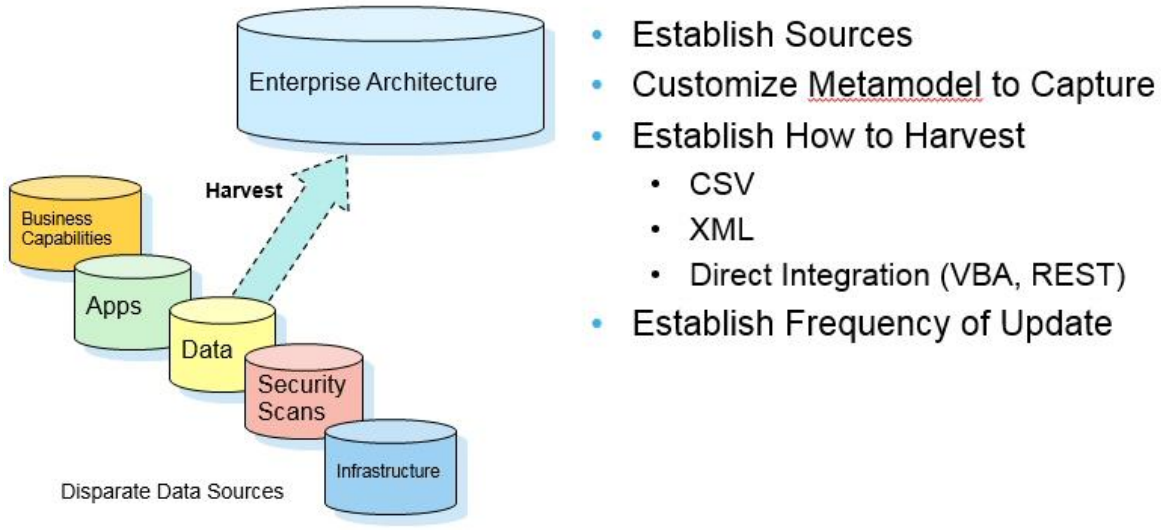
The only exception is that an encyclopedia built with DoDAF 2 can be flipped to UAF; proper renames are done and the metamodel is extended for UAF upon encyclopedia reopen – as long as you have made appropriate modifications to your usrprops – which we take a look at in the next section.

Add Metamodel Changes

We want to capture the following for our organization:

- Analysis of Capabilities
- Portfolio Management information for Systems

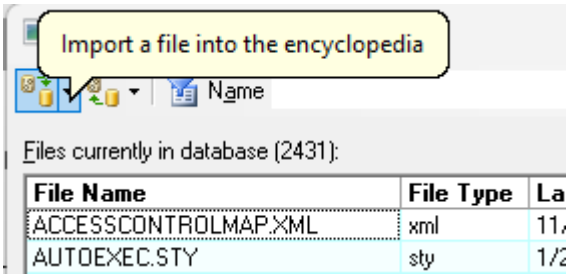
System Architect is renowned for its feature of allowing users to easily customize the metamodel to great breadth and depth. This allows information from sources of record to “have a place to land” upon automatic import into the EA repository, and also allows addition of properties for analysis of all kinds. Metamodel additions or changes are done in a file called Usrprops.txt.



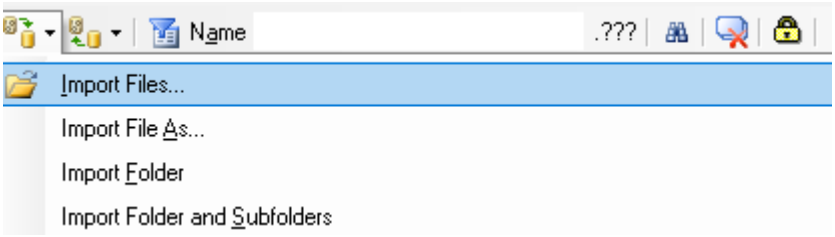
Import Usrprops File to Modify Metamodel

IMPORT CUSTOM IMAGES INTO REPOSITORY

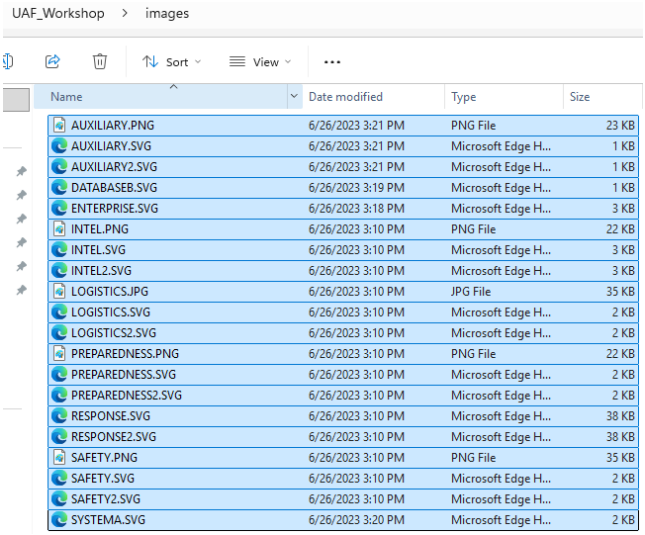
1. In System Architect, select Tools, File Manager, and in the dialog that opens, select the button on the left-most side that says “Import a file into the encyclopedia” when you hover over it.



2. From the drop-down list, select Import Files – and navigate to the UAF_Workshop\images directory that you have downloaded and unzipped.



3. Use your Shift key to multi-select all of the files in the UAF_Workshop\images directory, and import them into the encyclopedia.



IMPORT USRPROPS.TXT INTO REPOSITORY

4. Select Customize User Properties, Import USRPROPS.TXT (Encyclopedia).
5. Browse to and select the USRPROPS.TXT file provided in the Desktop\UAF_Workshop directory, and import it.

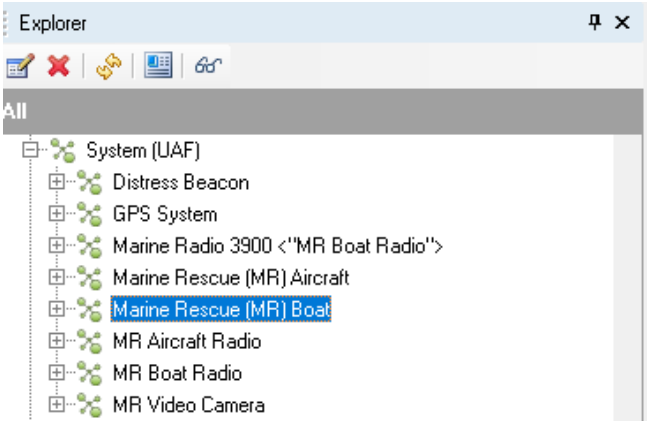
IMPORTANT:

6. **Reopen the encyclopedia** for the changes to take effect – select File, Open Encyclopedia, and reselect the UAF_Samples encyclopedia, then select OK.

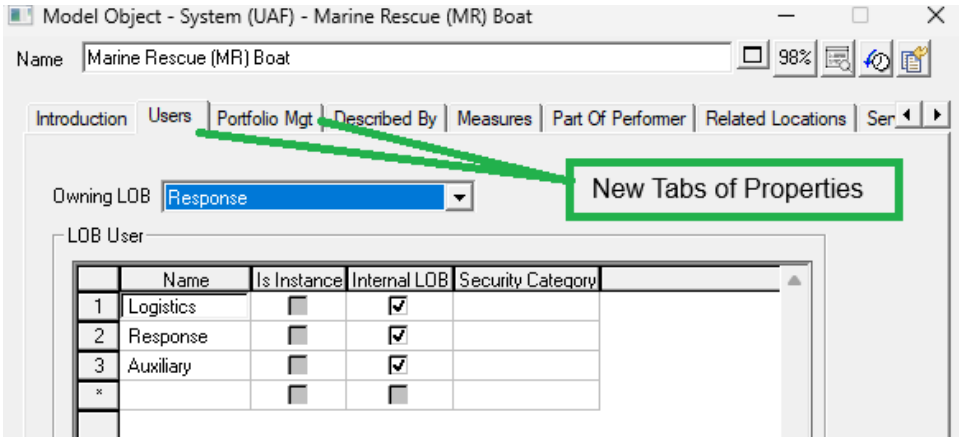
System Portfolio Management Properties

We have added custom properties for the System (UAF) definition to do Portfolio Analysis.

7. In the Explorer tree on the left, expand Definitions, and expand the System (UAF) definition type.
8. Find and open (double click or right-mouse click, Edit) the Marine Rescue (MR) Boat definition.



9. Note that the usrprops.txt added 2 new tabs to the System (UAF) definition type:



Users

These new properties will allow us to specify what Line of Business (or organization) owns the system, and what Lines of Business (or organizations) use the system.

Portfolio Management

These new properties will allow us to import spreadsheets from the IT department to automatically populate the properties with values.

We can also use the properties to do analysis.

For Portfolio Management, the IT dept captures:

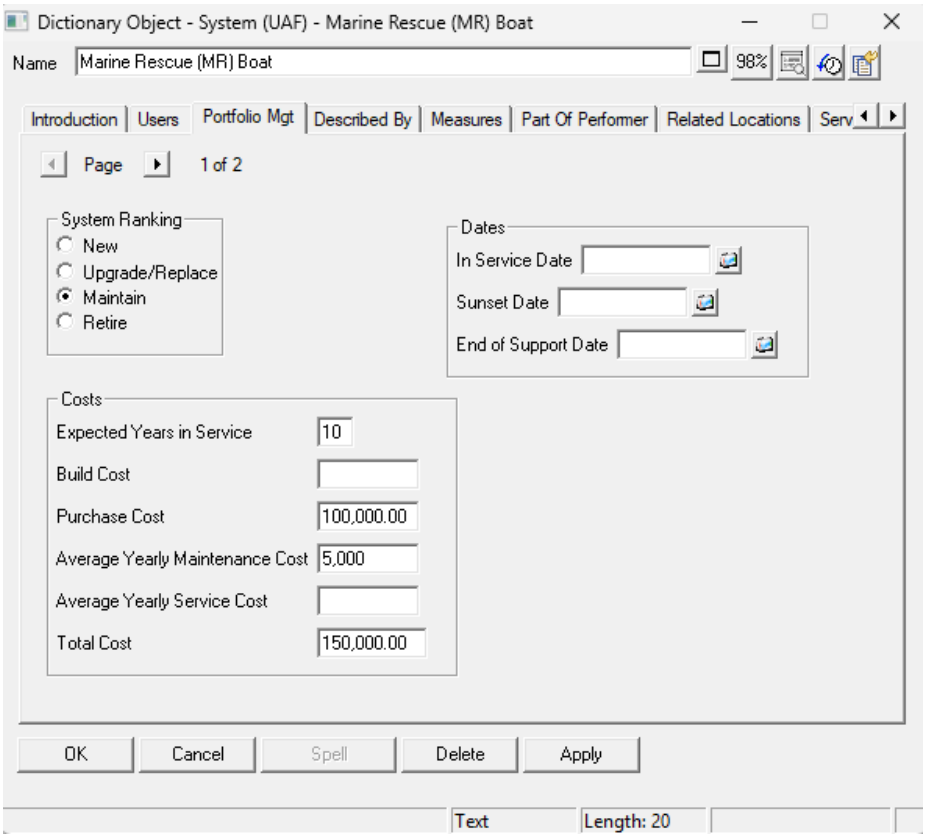
- In Service Date of the App
- Sunset Date of the App
- End of Support Date

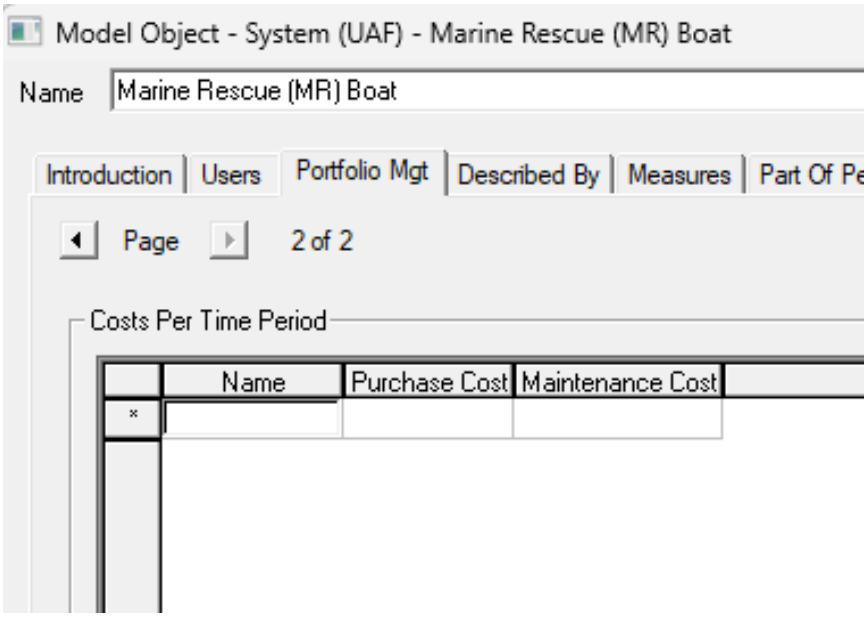
Costs:

- Expected Years in Service
- Build Cost
- Purchase Cost
- Average Yearly Maintenance Cost
- Average Yearly Service Cost
- Total Cost

Cost Per Time Period:

- A list of the “System Time Period” definition, within which we capture Purchase Cost and Maintenance Cost per time period (per Year for example)

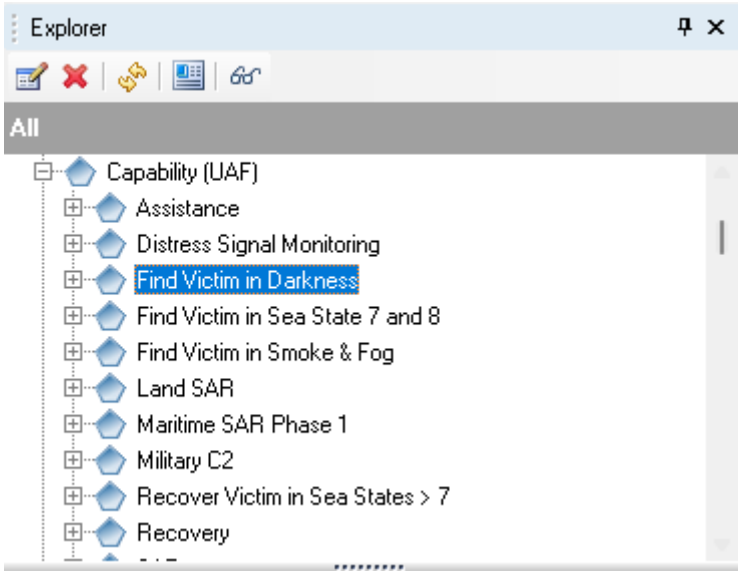




Capability Analysis Properties

We have added custom properties for the Capability (UAF) definition to do Capability Analysis.

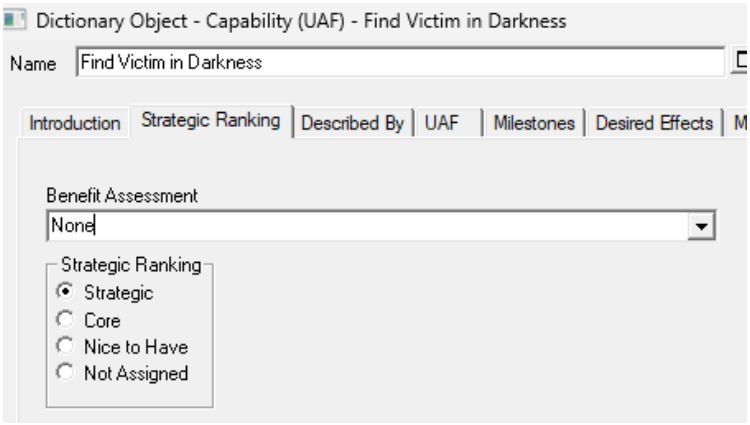
1. In the Explorer tree on the left, expand Definitions, and expand the Capability (UAF) definition type.
2. Find and open (double click or right-mouse click, Edit) the Find Victim in Darkness definition.



Capability Analysis

Note that the usrprops.txt we imported created the Strategic Ranking tab, with properties. The following is being captured:

- Benefit Assessment
- Strategic Ranking



Examine the Usrprops

The custom properties above were added by importing the USRPROPS.TXT file and reopening the encyclopedia.

1. You can optionally open the USRPROPS.TXT file in the UAF_Workshop directory on your desktop in Notepad or similar text editor, and examine it -- correlating the USRPROPS code to the changes to the metamodel shown above. It is a very easy and powerful language to use.

A new definition type and diagram type are created by renaming “User” types:

```
RENAME DEFINITION "User 102" to "System Time Period"
Rename Diagram "User 4" to "Capability Map (UAFx)"
```

The next section calls out re-usable value lists, used in the ensuing code:

```
LIST "Strategic Ranking"
    {
    VALUE "Strategic"
    VALUE "Core"
    VALUE "Nice to Have"
    VALUE "Not Assigned"
    }

LIST "Benefit Assessment"
{
    value "None"
    value "Transformational/High Benefit"
    value "Moderate Benefit"
    value "Low Benefit"
}
```

2. Note the Definition “System (UAF)” code specifies the new tabs (Chapters) of properties. A Chapter_Order command at the top specifies the ordering of the tabs.

The System (UAF) definition is extended:

```
Definition "1377" // "System (UAF)"
{
    Chapter_Order {"Introduction", "Users", "Member of Organizations", "Portfolio Mgt"}

    Chapter "Introduction"
    Property "System Kind" {Edit Text ListOnly List "System Kind"}

    Chapter "Users"
    LAYOUT { ALIGN BODY TAB COLUMNS 2 }
    Property "Owning LOB" {Edit Text ListOnly List "Lines of Business"}
    Property "LOB User" {Edit ListOf "Organization (UAF)" Length 8000 ASGRID}

    CHAPTER "Portfolio Mgt"
    LAYOUT { COLS 2 TAB ALIGN OVER }
    PROPERTY "System Ranking" { EDIT TEXT LISTONLY LIST "System Ranking" DEFAULT "Maintain" LENGTH 20 ZOOMABLE}

    GROUP "Dates"
    {
    LAYOUT { COLS 2 TAB ALIGN OVER }
    PROPERTY "In Service Date" { EDIT Date LENGTH 10 }
    PROPERTY "Sunset Date" { EDIT Date LENGTH 10 }
    PROPERTY "End of Support Date" { EDIT Date LENGTH 10 }
    }

    GROUP "Costs"
    {
    LAYOUT { COLS 2 TAB ALIGN OVER }
    PROPERTY "Expected Years in Service" { EDIT Numeric LENGTH 3 }
    PROPERTY "Build Cost" { EDIT Text LENGTH 12 }
    PROPERTY "Purchase Cost" { EDIT Text LENGTH 12 }

    PROPERTY "Average Yearly Maintenance Cost" { EDIT Text LENGTH 12 }
    PROPERTY "Average Yearly Service Cost" { EDIT Text LENGTH 12 }
    PROPERTY "Total Cost" { EDIT Text LENGTH 15 }
    }

    PROPERTY "Costs Per Time Period" {ZOOMABLE EDIT  COMPLETE ListOf "System Time Period" KEYED BY {"System Name":"Name", Name }
            LENGTH 4096 ASGRID   }

}
```

3. Note the “Capability (UAF)” code specifies the new “Strategic Ranking” tab for the Capability definition type. A Chapter_Ordering command at the top

The Capability (UAF) definition type is extended:

```
Definition "1327" // "Capability (UAF)"
{
    Chapter_Order {"Introduction", "Strategic Ranking"}
    CHAPTER "Strategic Ranking"
    LAYOUT { COLS 2 TAB ALIGN OVER }
    PROPERTY "Strategic Ranking" { EDIT TEXT LISTONLY LIST "Strategic Ranking" DEFAULT "Core" LENGTH 20 ZOOMABLE}
    Property "Benefit Assessment" {edit text list "Benefit Assessment" default "None"}
}
```

specifies that it should come right after the tab “Introduction”.

4. Note the new diagram type, Capability Map (UAFx) is called out initially by the code “Rename Diagram “User 4” to “Capability (UAFx)” and then specified later on – the symbol “Capability Map (UAFx)” is assigned to it, as is the relationship “CapabilityPartofActivity (UAFrx)” with the EmbeddedBy command.

A new Capability Map (UAFx) diagram type is specified:

```
DIAGRAM "Capability Map (UAFx)"
{
}

SYMBOL "Capability (UAF)"
    {
    Assign To "Capability Map (UAFx)"
    }

SYMBOL "CapabilityisPartOfCapability (DM2rx)"
    {
    Assign To "Capability Map (UAFx)" EMBEDDEDBY
    }
```

Strategic Viewpoint

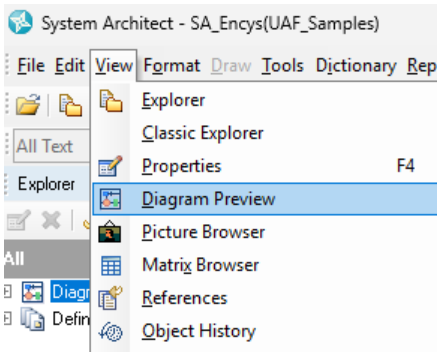
Goals of this Lab:

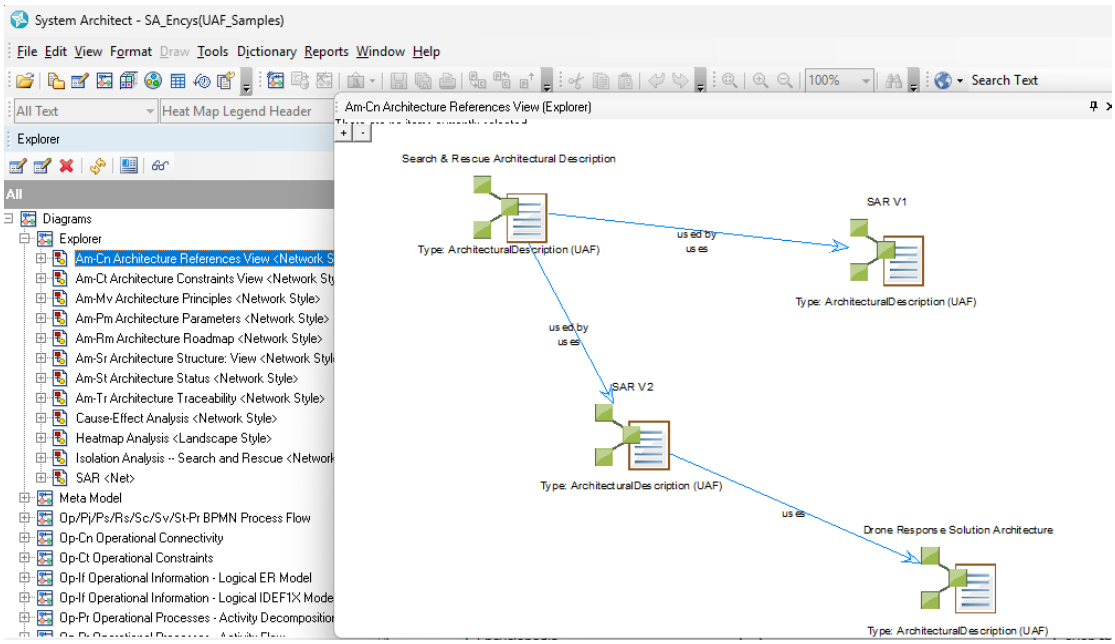
- Navigate UAF Models -- Utilize the UAF Framework viewer
- Navigate UAF Models -- Cursor Diagrams with Diagram Preview
- Understand the UAF Strategic Viewpoint
- Examine Goals, Opportunities, and Drivers
- Examine the Capability Viewpoint Specification
- Import information into System Architect using XML
- Learn System Architect drawing features as you go

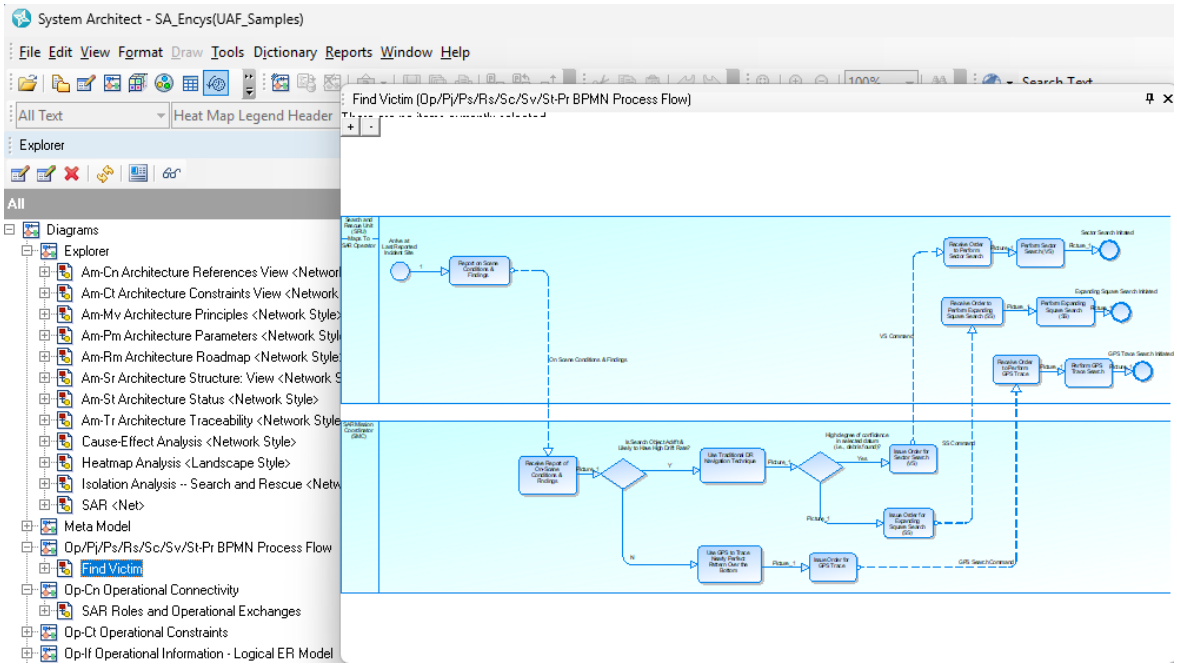
Navigate Models Using Diagram Preview

System Architect's Explorer tree on the left-hand side enables you to explore the architecture's diagrams and definitions..

1. Select **View, Diagram Preview**.
3. Expand the **Diagrams** header in the Explorer tree, and then expand some of the diagram types below it. As you select each diagram you will get a quick preview of what the diagram looks like.





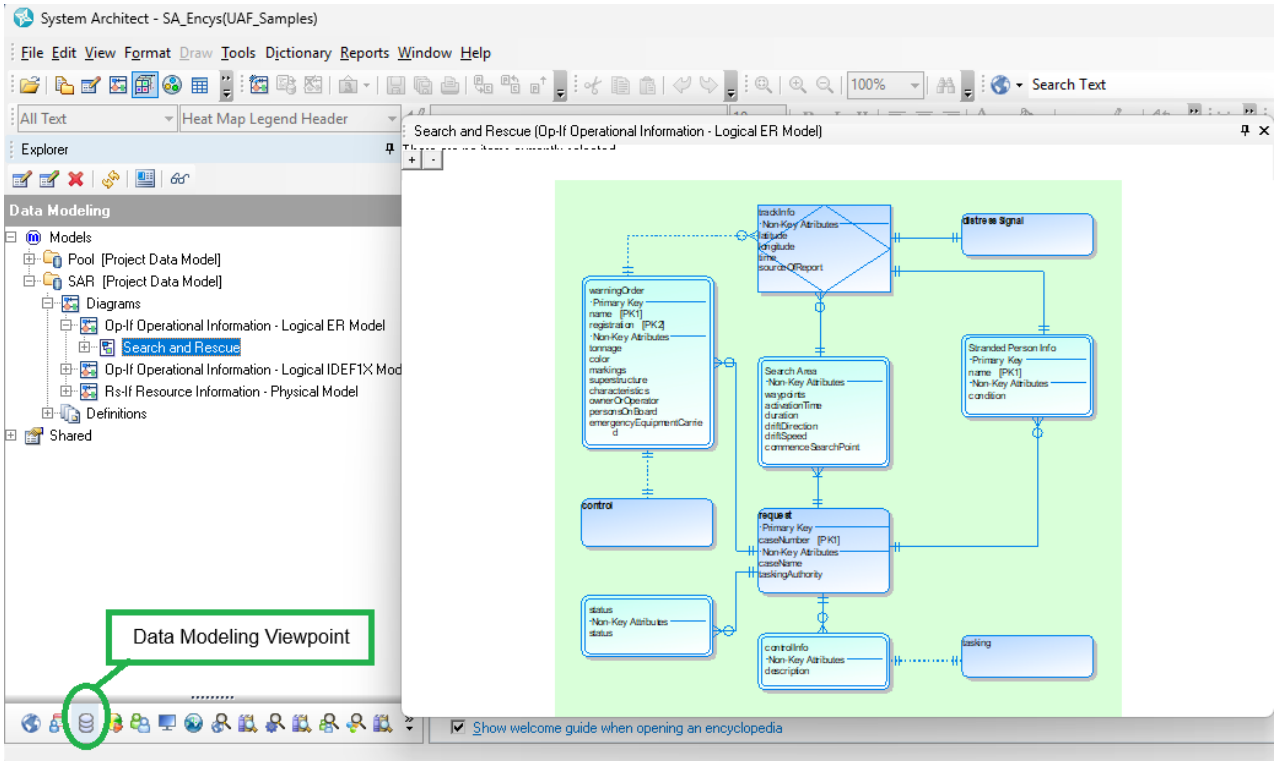


Use the Tabs at the Bottom of the Explorer Tree

4. Note that at the bottom of the Explorer tree there are buttons that provide different viewpoints of the architecture.
5. Hover over the buttons – a popup will tell you what the name of the Viewpoint is.
6. Click on the Data Modeling button, and

view that filtered Explorer tree.

7. Navigate to the Op-IF Operational Information View – which is a logical ER diagram.



Navigate Models Using UAF Framework Viewer

System Architect provides a Framework Viewer for major EA frameworks such as the Unified Architecture Framework (UAF). The Framework Viewer enables you to open specific diagrams and definitions that have been categorized by a given framework.

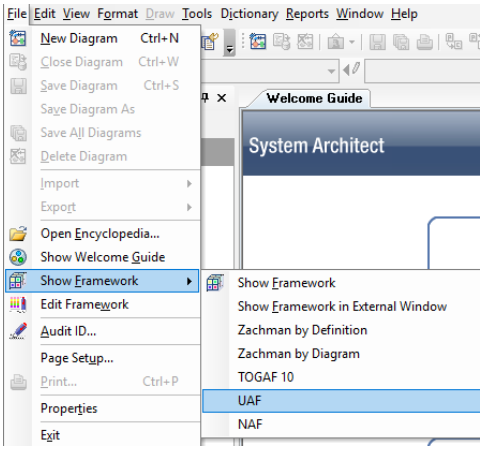
UAF specifies a framework that has:

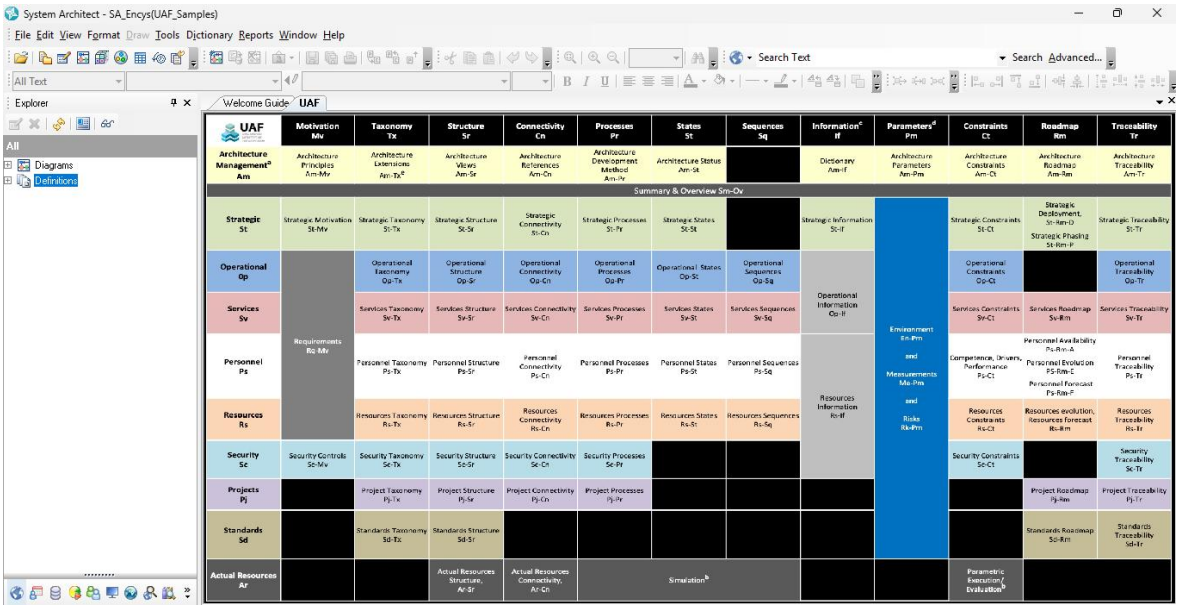
- **Viewpoints** represented by **columns** (Motivation, Taxonomy, Structure, Connectivity, Processes, States, Sequences, Information, Parameters, Constraints, Roadmap, and Traceability
- **Aspects** represented by **rows** (Strategic, Operational, Services, Personnel, Resources, Security, Projects, Standards, and Actual Resources)
- **View Specifications** (sometimes shortened to '**Views'**) as the intersecting cells

The UAV Framework viewer in System Architect brings the UAF Framework graphic to life.

1. Select **File, Show Framework, UAF**.

   The UAF Framework viewer opens. It is another interface for viewing and opening diagrams and definitions in System Architect.

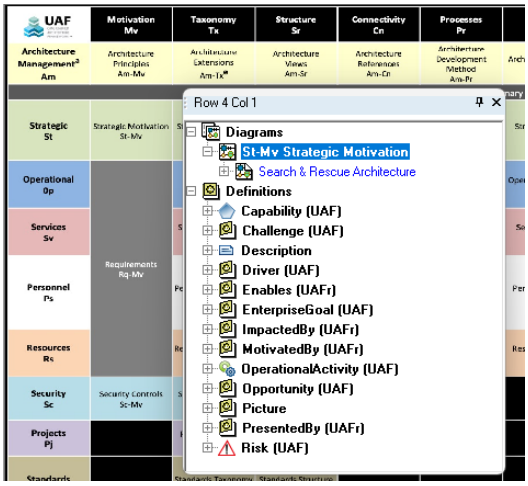


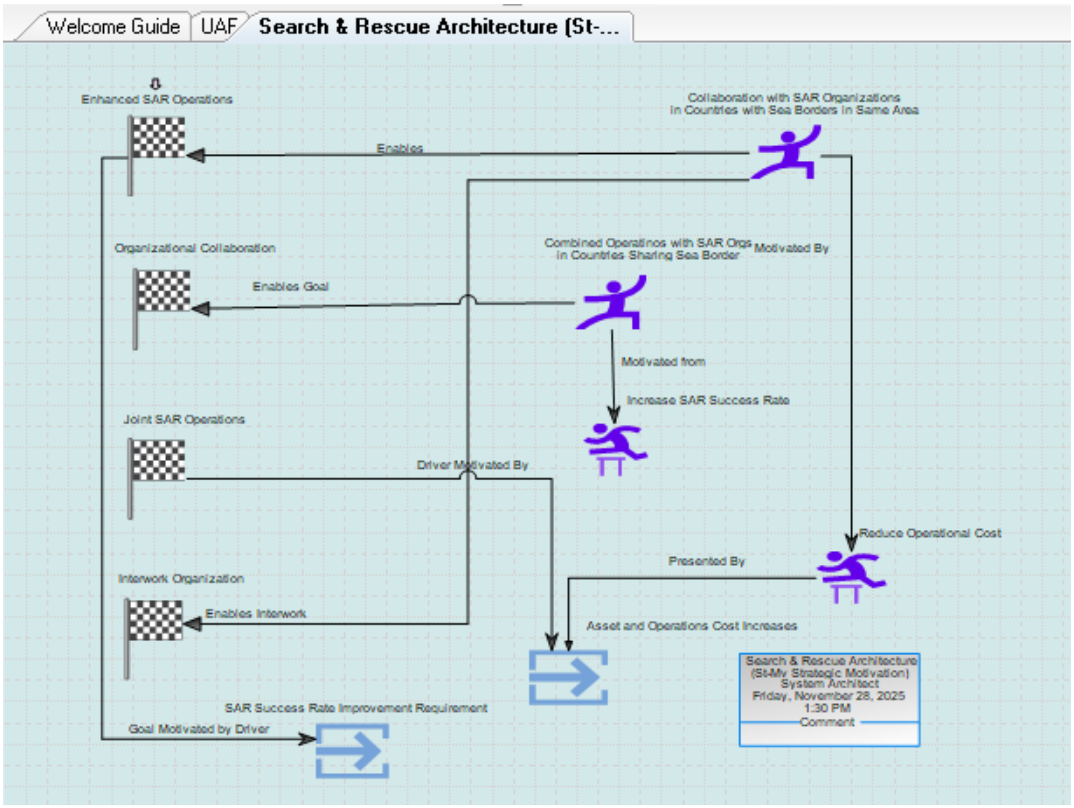


Open Strategic Motivation model “Search & Rescue” and Add to It

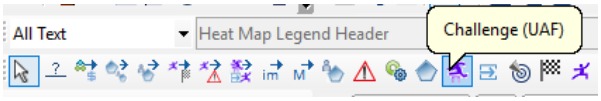
8. Click on the cell **Strategic Motivation St-Mv**
9. In the dialog that comes up, expand Diagrams, and St-MV Strategic Motivation header to reveal the diagram **Search & Rescue Architecture**.
10. Double click on the diagram name to open it.

.

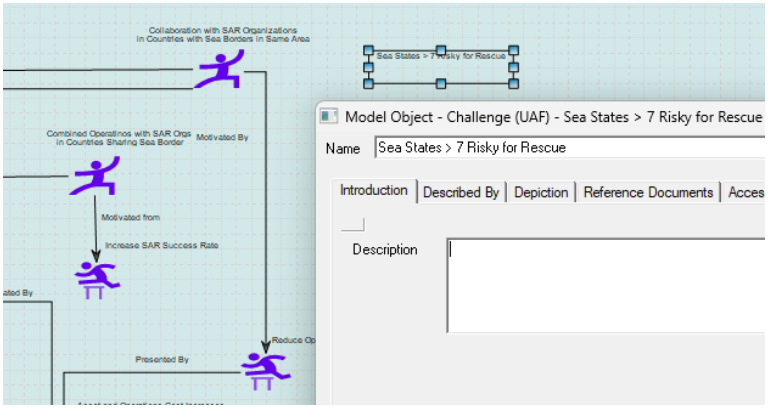




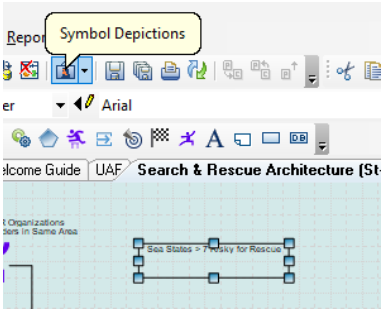
11. On the Draw menu, left-mouse-click select the **Challenge (UAF)** symbol, release your mouse, then left click again on the diagram workspace to add one.



12. Name it **Sea States > 7 Risky for Rescue**. Click OK to the definition dialog that opens.



13. Click the Symbol Depictions menu choice on the top menu – it looks like a painting. This will flip the symbol to be an icon of a person hurdling a hurdle, and also place the name of the symbol outside it.

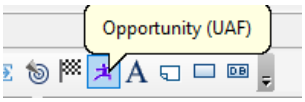


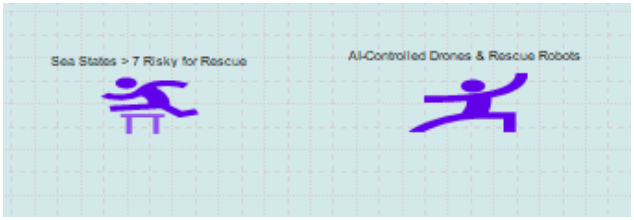
14. In a similar fashion, add an Opportunity symbol to the diagram named **AI-Controlled Drones & Rescue Robots**.

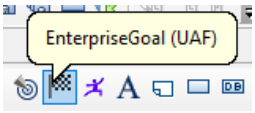
15. In a similar fashion, add an EnterpriseGoal symbol to the diagram named **Safely Rescue**

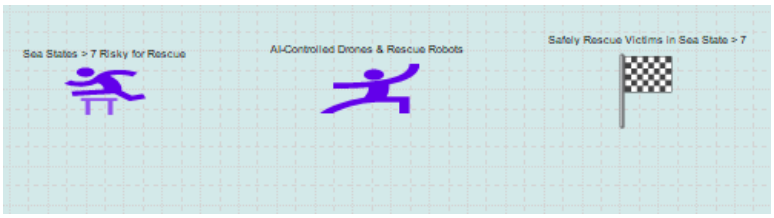
Victims in Sea States > 7.

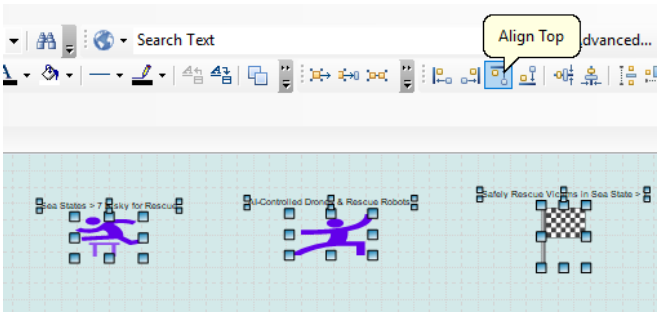
16. Hit your ESC (Escape) key to get out of Draw mode and get cursor-pointer mode (or simply click the Cursor selector in the Draw menu).
17. Lasso-select the 3 symbols you just drew, and click the **Align Top** choice in the Layout menu.











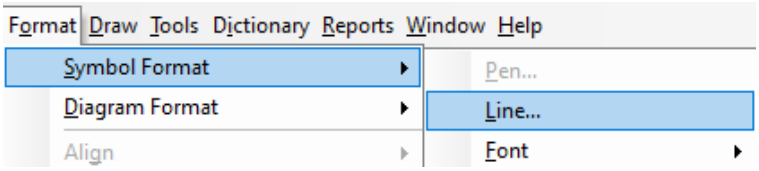
Drawing Relationships

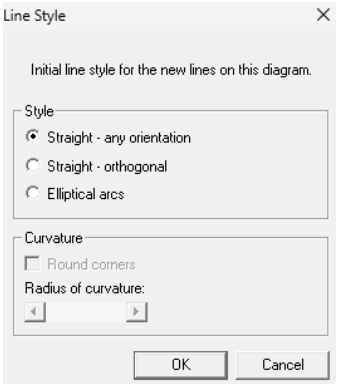
We'll now relate the 3 definitions using relationships.

Set Line Style

By default, System Architect provides **Straight-Orthogonal** as a line choice. Before we draw our first line symbol, let's change it to **Straight-Any Orientation**.

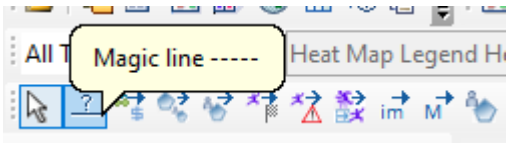
1. Select **Format, Symbol Format, Line**.
18. Toggle on **Straight – Any Orientation** and close the dialog.
19. Also select **Format, Center-to-Center Routing**.





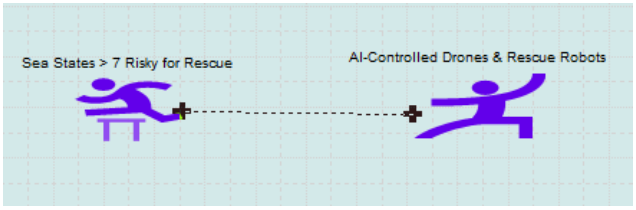
Draw a Relationship

20. Note that there are a lot of relationship line types that can be drawn between definitions on the Draw toolbar for this diagram type. If you know precisely what relationship you want to draw, you can select the appropriate symbol – but let's let System Architect narrow the choice for us.



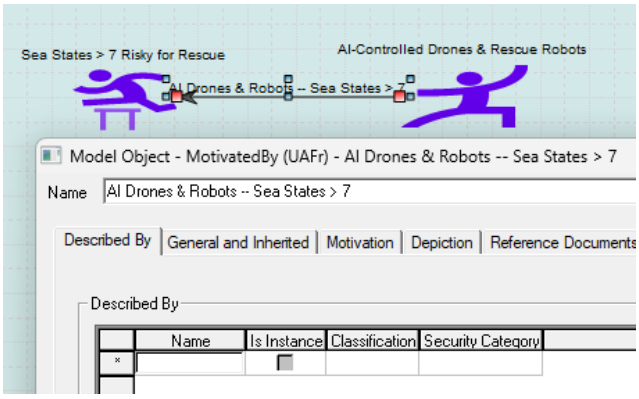
21. Select the **Magic Line** symbol on the Draw toolbar.

22. Click on the Opportunity symbol, AI-Controlled Drones & Rescue Robots so that you get a + mark, and release your mouse.



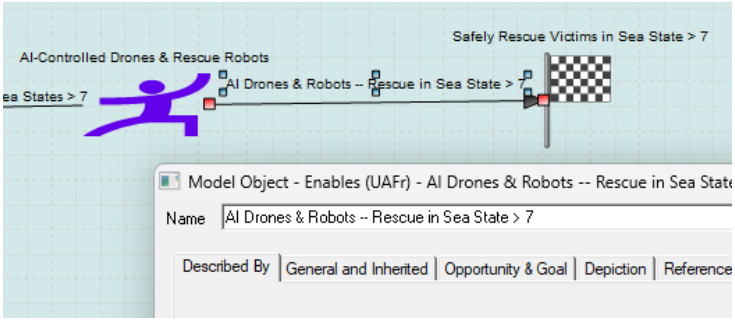
23. Note that you will see a ghostbuster symbol on the free point of the line. Select the Challenge symbol, Sea States > 7 Risky for Rescue so that you get a + mark on that side – and release your mouse.

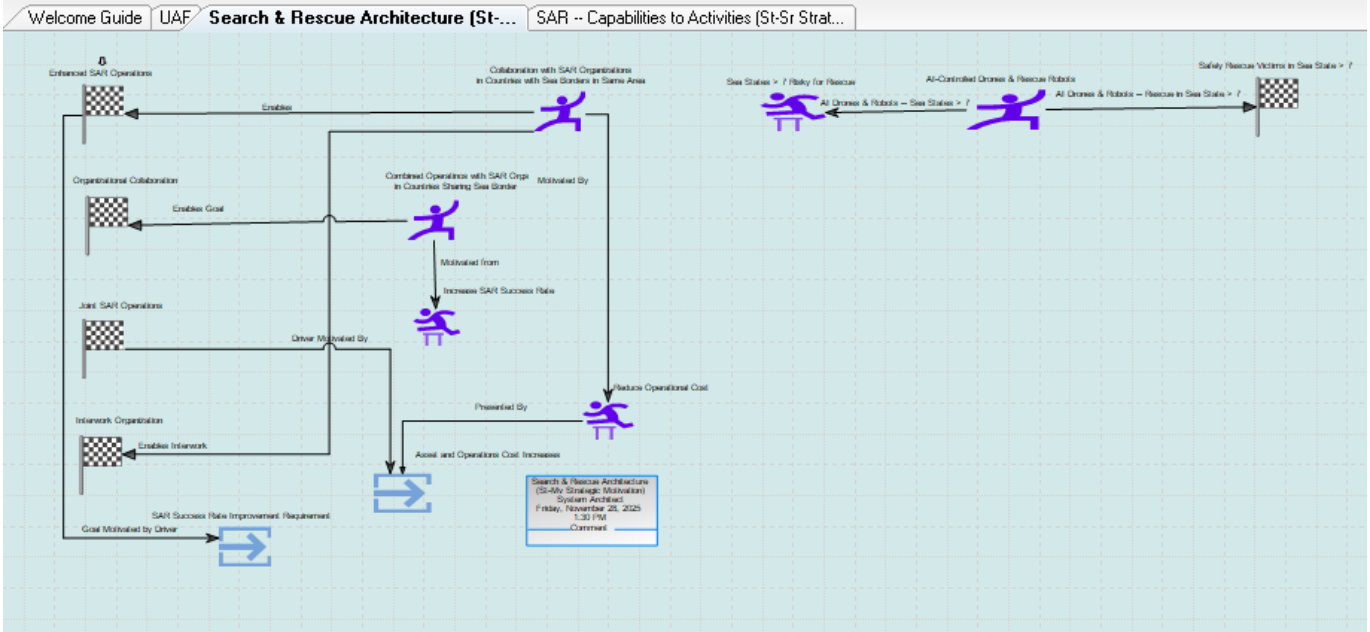
System Architect automatically provides the relationship type that can be drawn between these definitions – in this case, MotivatedBy (UAFr).



24. Name the line, **AI Drones & Robots – Sea States > 7**.

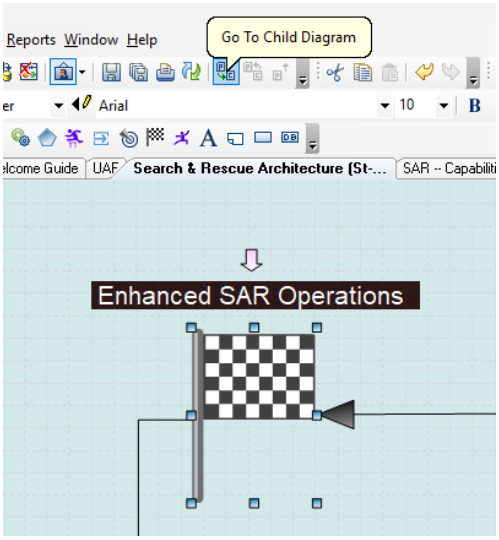
25. Using the same procedure, select the Magic Line again and draw a line between the Opportunity AI-Controlled Drones & Rescue Robots and the Enterprise Goal, Safely Rescue Victims in Sea State > 7. Note that SA provides the Enables line type – name it **AI Drones & Robots – Rescue in Sea State > 7**.




Welcome Guide
UAF
Search & Rescue Architecture (St-...
SAR -- Capabilities to Activities (St-Sr Strat...
Enhanced SAR Operations
Enables
Collaboration with SAR Organizations in Countries with Sea Borders in Same Area
Organizational Collaboration
Enables Goal
Combined Operations with SAR Orgs in Countries Sharing Sea Border
Motivated By
Motivated from
Increase SAR Success Rate
Joint SAR Operations
Driver Motivated By
Reduce Operational Cost
Promoted By
Interwork Organization
Enables Interwork
Asset and Operations Cost Increases
SAR Success Rate Improvement Requirement
Goal Motivated by Driver
Search & Rescue Architecture (St-Mv Strategic Motivation)
System Architect
Friday, November 28, 2025
1:30 PM
Comment
Sea States > 7 Risky for Rescue
AI-Controlled Drones & Rescue Robots
AI Drones & Robots -- Sea States > 7
AI Drones & Robots -- Rescue in Sea State > 7
Safely Rescue Victims in Sea State > 7

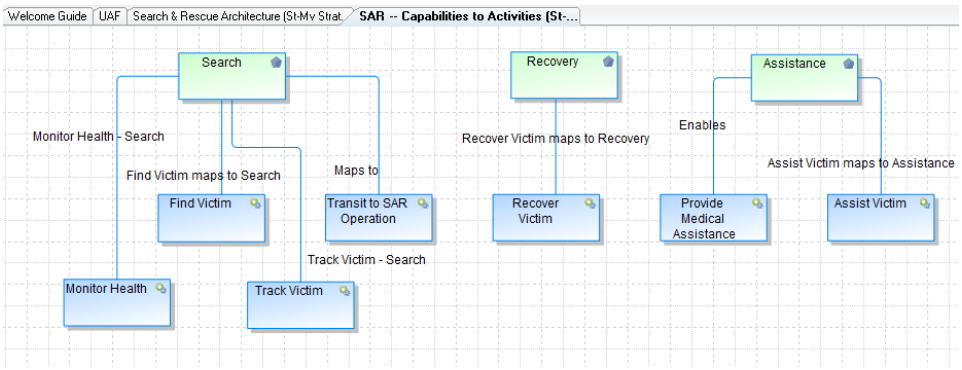
Navigate Model Using Parent-Child Links

Note that EnterpriseGoal, **Enhanced SAR Operations** in the upper left of the diagram has a down arrow above it. This is System Architect notation denoting that the symbol is decomposed by one or more child diagrams.

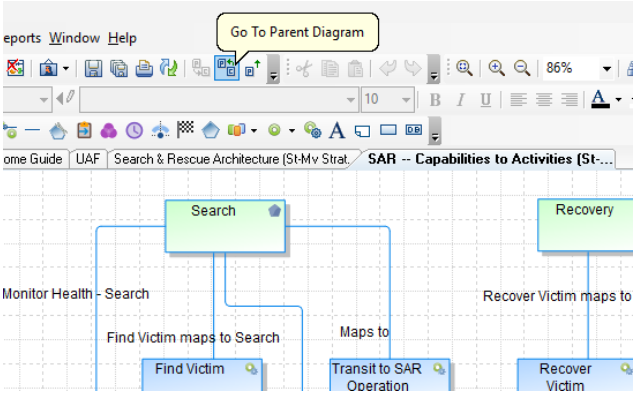


1. Select the **Enhanced SAR Operations** EnterpriseGoal and click the **Go To Child** Diagram button on the top menu (or right-mouse click on the symbol and choose Go To Child Diagram).

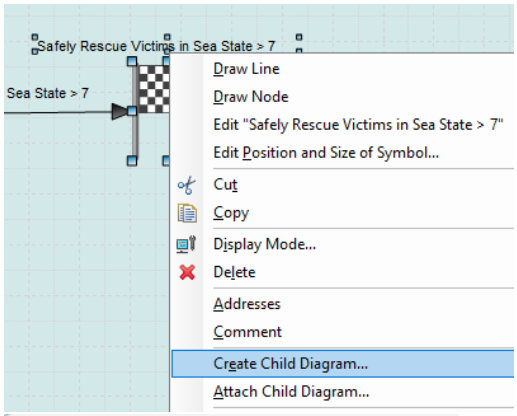
The **Strategic Structure** diagram, **SAR – Capabilities to Activities** opens.



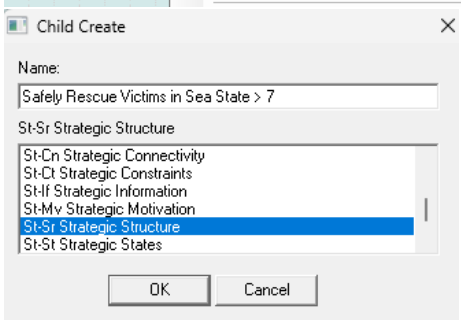
26. Click the **Go to Parent Diagram** button in the top menu to navigate **back** to the Strategic Motivation model.



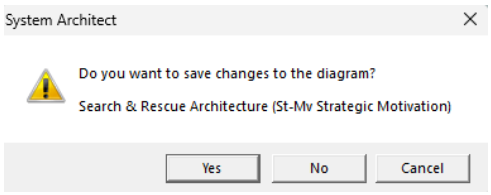
27. Right-mouse click on the EnterpriseGoal you just added – **Safely Rescue Victims in Sea State > 7** – and select **Create Child Diagram** from the drop-down menu.

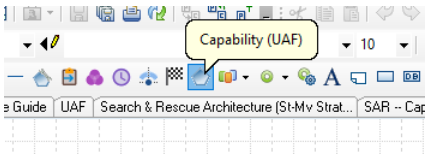


28. Specify diagram type **St-Sr Strategic Structure**, and name the diagram **Safely Rescue Victims in Sea State > 7**.



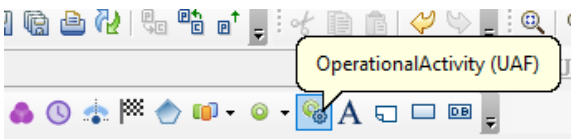
29. Click **Yes** to the message “Do you wan to save changes to the diagram?”





Create New Capability & OperationalActivities

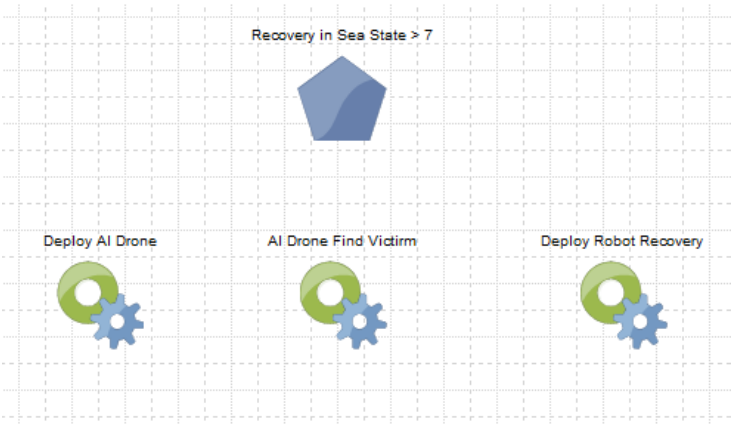
1. On the new diagram, click the Capability (UAF) symbol on the draw menu – and draw a new capability named **Recovery in Sea State > 7**.



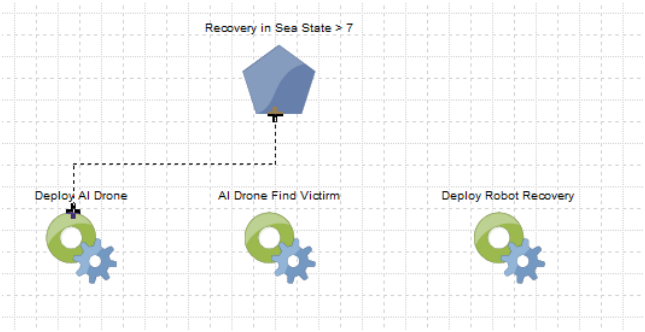
30. Next select the OperationalActivity

(UAF) symbol from the draw toolbar, and draw 3 new Activities on the diagram:

- **Deploy AI Drone**
- **AI Drone Find Victim**
- **Deploy Robot Recovery**



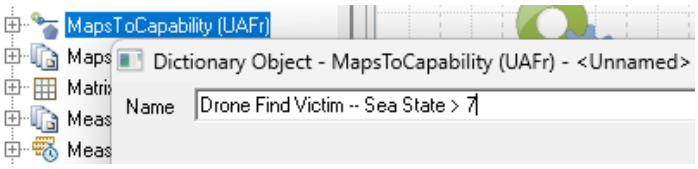
31. Use the Magic Line to draw a line ***from*** the Activity **Deploy AI Drone** *to* the Capability, **Recovery in Sea State > 7**. Name the line **Deploy Drone -- Sea State > 7**.



Build Relationship Via Definition

In a data-driven architecture, the diagram always reflects the underlying model information – and also acts as an interface to add to the model.

So far we've drawn a relationship between an Activity and a Capability. Now we'll add the definition of the relationship and refresh the model.

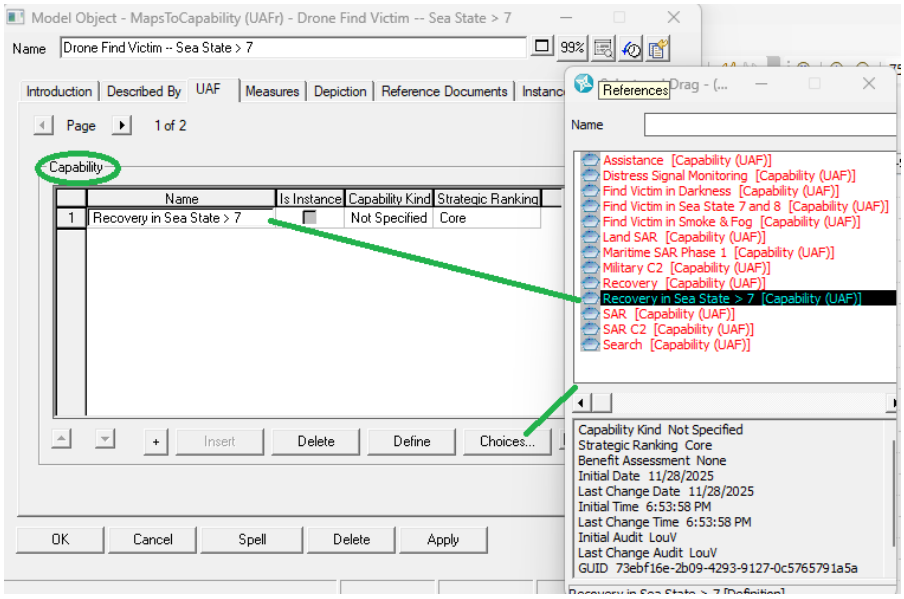


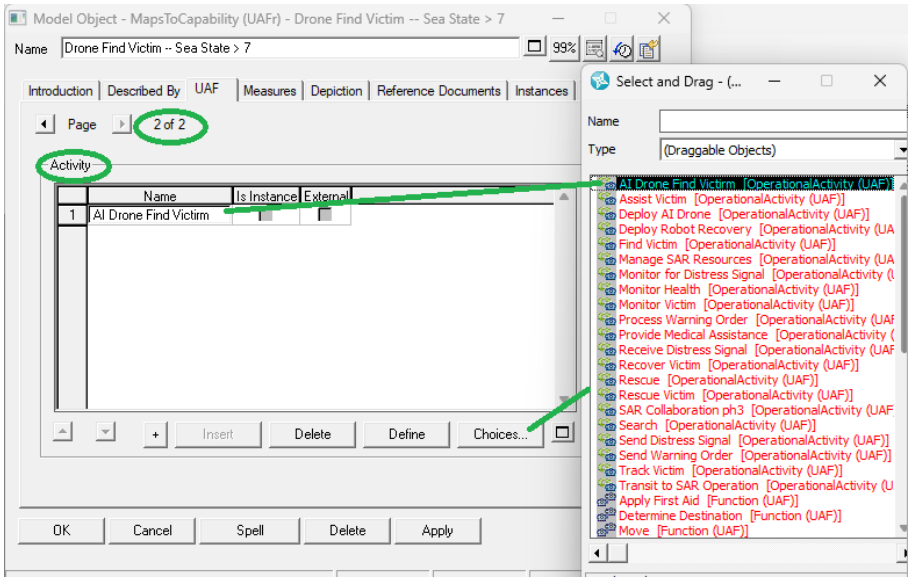
1. In the Explorer tree,

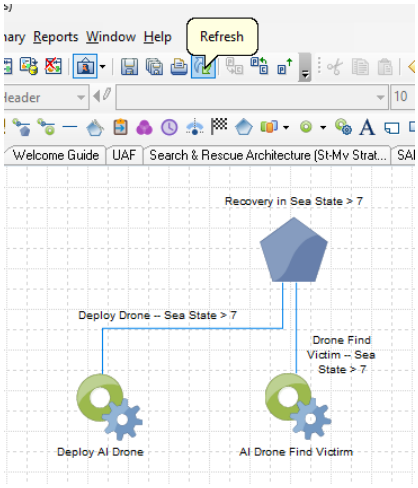
expand Definitions, and find the MapsToCapability (UAFr) type.

32. Right-mouse click on MapsToCapability(UAFr) and select New.
33. Create a new MapsToCapability relationship named **Drone Find Victim – Sea State > 7**
34. Go to the UAF tab of the definition, and click on **Choices** for the **Capability** list – then select and drag-and-drop in the capability **Recovery in Sea State > 7**.
35. Click the arrow at the top of the dialog to go to **page 2**, where Activities are listed.
36. Click **Choices** and select and drag-and-drop in the activity **AI Drone Find Victim**.
37. Click OK to close the definition.
38. Back on the diagram, hit the **Refresh** button (blue-green arrow pair button) – the relationship line will auto-draw on the diagram.

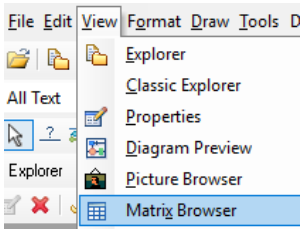
Note: System Architect

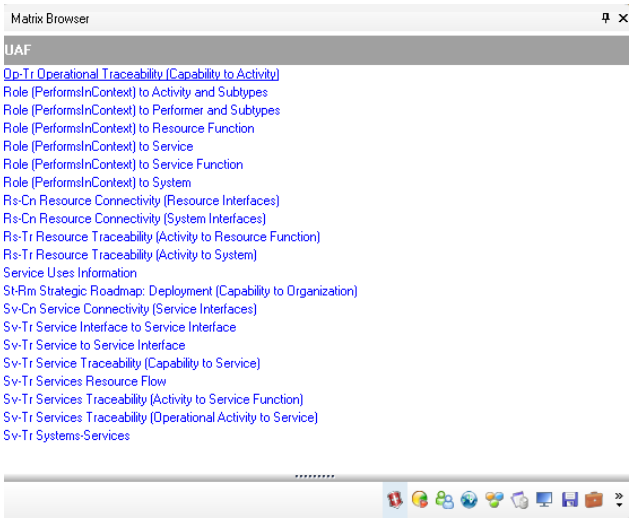






is a real-time, multi-user tool. The refresh button is provided instead of the diagram changing as you are looking at it if someone else adds/updates a relationship.



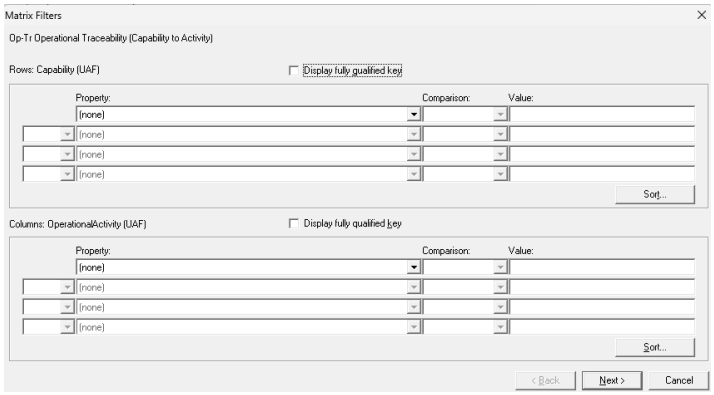


Add Relationship through Matrix

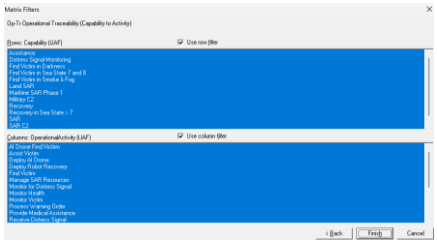
1. Select View, Matrix Browser.

39. Select the matrix **Op-Tr Operational Traceability (Capability to Activity).**

40. Click Next to the first dialog that comes up.

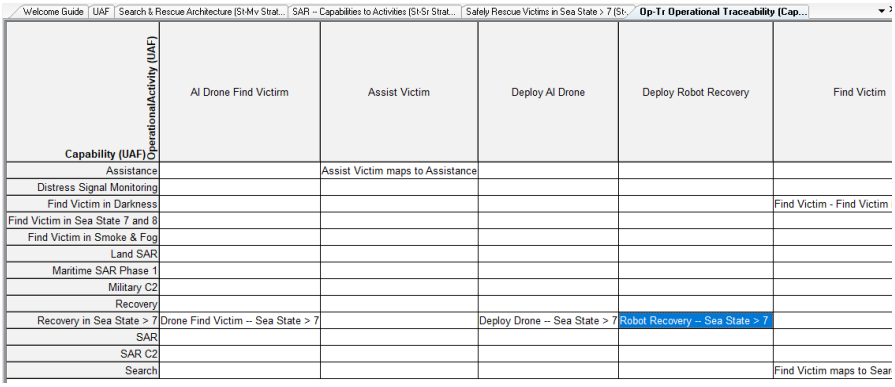


This dialog enables you to filter the matrix – specifying to only see rows and/or columns whose definition property(ies) meet certain criteria. Matrices can be very large, and sometimes you only want to see a subset of the info. You can filter on any property of a definition, including custom properties introduced via usrprops.txt.



41. Click Finish to the next dialog to open

the matrix.



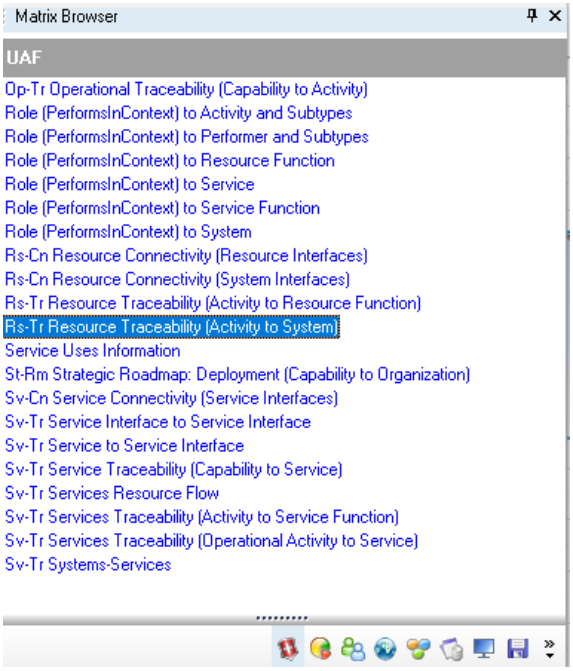
Capability (UAF) \ OperationalActivity (UAF)	AI Drone Find Victim	Assist Victim	Deploy AI Drone	Deploy Robot Recovery	Find Victim
Assistance		Assist Victim maps to Assistance			
Distress Signal Monitoring					
Find Victim in Darkness					Find Victim - Find Victim
Find Victim in Sea State 7 and 8					
Find Victim in Smoke & Fog					
Land SAR					
Maritime SAR Phase 1					
Military C2					
Recovery					
Recovery in Sea State > 7	Drone Find Victim -- Sea State > 7		Deploy Drone -- Sea State > 7	Robot Recovery -- Sea State > 7	
SAR					
SAR C2					
Search					Find Victim maps to Sear

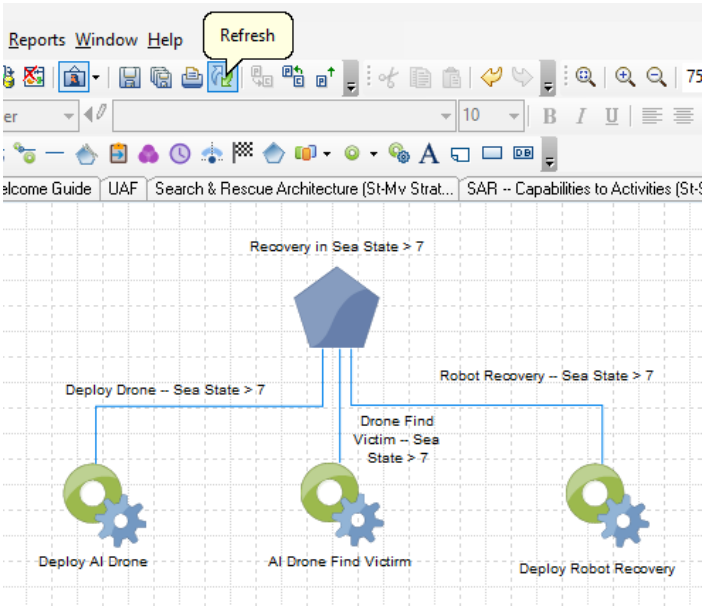
42. Notice the matrix has cells already filled in based on relationships on the diagram.

43. Find the cell intersecting the Capability **Recovery in Sea State > 7**, and the Activity **Deploy Robot Recovery**. Type the following in the intersecting cell: **Robot Recovery – Sea State > 7**.

44. Click the x mark in the upper right-hand corner to close the matrix.

45. Back on the diagram, click the **Refresh** button again – the relationship will auto-draw. (Note we prettied the diagram by moving the names of the OperationalActivities to be under the symbol.




Reports Window Help
Refresh
elcome Guide
UAF
Search & Rescue Architecture (St-Mv Strat...
SAR -- Capabilities to Activities (St-
Recovery in Sea State > 7
Deploy Drone -- Sea State > 7
Drone Find Victim -- Sea State > 7
Robot Recovery -- Sea State > 7
Deploy AI Drone
AI Drone Find Victim
Deploy Robot Recovery

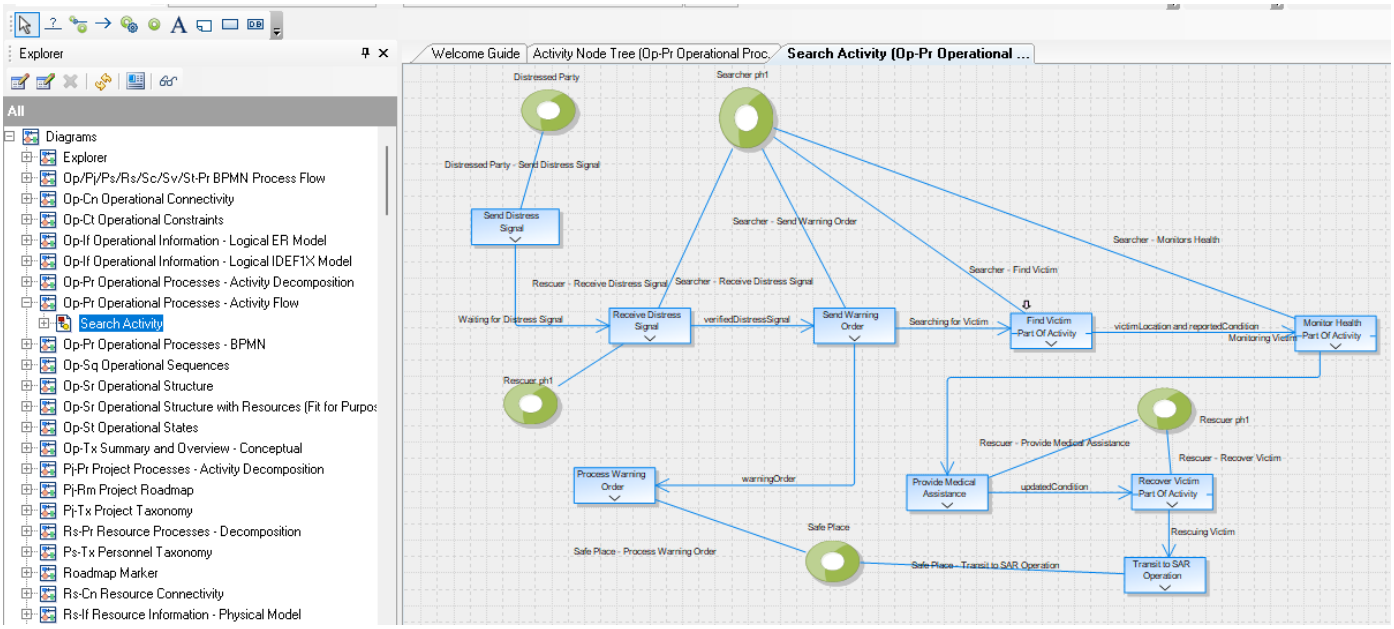
Operational Viewpoint

Goals of this Lab:

- Understand Operational Process Views
- Understand Automatic Op Exchange & Needline Generation
- Understand Operational Sequences View
- Understand Operational Traceability View
- Continue to learn System Architect drawing features

Open Operational Processes – Activity Flow View

1. In the Explorer tree, navigate to and expand the Diagram type **Op-Pr Operational Processes – Activity Flow**, and open the diagram **Search Activity**

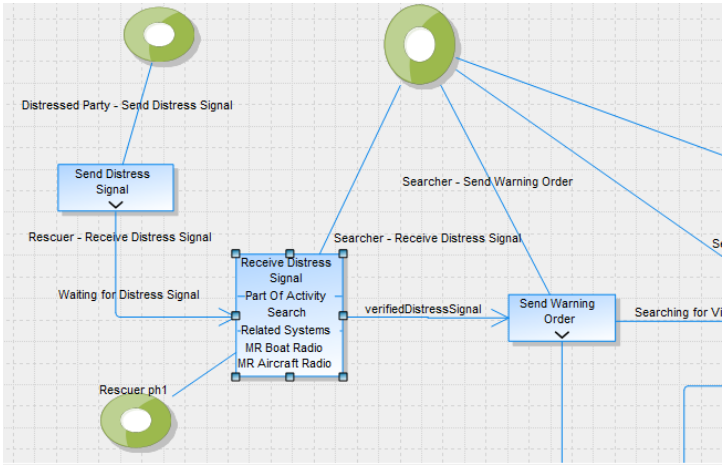


46. Note that the diagram contains::

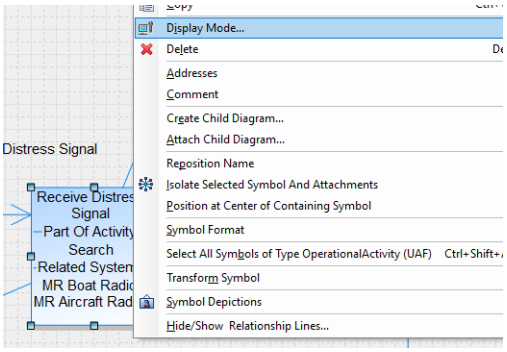
- OperationalActivities, with OperationalActivityEdge relationship lines drawn between them.
- OperationalPerformers, related to the Activities by the PerformsInContext (Role) relationship.

47. Notice that each of the OperationalActivities have a down arrowhead at the bottom – this means there are more displayable properties that are not being displayed.

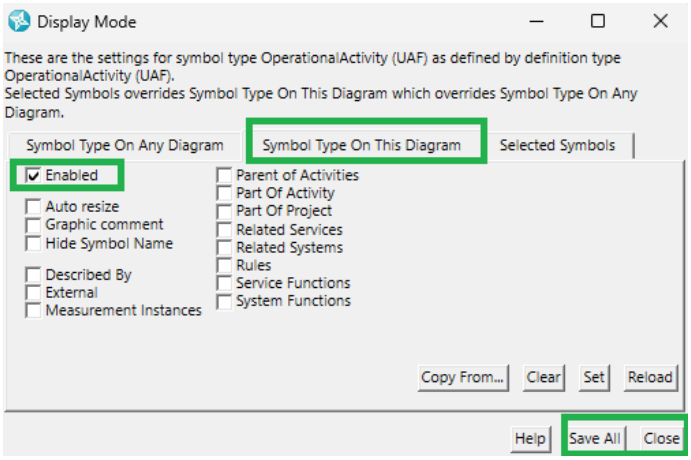
48. Select and drag downward on the handlebars of the Activity **Receive Distress Signal** – note that its **parent Activity** is displayed, as well as its **Related Systems**.



49. Right-mouse click on the OperationalActivity symbol and choose **Display Mode** from the popup menu.



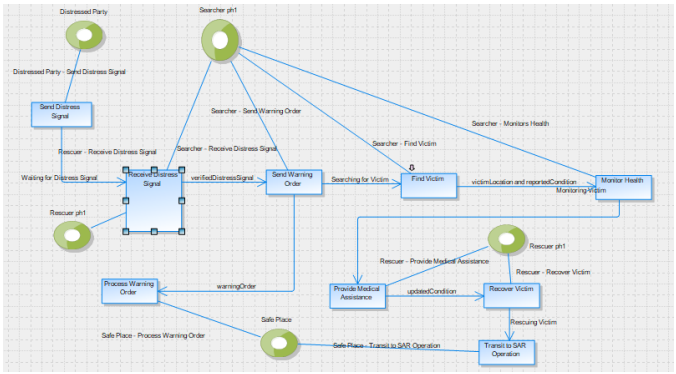
2. Select the middle tab (“Symbol Type on This Diagram”), then toggle on the **Enabled** choice, and leave everything else **unselected**. Click **Save All** and then Close.



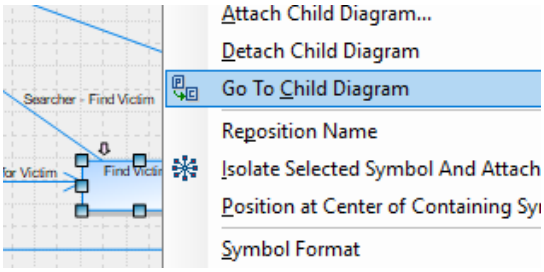
3. Notice how the diagram changes – all displayable properties for OperationalActivities are turned off.

4. Notice that the OperationalActivity Find Victim has a down arrowhead above it, signifying it is decomposed by one or more child diagrams.

5. Right-mouse click on Find Victim and



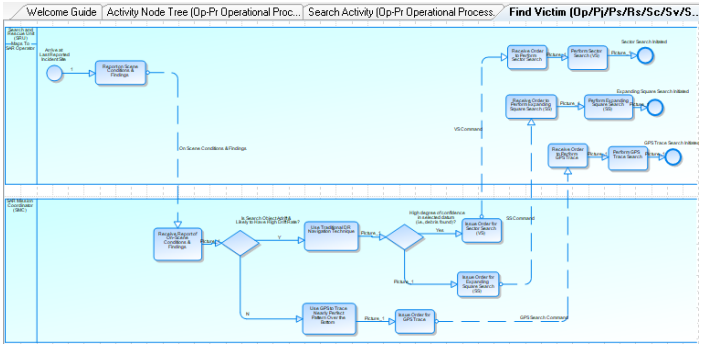
select Go to Child Diagram.



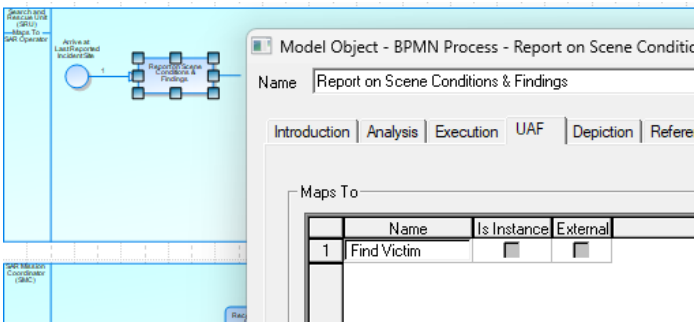
6. Notice that a BPMN Process diagram opens.

50. Open the definition of the BPMN process **Report on Scene Conditions & Findings**.

51. Navigate to its **UAF** tab – notice the higher-level OperationalActivity **Find Victim** is listed.

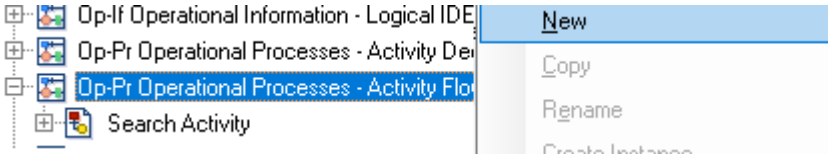


Note: This is a pure BPMN Process Flow diagram. The processes show orchestration – what happens sequentially in a flow. A Process is different than an OperationalActivity – which is an activity that the organization performs – without regard to what Activity gets performed 1st, 2nd, etc.



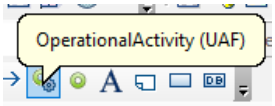
Create a New Operational Processes – Activity Flow View

1. In the Explorer tree, right-mouse click on the Diagram Type **Op-Pr Operational Processes – Activity Flow** and select **New** from the popup menu.

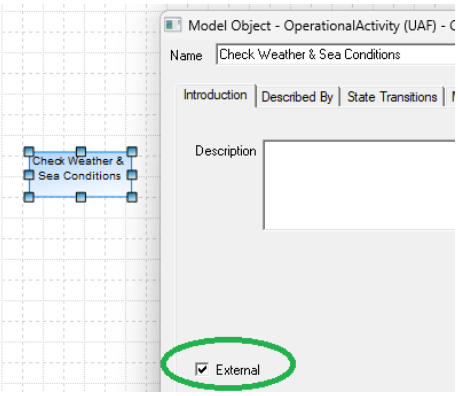


2. Name the new diagram **Sea States > 7**.

3. Add an OperationalActivity (UAF) definition to the diagram



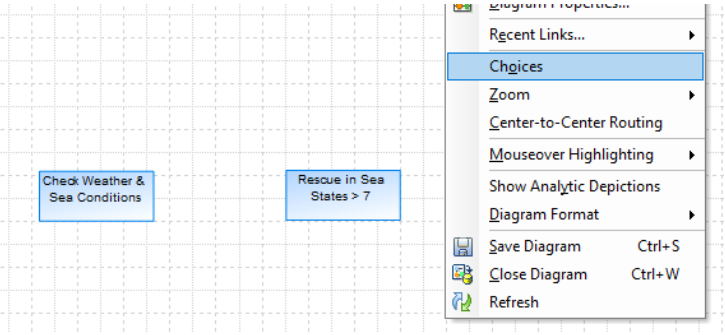
– selecting its symbol from the Draw toolbar. Name it **Check Weather & Sea Conditions**.



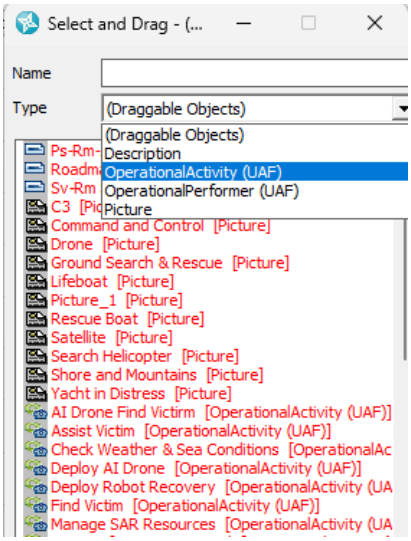
4. After adding the symbol, its definition opens – toggle on the **External** choice to make it an External Activity.

5. Add a 2nd Operational Activity to the diagram named **Rescue in Sea States > 7**.

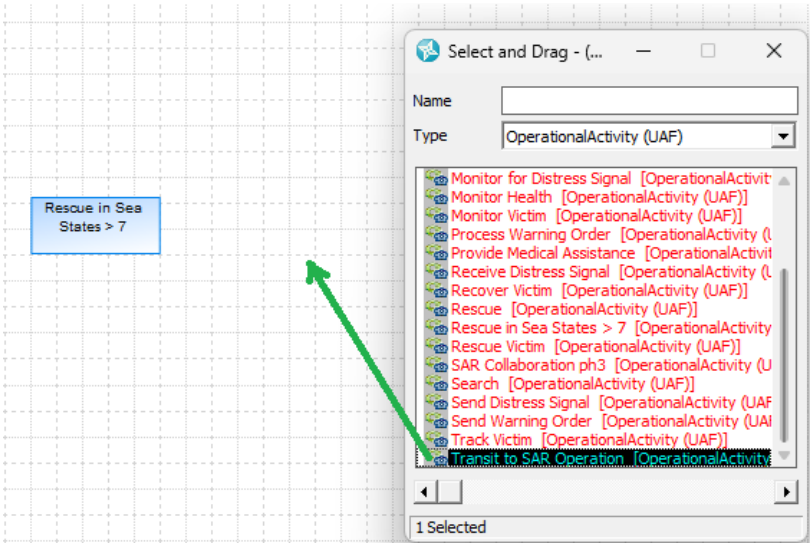
6. Right-mouse click on the diagram workspace and choose Choices from the popup menu.



7. In the Select and Drag dialog that opens, choose **OperationalActivity (UAF)** at the top to **filter** the choices only to see Operational Activities in the repository.



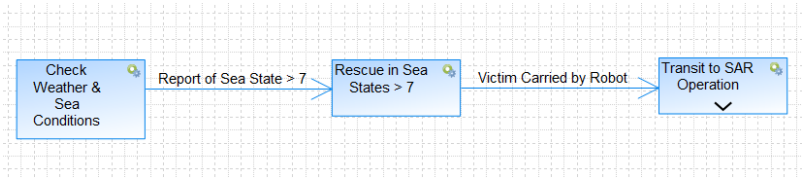
8. Drag-and-drop the Activity **Transit to SAR Operation** onto the diagram.



Create Relationships

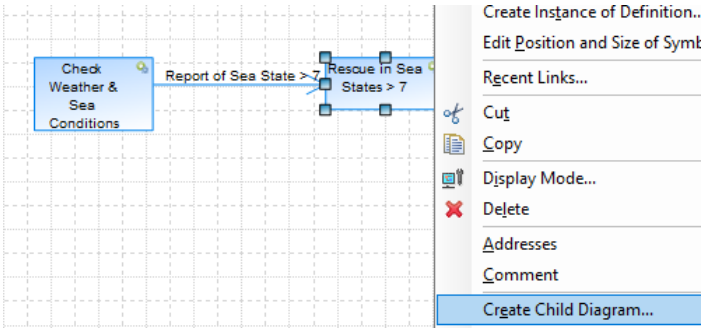
52. Draw OperationalActivityEdge relationships between the Activities as shown in the picture to the right:

- **Report of Sea State > 7** between Check Weather & Sea Conditions and Rescue in Sea State > 7
- **Victim Carried by Robot** between Rescue in Sea States > 7 and Transit to SAR Operation.



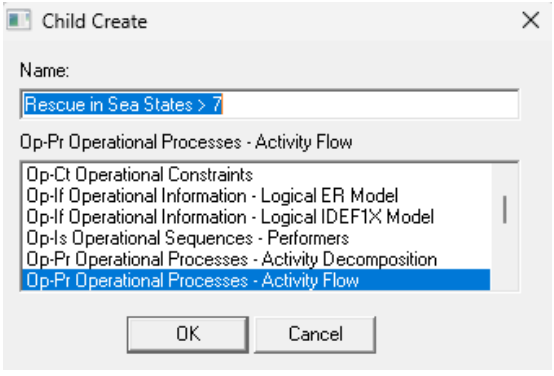
Create Child Diagram

1. Right-mouse click on **Rescue in Sea States > 7**, and select **Create Child Diagram** from the popup menu.



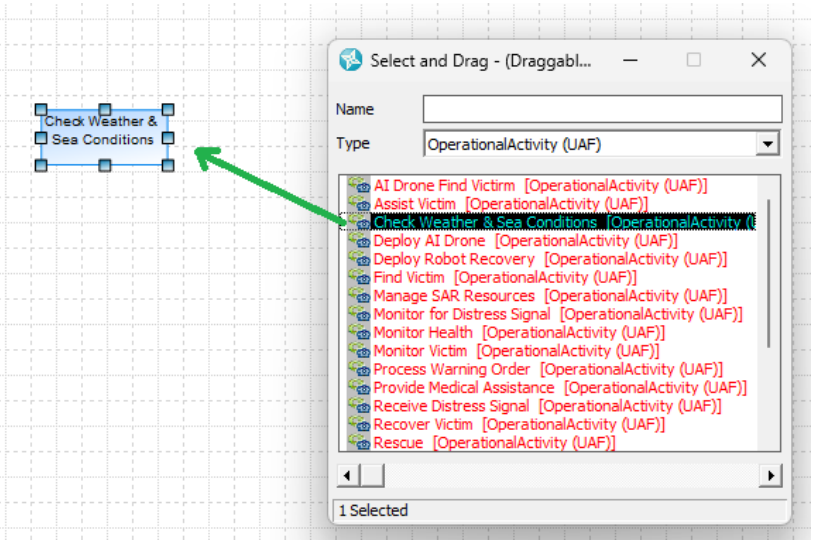
53. Create a new diagram of type Op-Pr Operational Processes – Activity Flow, and name it **Rescue in Sea States > 7**.

54. Click **Yes** to the dialog that opens asking if you'd like to save changes to the diagram.

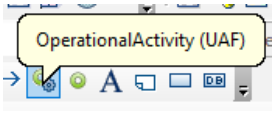


55. On the new diagram, right-mouse click on the diagram workspace and select **Choices**.

56. In the Select and Drag dialog that opens, filter on OperationalActivities (UAF) at the top, and find Check Weather & Sea Conditions – and drag and drop it onto the diagram.

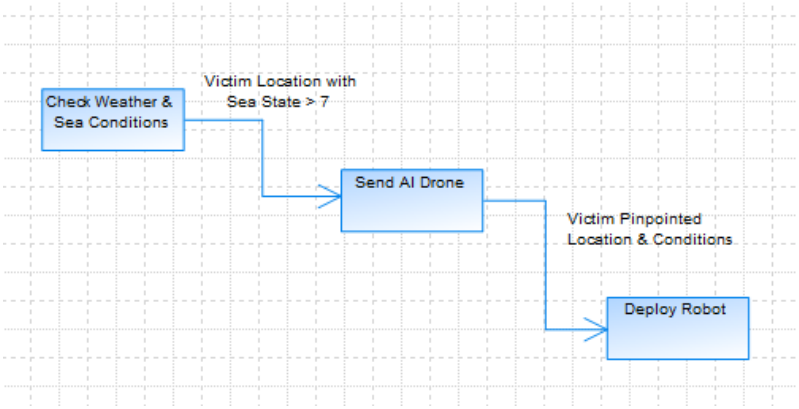


2. Use the Draw menu to create 2 new Operational Activities:



- **Send AI Drone**
- **Deploy Robot**

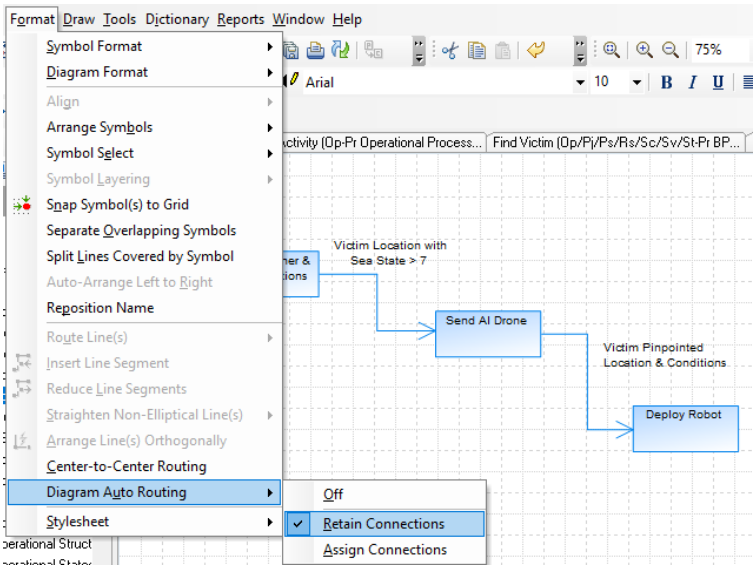
3. Draw OperationalActivityEdge relationships between the Activities as shown in the picture to the right.



- **Victim Location with Sea State > 7** between Check Weather & Sea Conditions and Send AI Drone, and
- **Victim Pinpointed Location & Conditions** between Send AI Drone and Deploy Robot

Change Auto-Routing Style

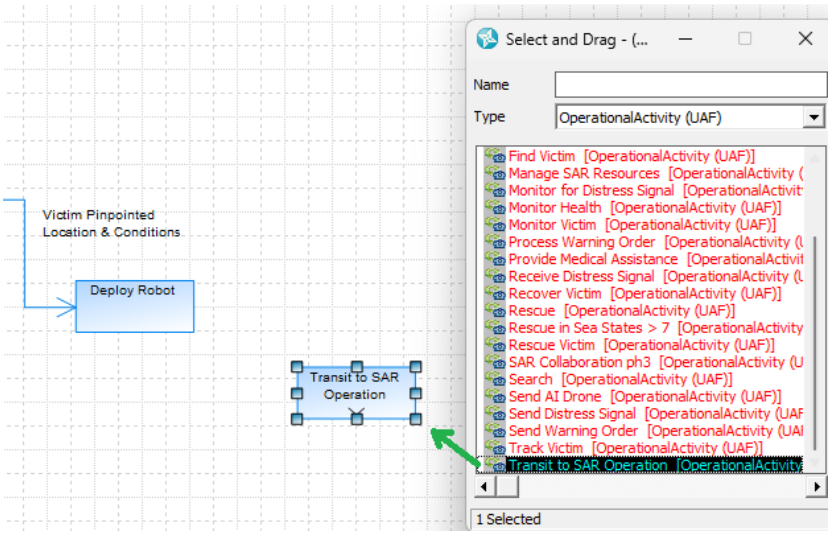
4. Select **Format, Diagram Auto Routing, Retain Connections** – this will set the auto line style so that the relationship lines stay exactly where



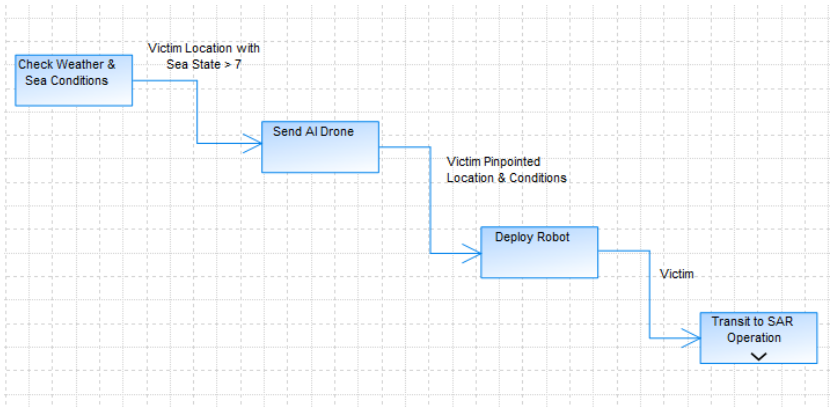
you connect them to symbols.

5. Right-mouse click on the diagram workspace and select Choices.

6. Filter the list to be OperationalActivity (at the top) and find and then drag-and-drop onto the diagram **Transit to SAR Operation**.

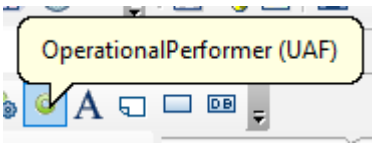


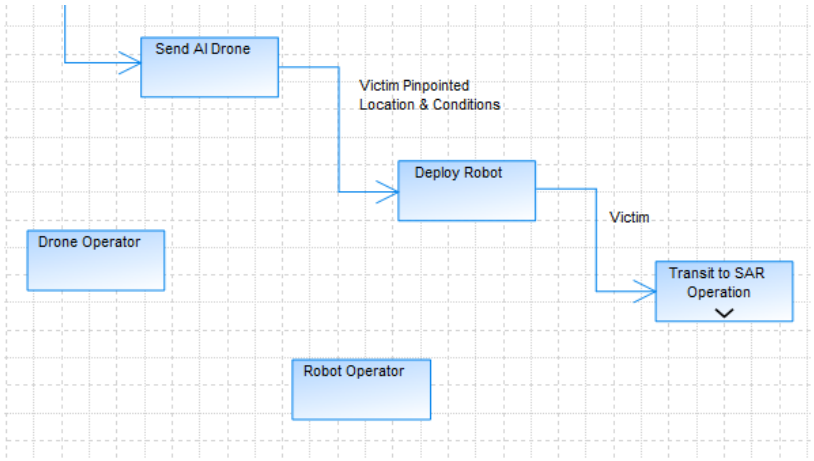
7. Add an OperationalActivityEdge named **Victim** between the activiites Deploy Robot and Transit to SAR Operation – see the diagram to the right.



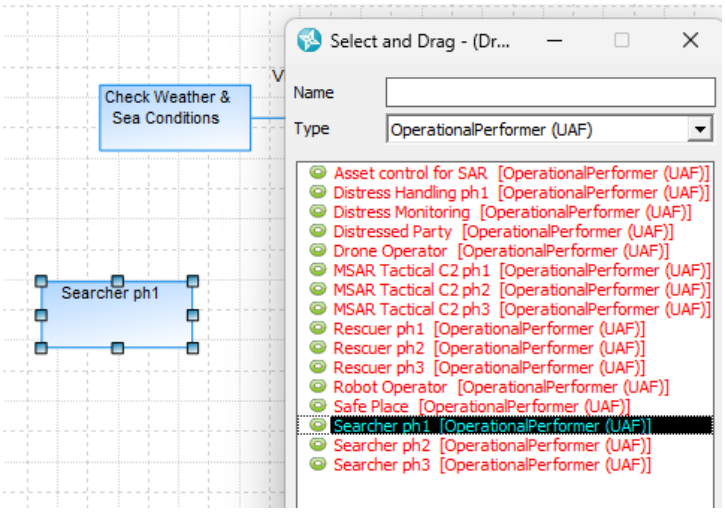
8. Add 2 new OperationalPerformers to the diagram (as shown to the right) – using the OperationalPerformer tool from the Draw menu:

- **Drone Operator**
- **Robot Operator**

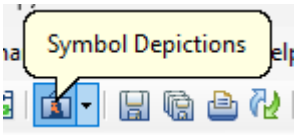


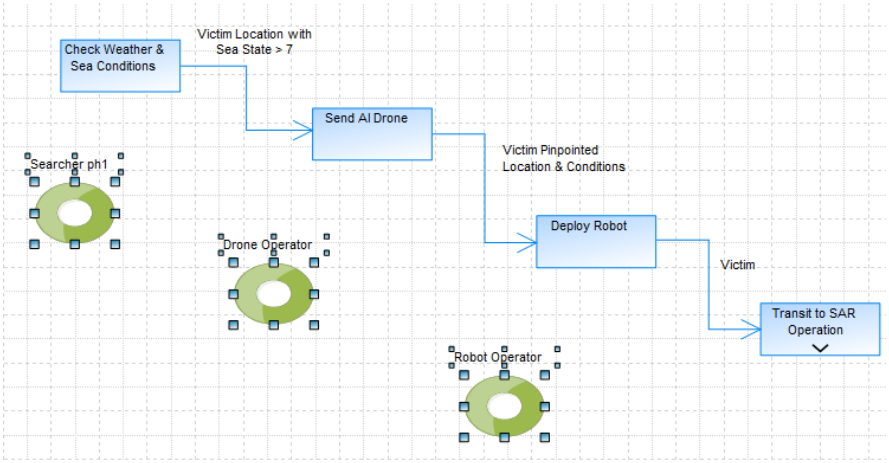


9. Right-mouse click on the diagram workspace and select Choices – filter the top of the Select and Drag dialog to only show OperationalPerformers, and find and drag the Searcher ph1 onto the diagram.



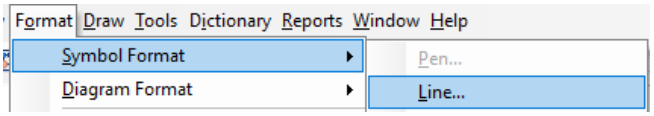
10. Select the 3 performers, and click the “Symbol Depictions” button at the top of the menu to change their look to a green circle.





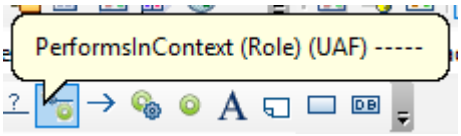
Change Line Style to Straight

11. Select **Format, Symbol Format, Line**.

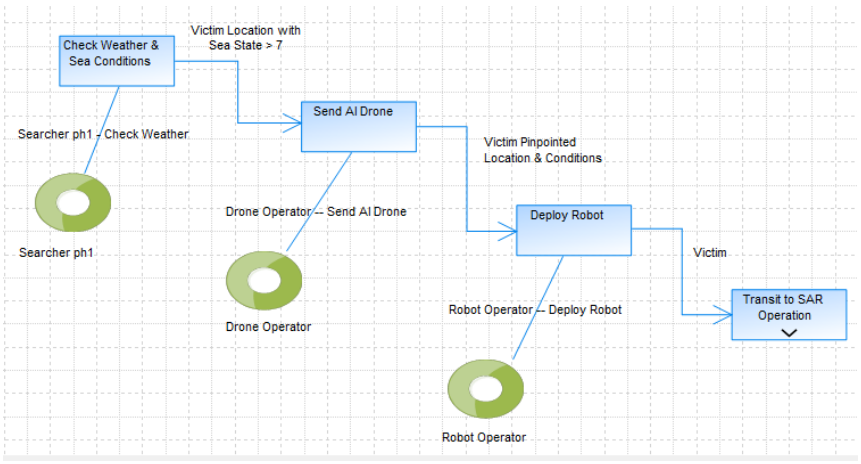


12. In the Line Style dialog, change the style to Straight – Any Orientation.

13. Using the **PerformsInContext (Role)** symbol from the **Draw** menu, draw the following relationships (see diagram to right):

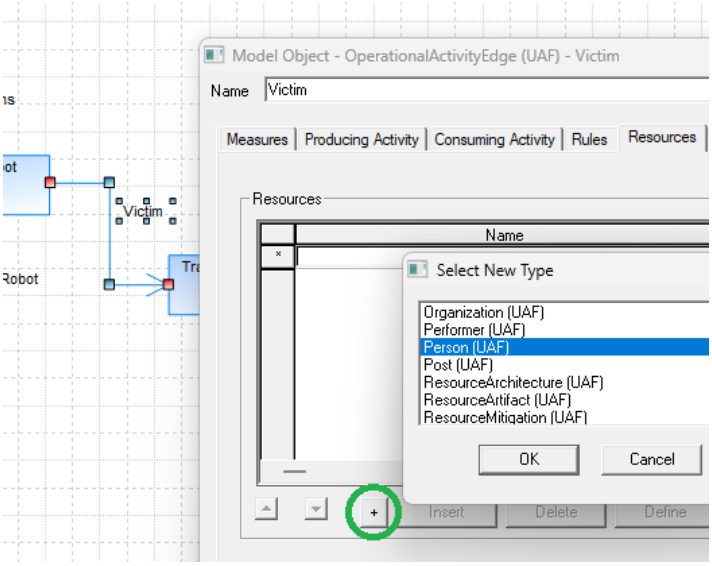


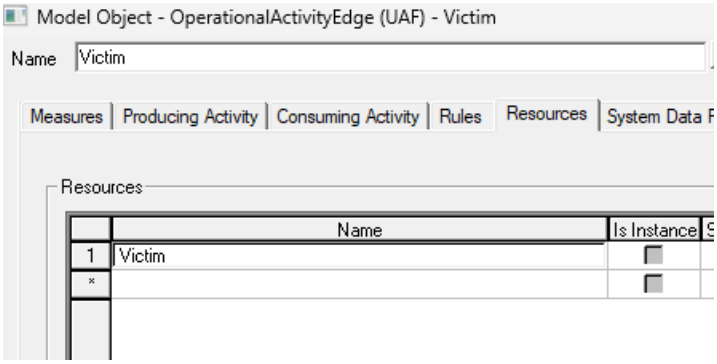
- **Searcher ph1 – Check Weather** from the activity Check Weather & Sea Conditions to the performer Searcher ph1.
- **Drone Operator – Send AI Drone** from the activity Send AI Drone to the performer Drone Operator.
- **Robot Operator – Deploy Robot** from the activity Deploy Robot to the performer Robot Operator.



14. Open the relationship Victim (double click or right-mouse click Edit) and go to its Resources tab.

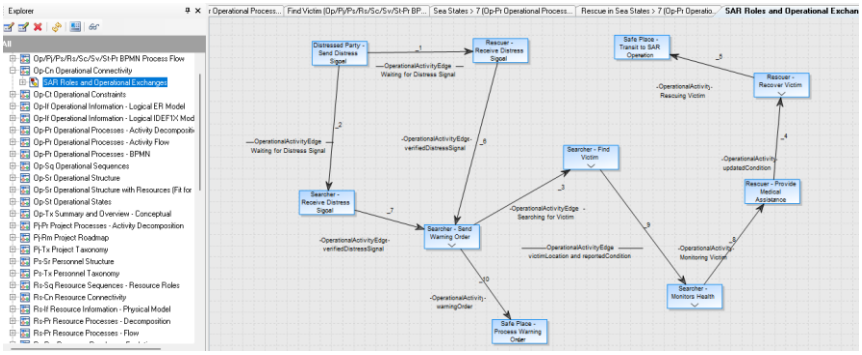
15. Click the + mark and add a new Person type definition to the list, named **Victim**.



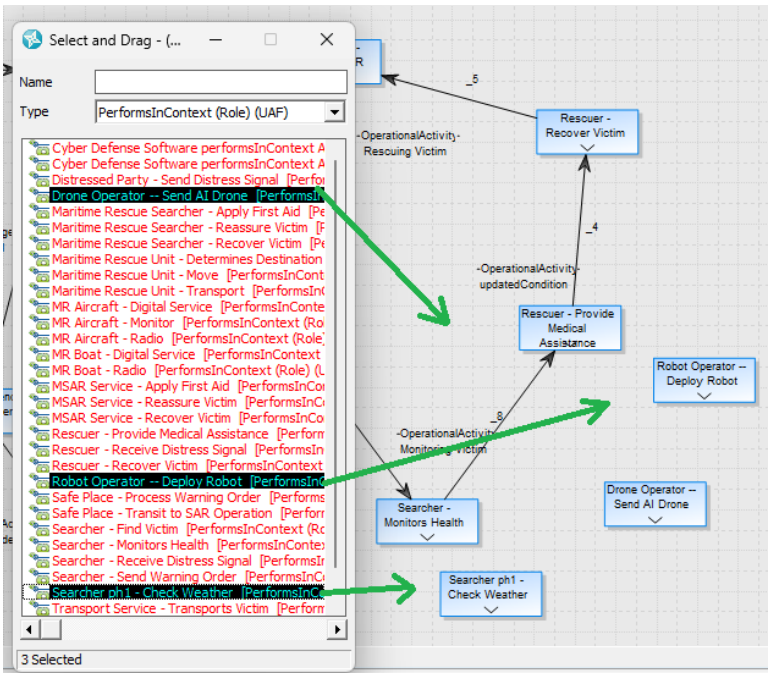


Update Op-Cn Model

1. Open the Op-Cn Operational Connectivity diagram named **SAR Roles and Operational Exchanges**.

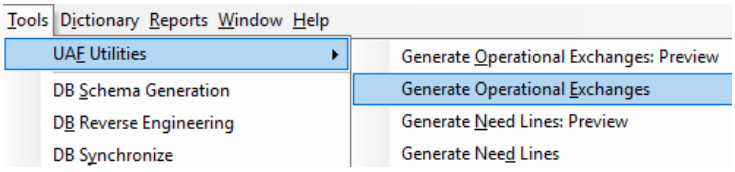


2. Right-mouse click on the diagram workspace and select Choices to open the Select and Drag dialog. Filter on PerformsInContext (Role) at the top, and find, then drag onto the diagram the 3 relationships just added (see diagram to right):

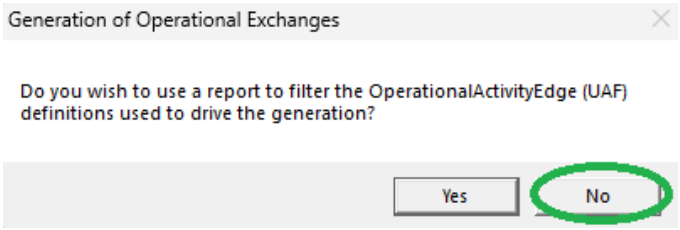


Auto Generate Op Exchanges

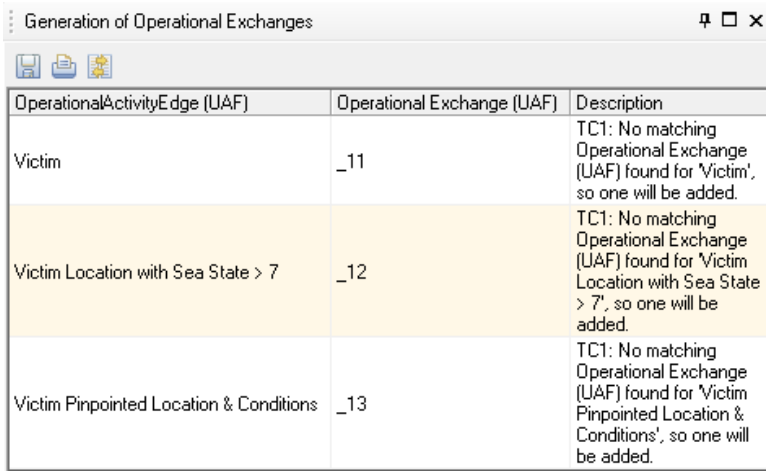
1. Select Tools, UAF Utilities, Generate Operational Exchanges.



57. Select **No** to the question dialog that opens, “Do you wish to use a report to filter the OperationalActivityEdge definitions used to drive the generation?”

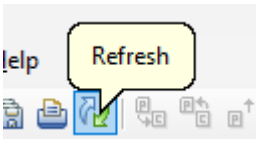


58. Note the report that comes up specifying the Operational Exchanges generated, and why.

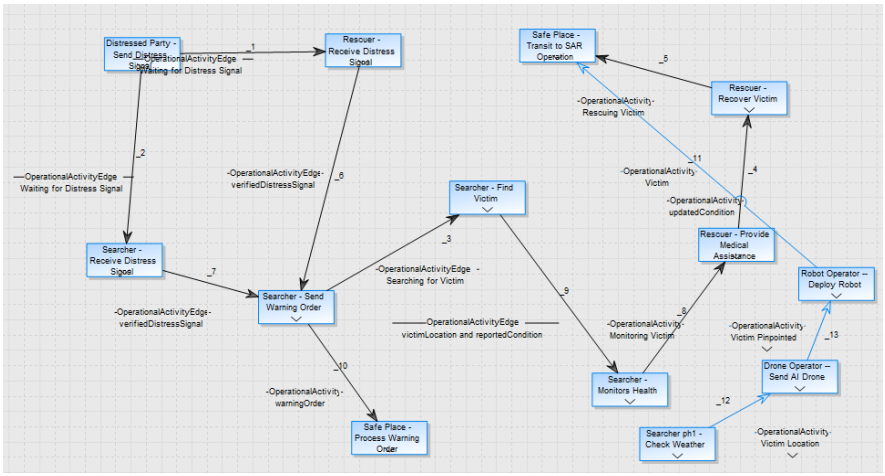


59. Click the x in the upper right-hand corner of the report to close it.

60. Click the Refresh button on the top menu of System Architect. The diagram view refreshes based on the underlying model information.

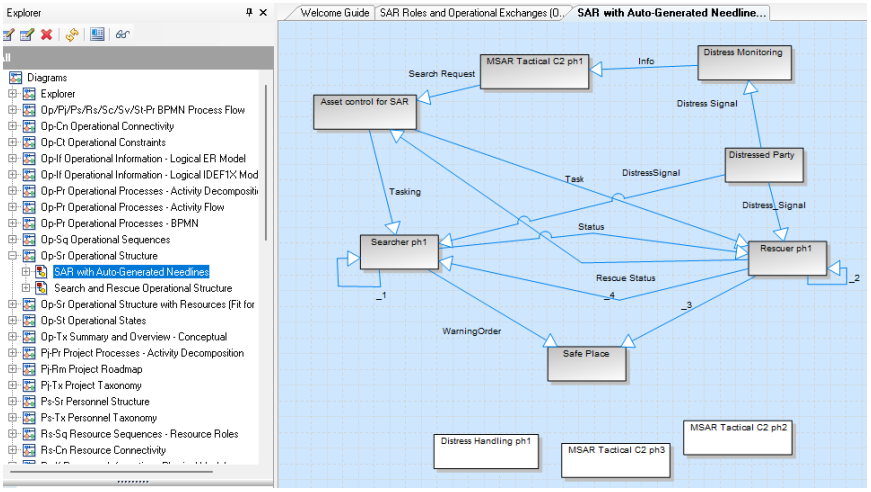


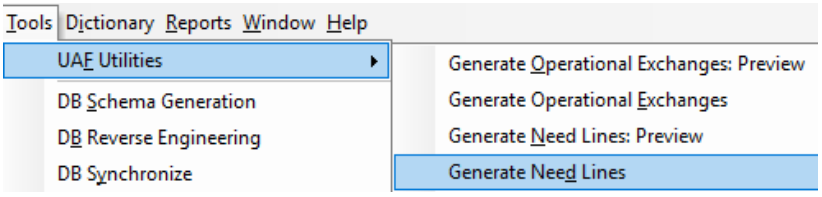
61. Note the new Operational Exchanges are added to the diagram.

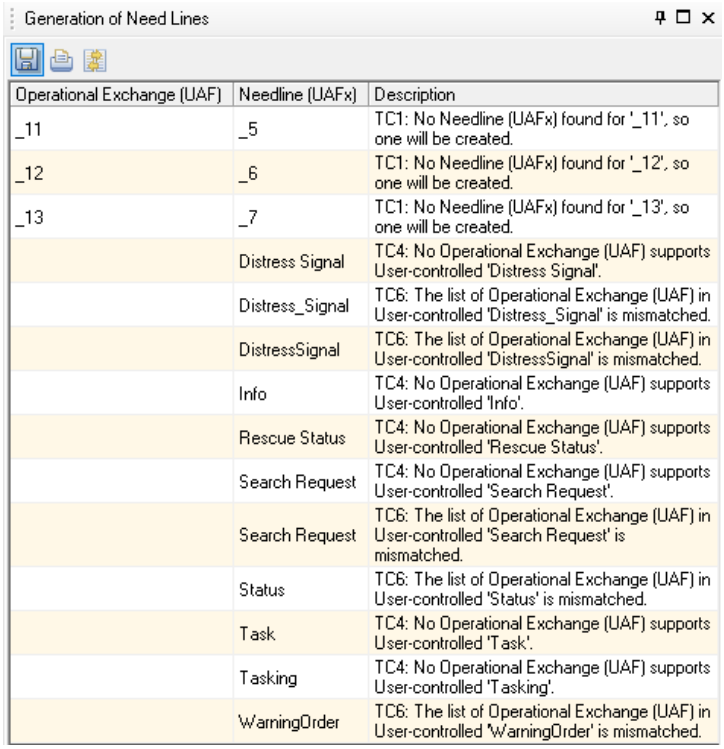


Update the Op-Sr Model

1. Open the **Op-Sr Operational Structure** diagram named **SAR with Auto-Generated Needlines**.
2. Select Tools, UAF Utilities, Generate Need Lines.
3. View the report that opens. It shows every Needline created and why.
4. Close the report by clicking the x in its upper right-hand corner.





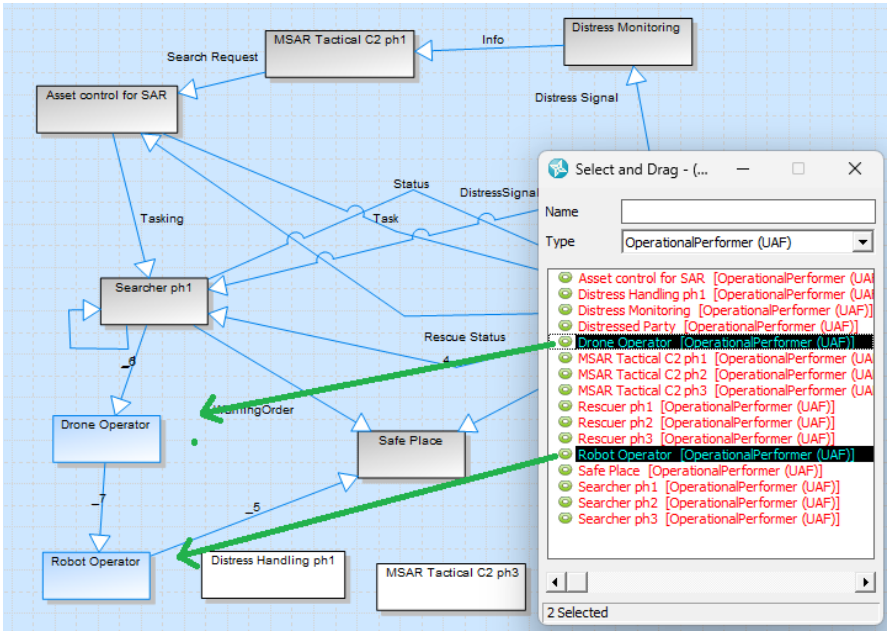


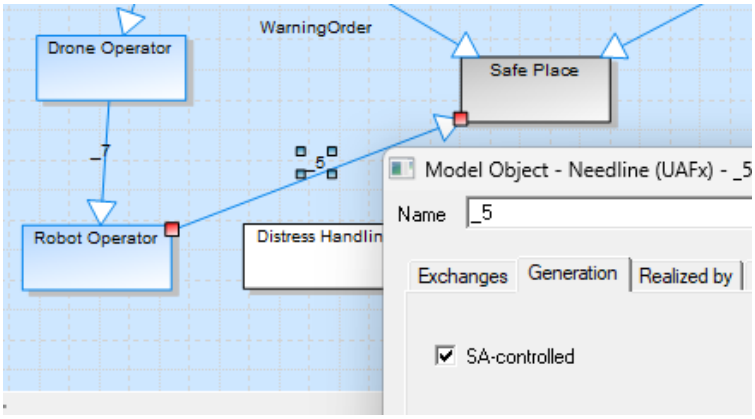
Operational Exchange (UAF)	Needline (UAFx)	Description
_11	_5	TC1: No Needline (UAFx) found for '_11', so one will be created.
_12	_6	TC1: No Needline (UAFx) found for '_12', so one will be created.
_13	_7	TC1: No Needline (UAFx) found for '_13', so one will be created.
	Distress Signal	TC4: No Operational Exchange (UAF) supports User-controlled 'Distress Signal'.
	Distress_Signal	TC6: The list of Operational Exchange (UAF) in User-controlled 'Distress_Signal' is mismatched.
	DistressSignal	TC6: The list of Operational Exchange (UAF) in User-controlled 'DistressSignal' is mismatched.
	Info	TC4: No Operational Exchange (UAF) supports User-controlled 'Info'.
	Rescue Status	TC4: No Operational Exchange (UAF) supports User-controlled 'Rescue Status'.
	Search Request	TC4: No Operational Exchange (UAF) supports User-controlled 'Search Request'.
	Search Request	TC6: The list of Operational Exchange (UAF) in User-controlled 'Search Request' is mismatched.
	Status	TC6: The list of Operational Exchange (UAF) in User-controlled 'Status' is mismatched.
	Task	TC4: No Operational Exchange (UAF) supports User-controlled 'Task'.
	Tasking	TC4: No Operational Exchange (UAF) supports User-controlled 'Tasking'.
	WarningOrder	TC6: The list of Operational Exchange (UAF) in User-controlled 'WarningOrder' is mismatched.

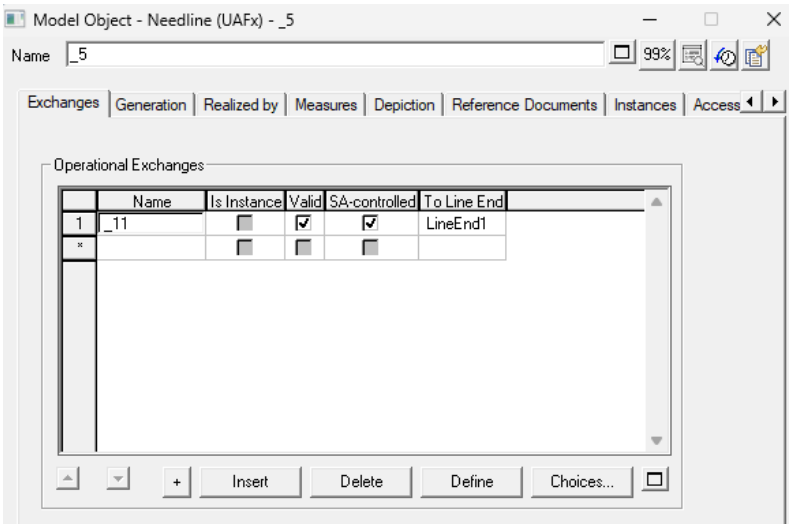
5. Right-mouse click on the diagram workspace and select Choices.
6. Filter on OperationalPerformer, and select-and-drag the following performers onto the diagram:

- **Drone Operator**
- **Robot Operator**

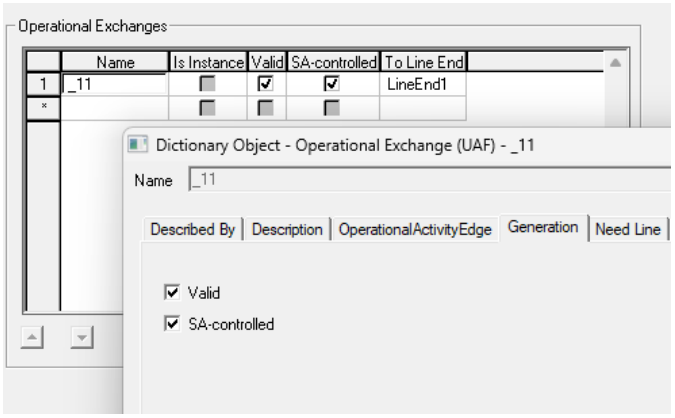
7. The Needlines between these performers and other performers will auto-draw.
8. Open the definition of the Needline between **Robot Operator** and **Safe Place** (the name of it – which is the number _5 in our example to the right – may differ than what you have since it was autogenerated).
9. Navigate to its Exchanges tab and note the Operational Exchange that caused the Needline to be generated is listed (in our case it is _11 – your name may vary since it is autogenerated).
10. Click on the Define button in the lower right of the dialog for the Operational Exchange to open its definition.



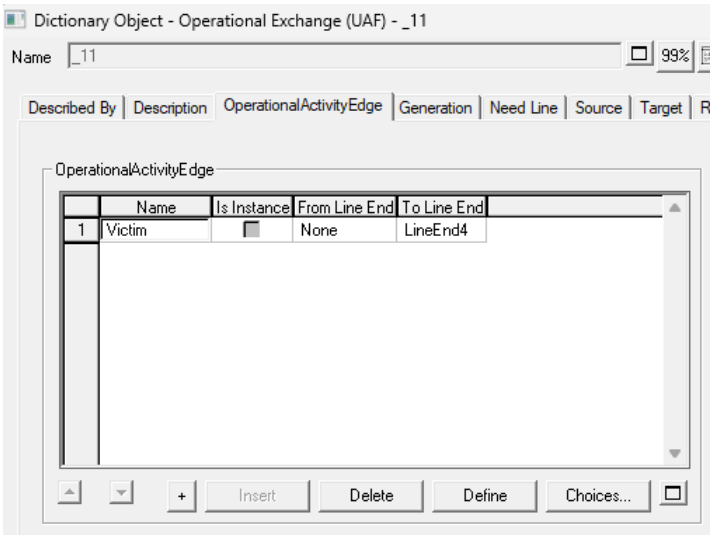




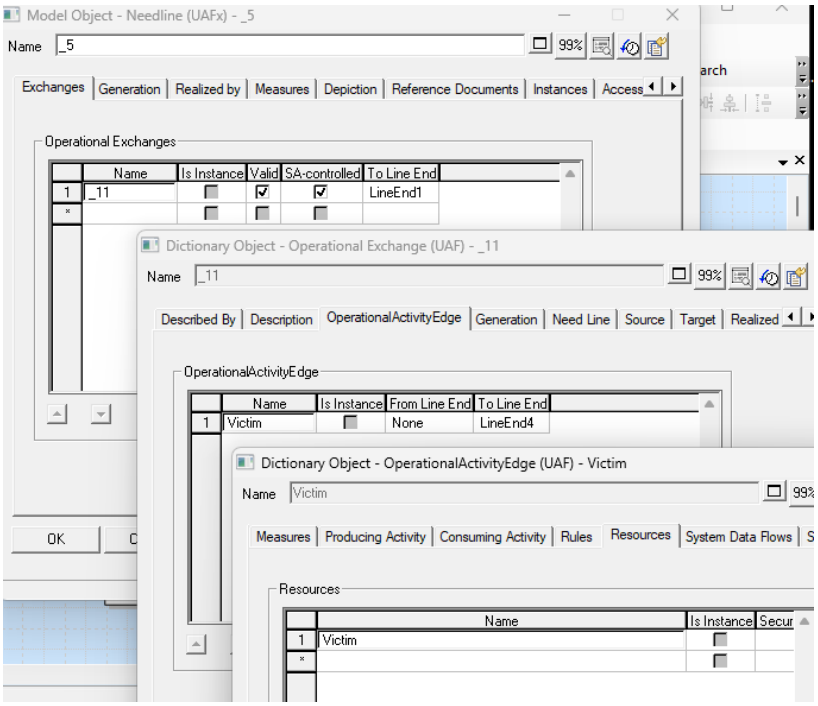
11. In the Operational Exchange definition, navigate to its Generation tab – not that Valid and SA-Controlled are toggled on. This is due to it being auto-generated.



12. Navigate to the Operational Exchange definition's OperationalActivityEdge tab – notice that the relationship Victim is listed.



13. Click on the Define button for Victim – to open the OperationalActivityEdge definition – and navigate to its Resources tab. There lies the Resource – Victim – that we entered before.



Resources Viewpoint

Goals of this Lab:

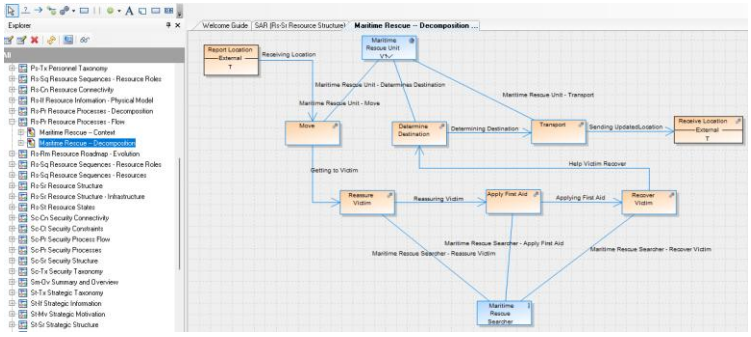
- Understand the UAF Resources Viewpoint

Structure Aspect – and the Resource Structure View Specification

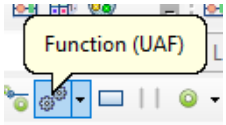
Objectives of this Section:

- Examine the Resource Structure View
- Examine the Resource Process View
- Tie Operational Activities to Resources and Resource Functions with matrices

1. Open the Rs-Pr Resource Processes – Flow view named **Maritime Rescue – Decomposition**.

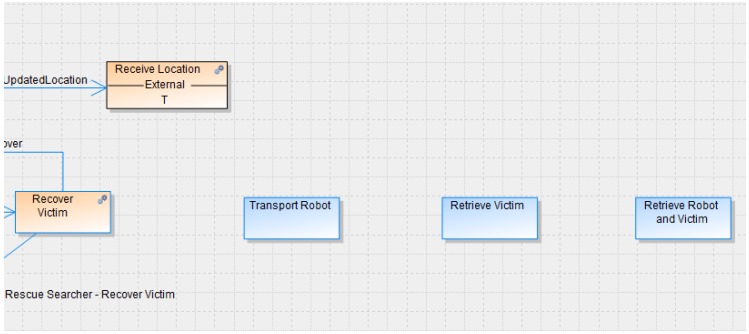


2. Using the Function (UAF) symbol from the Draw toolbar, draw 3 new Functions on the diagram (see picture on right):

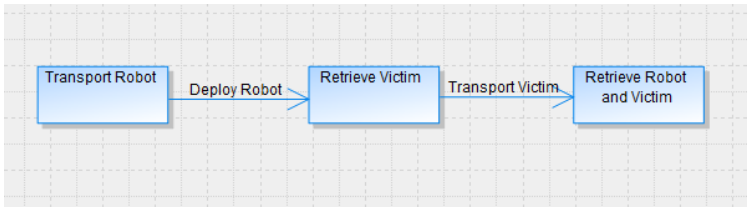


   - **Transport Robot**
   - **Retrieve Victim**
   - **Retrieve Robot and Victim**

3. Draw FunctionEdge relationships between them as follows:



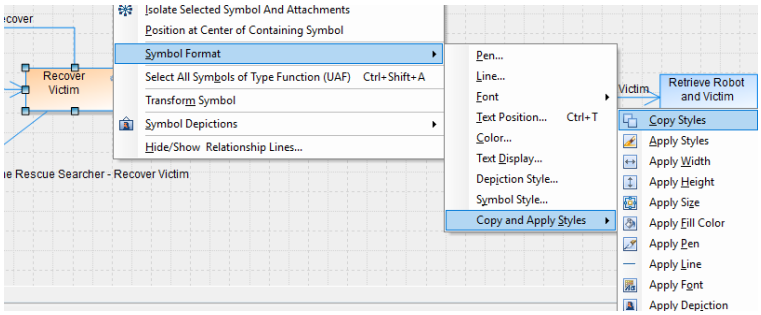
   - **Deploy Robot** between Transport Robot and Retrieve Victim
   - **Transport Victim** between Retrieve Victim and Retrieve Robot and Victim.



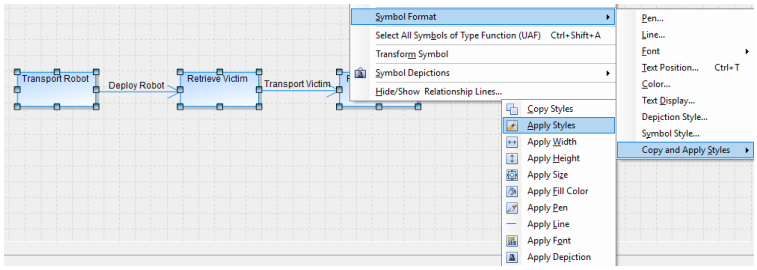
The new symbols we added are not the same size or color as the existing Function symbols on the diagram. Let's quickly change that.

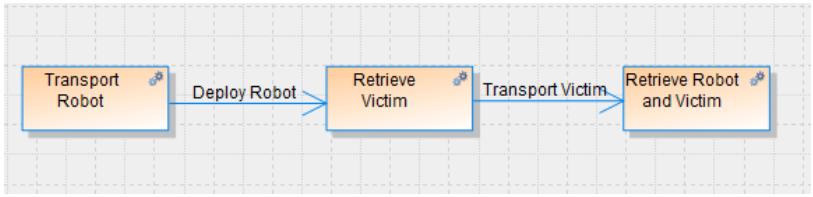
4. Select one of the orange Function symbols on the diagram, right-mouse click and

select Symbol Format, Copy and Apply Styles, Copy Styles.



5. Multi-select the 3 new Function symbols (colored blue) and right-mouse click, and select Symbol Format, Copy and Apply Styles, Apply Style. They all change to be the same color (orange) and size as the other Function symbols.

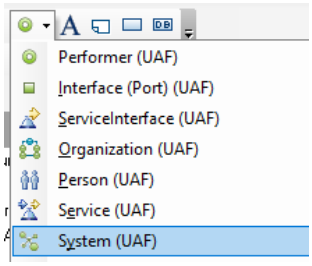


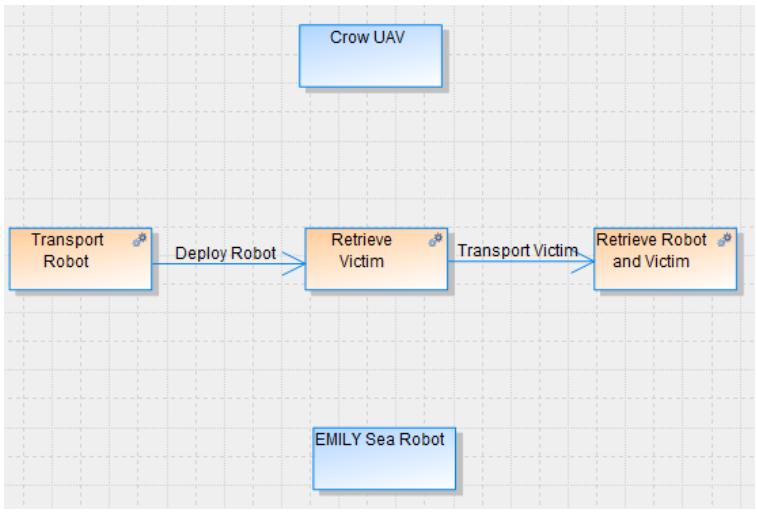


Add New Systems

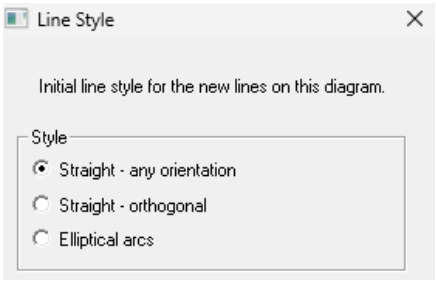
6. On the **Draw** menu – drop down the list under Performer and select the **System (UAF)** symbol. Use it to draw 2 new systems on the diagram (see picture to right):

- **Crow UAV**
- **EMILY Sea Robot**

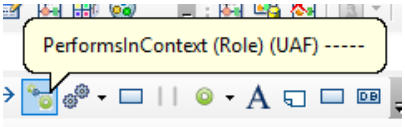




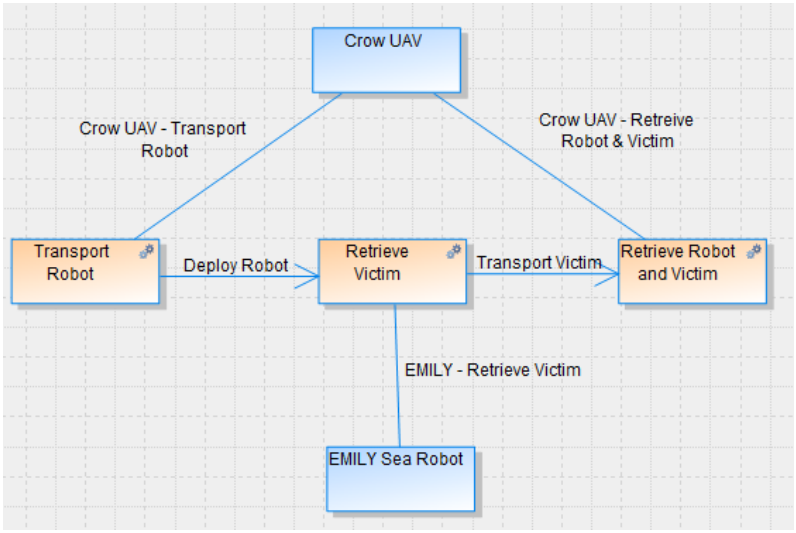
7. Select **Format, Symbol Format, Line** and in the **Line Style** dialog, toggle on **Straight – Any Orientation**.



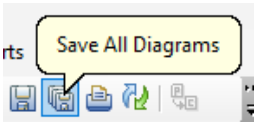
8. Select the PerformsInContext (Role) relationship from the Draw toolbar and draw the following lines (see diagram to right):

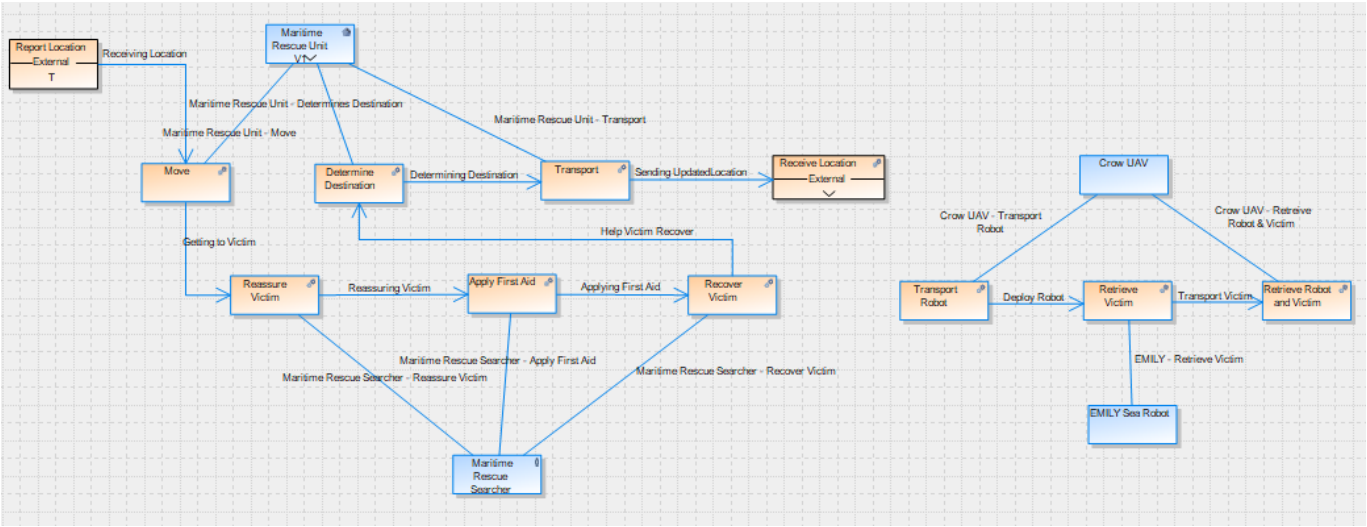


- **Crow UAV – Transport Robot** between the function Transport Robot and the system Crow UAV
- **Crow UAV – Retrieve Robot & Victim** from the function Retrieve Robot and Victim and the system Crow UAV
- **EMILY – Retrieve Victim** from the function Retrieve Victim and the system EMILY Sea Robot.



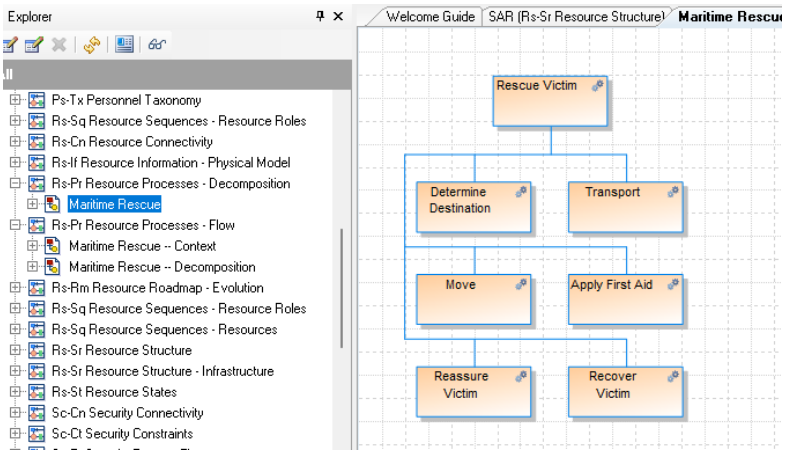
9. Click the **Save All Diagrams** button.

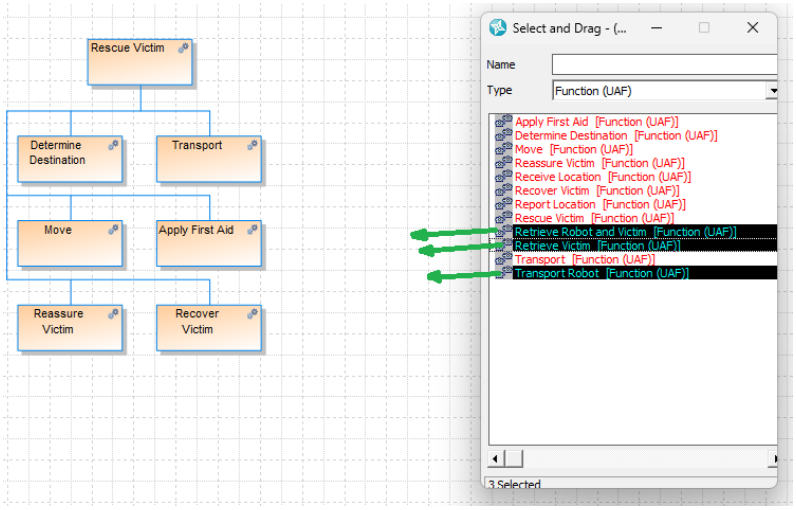




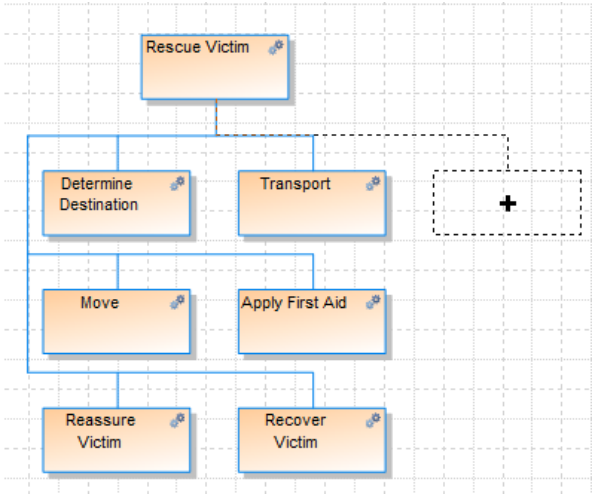
Add Functions to Hierarchy

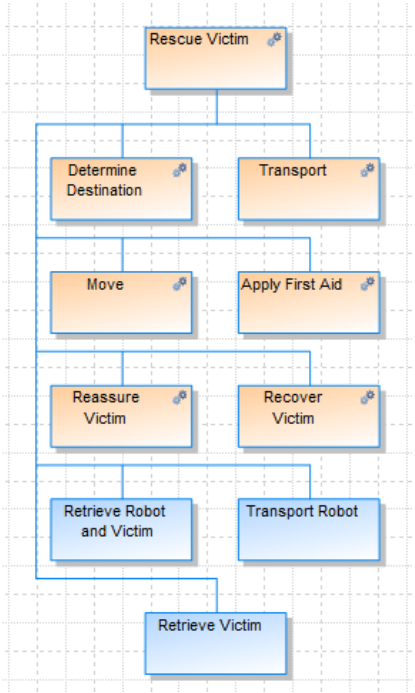
1. Open the diagram type **Rs-Pr Resource Processes – Decomposition** named **Maritime Rescue**.
2. Right-mouse click on the diagram workspace and select Choices. From the Select and Drag dialog, filter on Function at the top, and drag the following Functions onto the diagram:
   - **Retrieve Robot and Victim**
   - **Transport Robot**
   - **Retrieve Victim**



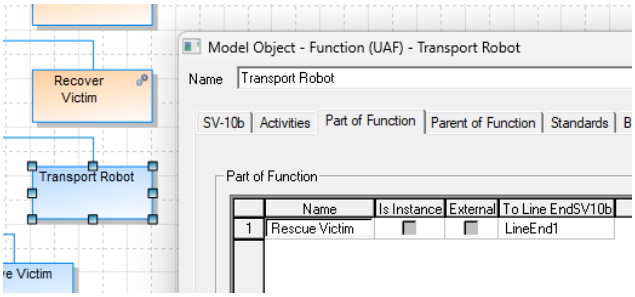


3. Individually and one at a time, drag each new function added to the diagram so that it is underneath **Rescue Victim** – until it auto-connects to the tree (see picture to right).



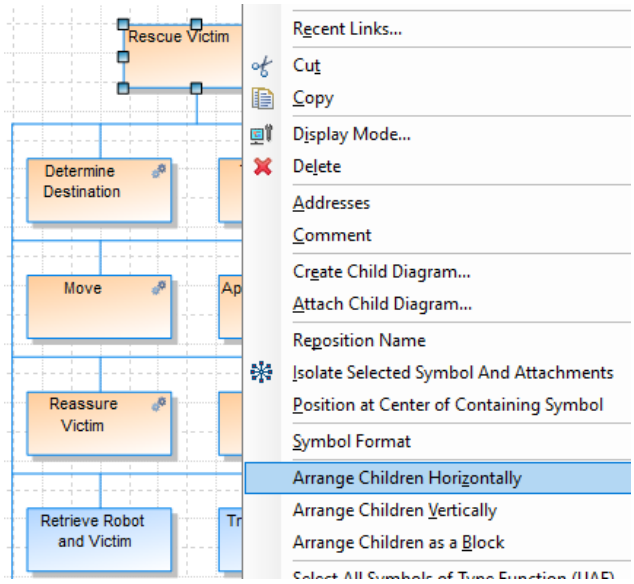


4. Open the definition of one of the new Functions – for example, Transport Robot. Notice that on its Part of Function tab, its parent is filled in.



5. Note that to move the tree of functions, you must select the top-most item in the tree – in our case, Rescue Victim -- and move it – you do not lasso-select the tree and move it.

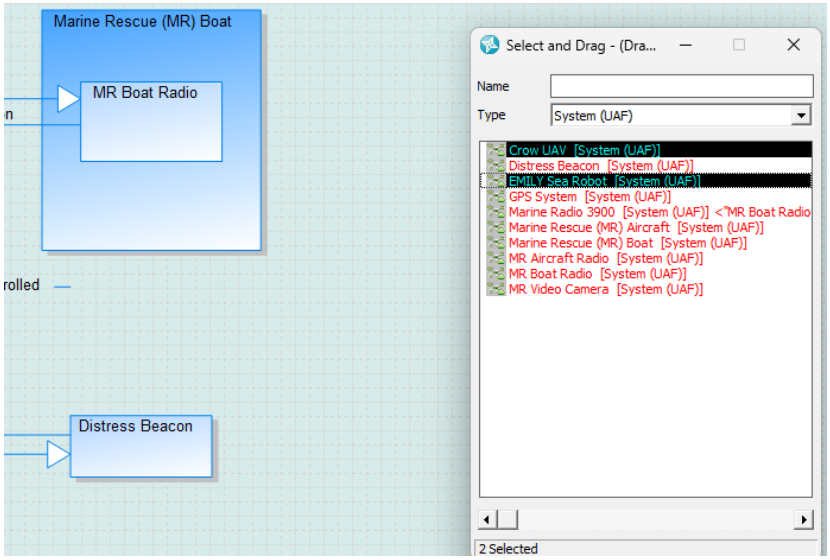
6. Right-mouse click on Rescue Victim, and choose **Arrange Children Horizontally** to change the look of the tree.

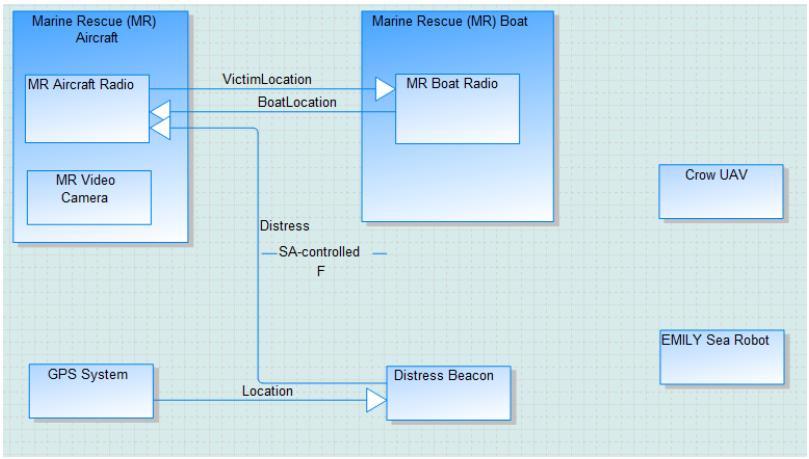


7. Change it back to **Arrange Children as a Block.**

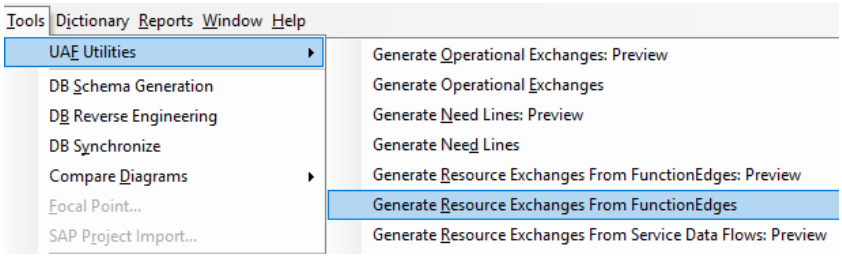
Add Systems to Rs-Sr View

1. Open the **Rs-Sr Resource Structure** diagram named **SAR**.
2. Right-mouse click on the diagram workspace and select Choices.
3. From the Select and Drag dialog, drag-and-drop the new Systems onto the diagram:
   - **Crow UAV**
   - **EMILY Sea Robot**
4. Select **Format, Symbol Format, Line** and change the line style to **Straight – Any Orientation**.

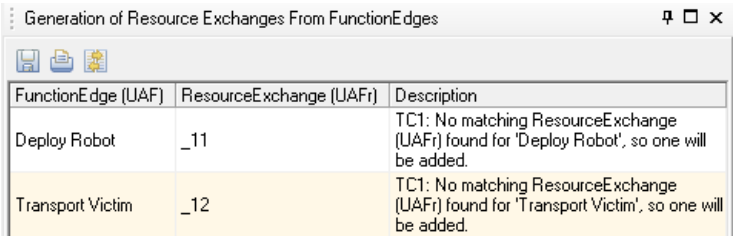




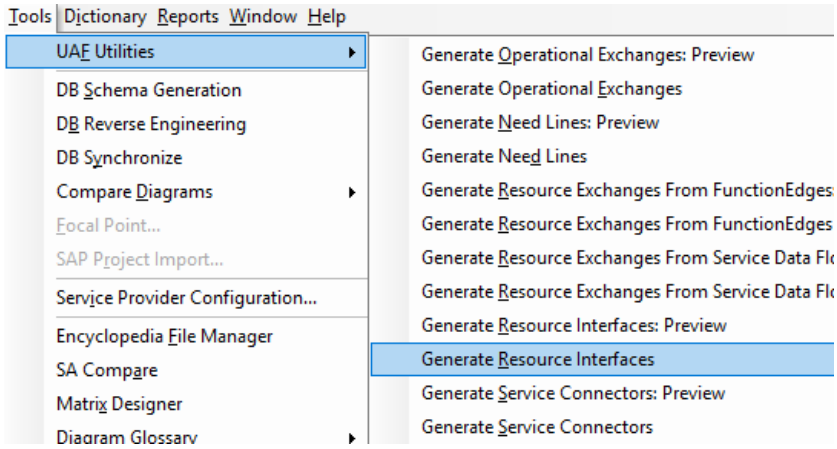
5. Select **Tools, UAF Utilities, Generate Resource Exchanges From FunctionEdges**.



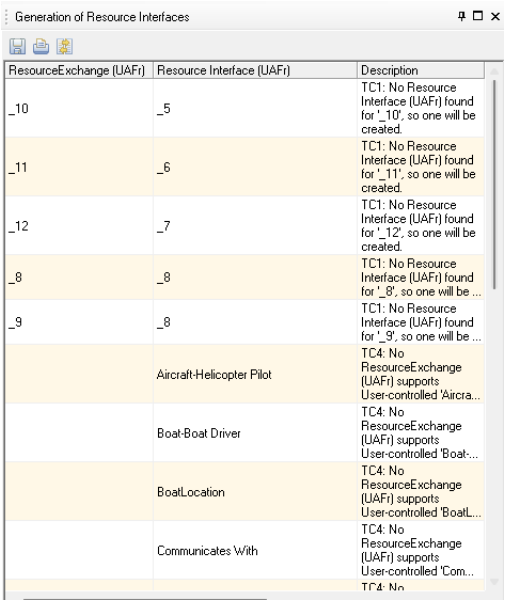
6. Examine the report generated, which specifies the Resource Exchanges automatically generated.



7. Select **Tools, UAF Utilities, Generate Resource Interfaces**.

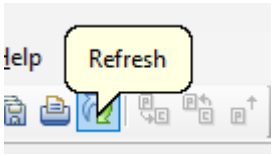


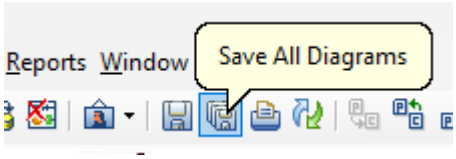
8. Examine the report generated, which specifies the Resource Interfaces automatically generated, and why.

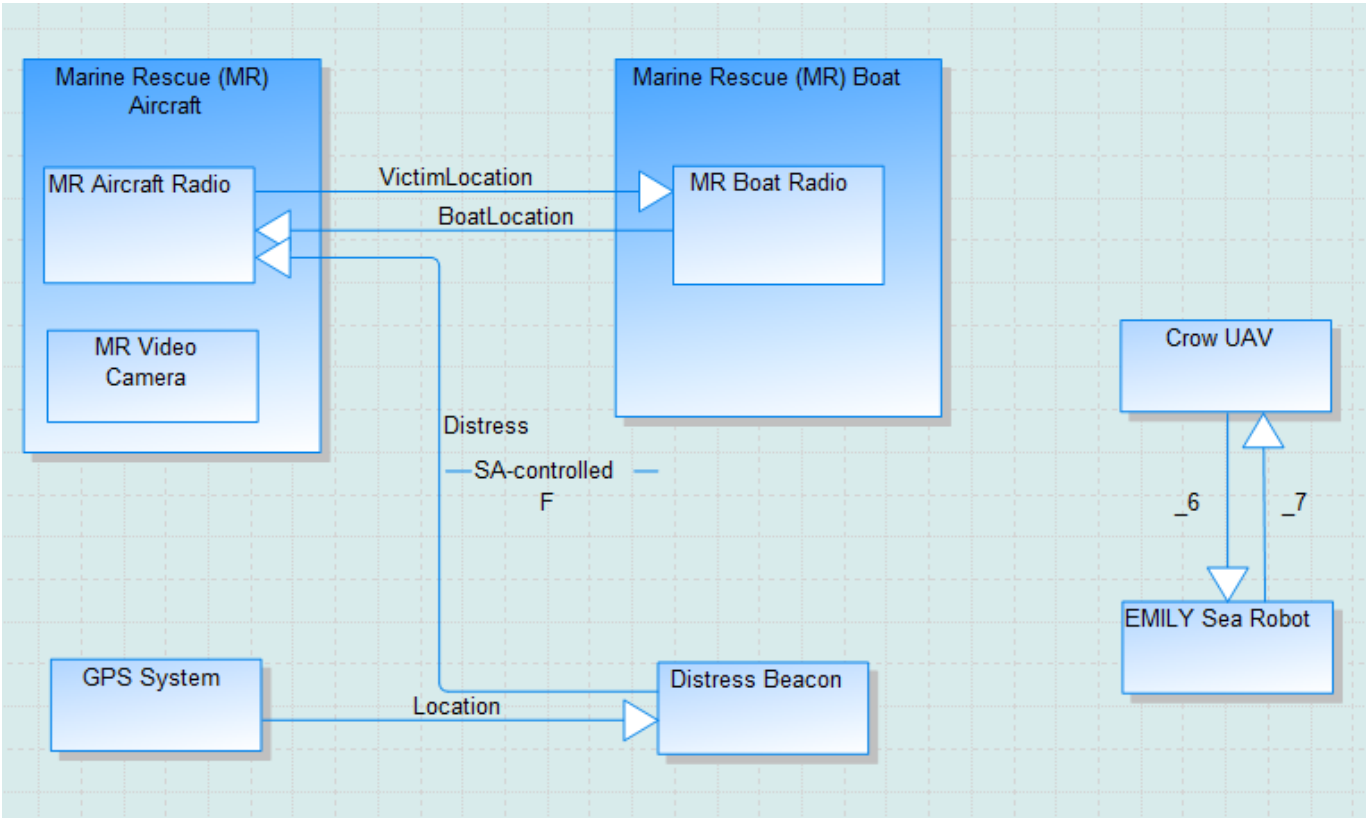


9. Click the Refresh button at on the top menu of System Architect to refresh the diagram. Note that new Resource Interfaces are displayed between the new Systems (see diagram below).

10. Select **Save All Diagrams**.





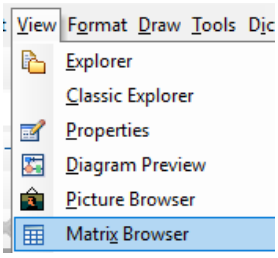


What did you just do?

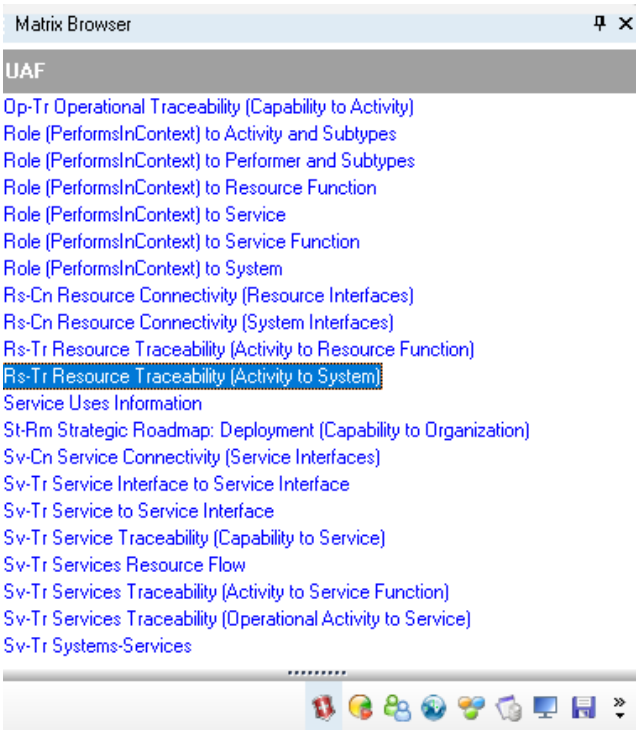
- Added new System Functions and Systems to the architecture.
- Learned how to connect symbols in a hierarchical diagram – in our case the **Rs-Pr Resource Processes – Decomposition** diagram.
- Auto-generated System Exchanges and System Interfaces.

Traceability: Operation Viewpoint thru Resource Viewpoint

1. Select **View, Matrix Browser**.



2. In Matrix Browser dialog select **Rs-Tr Resource Traceability (Activity to System)**.



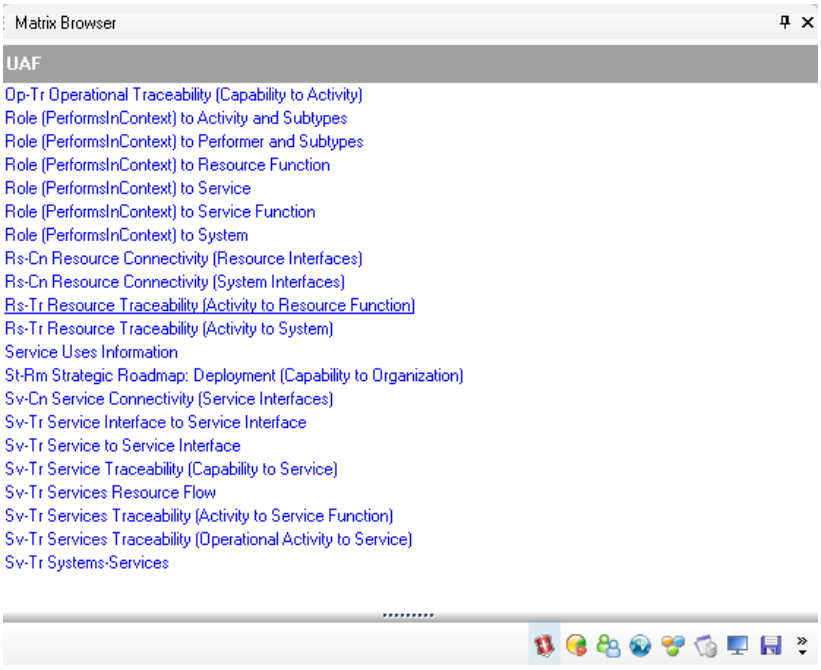
3. Select **Next** and **Finish** to the dialogs that open to open the matrix.

4. Toggle on the cells as shown circled in green in the picture to the right to relate the new Activities to the new Systems.

OperationalActivity (UAF) \ System (UAF)	Crow UAV	Distress Beacon	EMILY Sea Robot	GPS System	Marine Radio 3900	Marine Rescue (MR) Aircraft	Marine Rescue (MR) Boat	MR Aircraft Radio	MR Boat Radio	MR Video Camera
AI Drone Find Victim										
Assist Victim						X	X			
Check Weather & Sea Conditions										
Deploy AI Drone	X									
Deploy Robot	X		X							
Deploy Robot Recovery	X									
Find Victim						X	X			X
Manage SAR Resources										
Monitor for Distress Signal								X	X	
Monitor Health										
Monitor Victim										X
Process Warning Order										
Provide Medical Assistance										
Receive Distress Signal								X	X	
Recover Victim			X							
Rescue							X			
Rescue in Sea States > 7										
Rescue Victim						X	X			
SAR Collaboration ph3										
Search										

5. Select View, Matrix Browser again, and this time select and open the Rs-Tr Resource Traceability (Activity to Resource Function) matrix.

6. Select Next and Finish to navigate through the Matrix Filter dialogs and open the matrix.

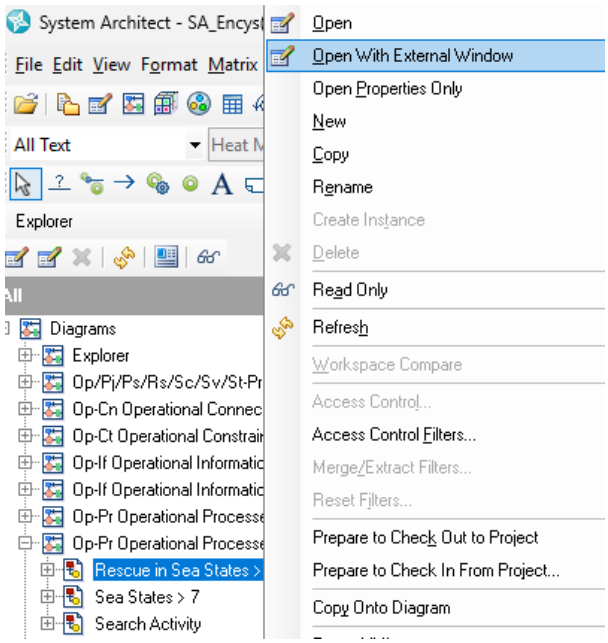


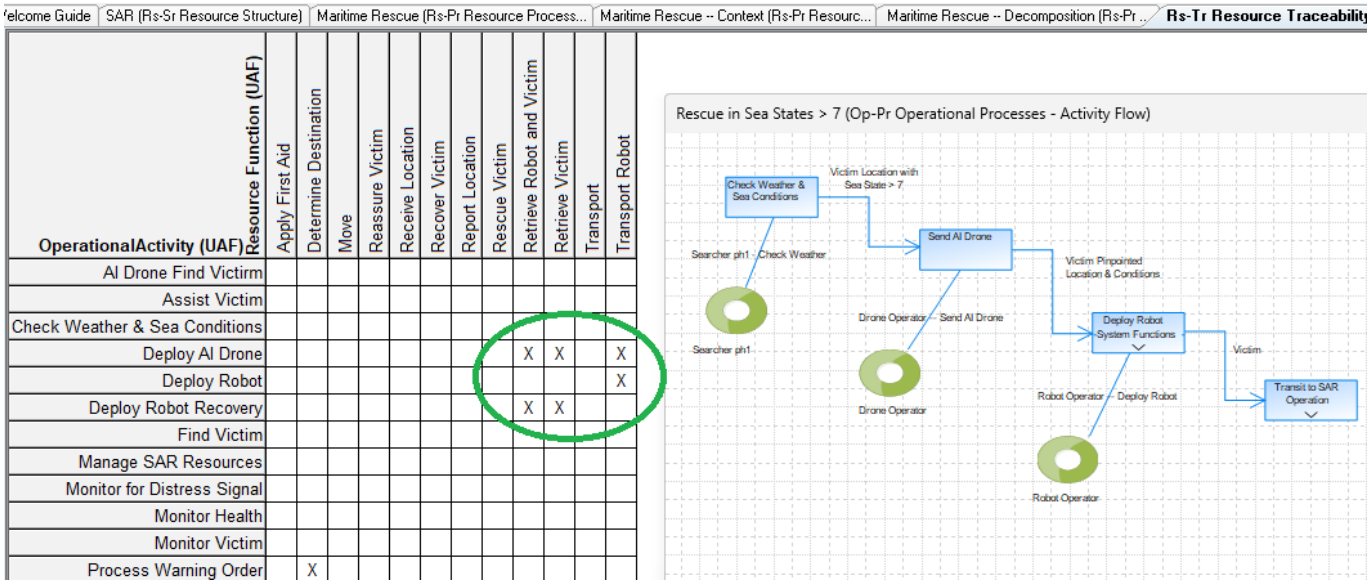
To provide guidance as to what cells to toggle on to relate new Activities to new System Functions, we'll open the Operational Process diagram to a secondary window.

7. Right-mouse click on the Op-Pr Operational Processes – Flow diagram named **Rescue in Sea States > 7**, and select **Open With External Window**.

8. Move the floating diagram to the right of the matrix to view the new Activities.

9. Toggle the cells shown circled in green in the picture below to relate the new Activities to the new System Functions.


System Architect - SA_Encyst
File Edit View Format Matrix
All Text
Explorer
Diagrams
Explorer
Op/Pj/Ps/Rs/Sc/Sv/St-Pr
Op-Cn Operational Connec
Op-Ct Operational Constrair
Op-If Operational Informatic
Op-If Operational Informatic
Op-Pr Operational Processe
Op-Pr Operational Processe
Rescue in Sea States >
Sea States > 7
Search Activity
Open
Open With External Window
Open Properties Only
New
Copy
Rename
Create Instance
Delete
Read Only
Refresh
Workspace Compare
Access Control...
Access Control Filters...
Merge/Extract Filters...
Reset Filters...
Prepare to Check Out to Project
Prepare to Check In From Project...
Copy Onto Diagram


elcome Guide
SAR (Rs-Sr Resource Structure)
Maritime Rescue (Rs-Pr Resource Process...
Maritime Rescue -- Context (Rs-Pr Resourc...
Maritime Rescue -- Decomposition (Rs-Pr ...
Rs-Tr Resource Traceability
OperationalActivity (UAF)
Resource Function (UAF)
Apply First Aid
Determine Destination
Move
Reassure Victim
Receive Location
Recover Victim
Report Location
Rescue Victim
Retrieve Robot and Victim
Retrieve Victim
Transport
Transport Robot
AI Drone Find Victim
Assist Victim
Check Weather & Sea Conditions
Deploy AI Drone
Deploy Robot
Deploy Robot Recovery
Find Victim
Manage SAR Resources
Monitor for Distress Signal
Monitor Health
Monitor Victim
Process Warning Order
Rescue in Sea States > 7 (Op-Pr Operational Processes - Activity Flow)
Check Weather & Sea Conditions
Victim Location with Sea State > 7
Send AI Drone
Searcher ph1 - Check Weather
Victim Pinpointed Location & Conditions
Searcher ph1
Drone Operator - Send AI Drone
Deploy Robot System Functions
Victim
Drone Operator
Robot Operator - Deploy Robot
Transit to SAR Operation
Robot Operator

What did you just do?

- Used the Matrices to create traceability between the new Operational Activities and new Systems.
- Used the Matrices to create traceability between the new Operational Activities and the new System Functions.
- Used the feature in System Architect to open a diagram to a secondary window to use it to help us fill out a matrix. You can edit any diagram when it is in a secondary window – the Draw toolbar and all other menu items become available.

Reporting – "Ask the Architecture Questions"

Goals of this Lab:

- Run out-of-box reports for UAF
- Create a report to "ask the architecture questions"

Run Out-of-Box UAF Reports

Objectives of this Section:

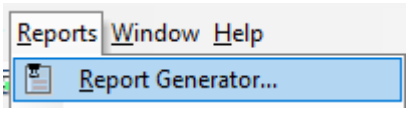
- Open UAF Report File and run several reports
- Create a new report

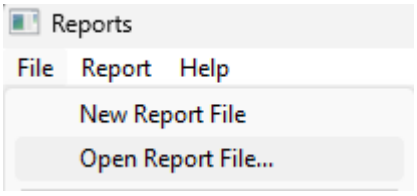
1. Select **Reports, Report Generator**.

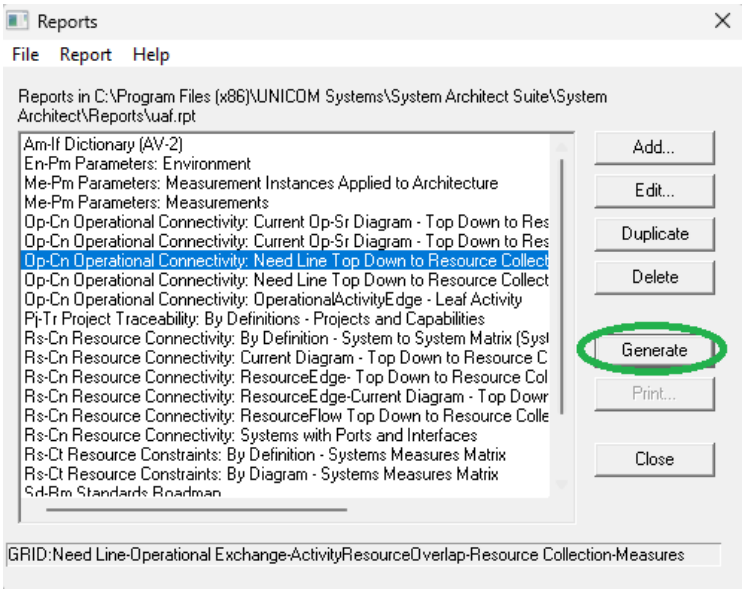
62. In the Reports dialog, select **File, Open Report File**, and select and open the **UAF.rpt** file in the Reports directory (found in C:\Program Files (x86)\UNICOM Systems\System Architect Suite\System Architect\Reports if it doesn't auto open to the Reports directory).

2. With the UAF.rpt file open, notice the pre-built reports for UAF that System Architect ships with.

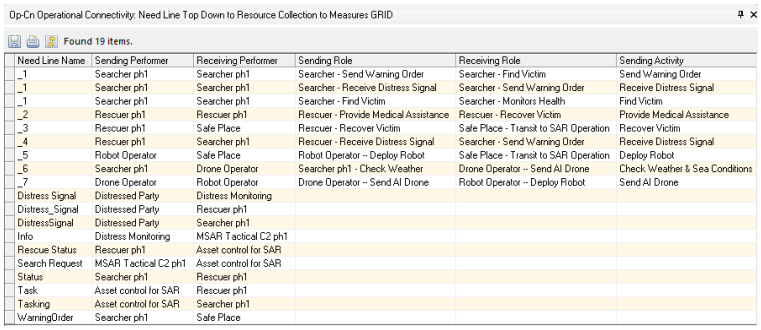
3. Run the report **Op-Cn Operational Connectivity Need Line Top Down to Resource Collection to Measures -- Grid** by selecting it and clicking **Generate** or by simply double-clicking on it.





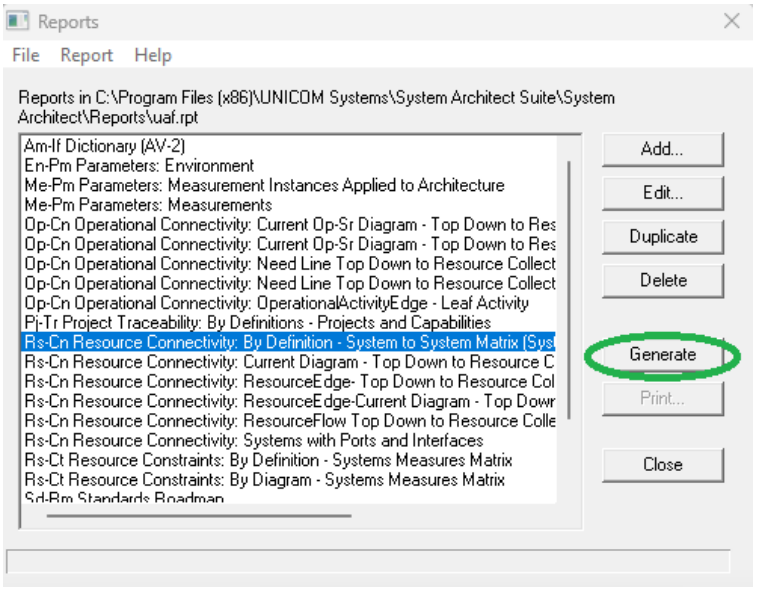


Note that the report outputs to a grid. You can double click on cells in the grid to open the represented definition. You can also save the grid to Excel or a spreadsheet format.

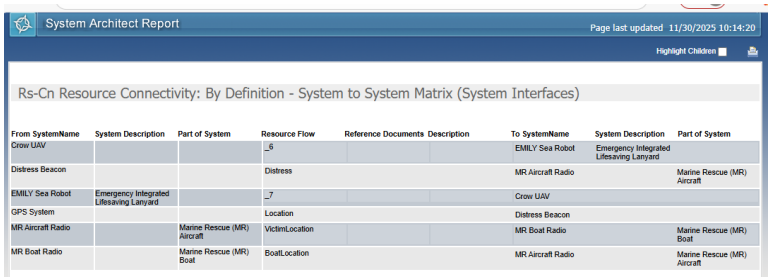


Need Line Name	Sending Performer	Receiving Performer	Sending Role	Receiving Role	Sending Activity
_1	Searcher ph1	Searcher ph1	Searcher - Send Warning Order	Searcher - Find Victim	Send Warning Order
_1	Searcher ph1	Searcher ph1	Searcher - Receive Distress Signal	Searcher - Send Warning Order	Receive Distress Signal
_1	Searcher ph1	Searcher ph1	Searcher - Find Victim	Searcher - Monitors Health	Find Victim
_2	Rescuer ph1	Rescuer ph1	Rescuer - Provide Medical Assistance	Rescuer - Recover Victim	Provide Medical Assistance
_3	Rescuer ph1	Safe Place	Rescuer - Recover Victim	Safe Place - Transit to SAR Operation	Recover Victim
_4	Rescuer ph1	Searcher ph1	Rescuer - Receive Distress Signal	Searcher - Send Warning Order	Receive Distress Signal
_5	Robot Operator	Safe Place	Robot Operator -- Deploy Robot	Safe Place - Transit to SAR Operation	Deploy Robot
_6	Searcher ph1	Drone Operator	Searcher ph1 - Check Weather	Drone Operator -- Send AI Drone	Check Weather & Sea Conditions
_7	Drone Operator	Robot Operator	Drone Operator -- Send AI Drone	Robot Operator -- Deploy Robot	Send AI Drone
Distress Signal	Distressed Party	Distress Monitoring			
Distress_Signal	Distressed Party	Rescuer ph1			
DistressSignal	Distressed Party	Searcher ph1			
Info	Distress Monitoring	MSAR Tactical C2 ph1			
Rescue Status	Rescuer ph1	Asset control for SAR			
Search Request	MSAR Tactical C2 ph1	Asset control for SAR			
Status	Searcher ph1	Rescuer ph1			
Task	Asset control for SAR	Rescuer ph1			
Tasking	Asset control for SAR	Searcher ph1			
WarningOrder	Searcher ph1	Safe Place			

4. Next run the report **Rs-Cn Resource Connectivity By Definition – System to System Matrix** – again by simply double-clicking on it or clicking the Generate button.



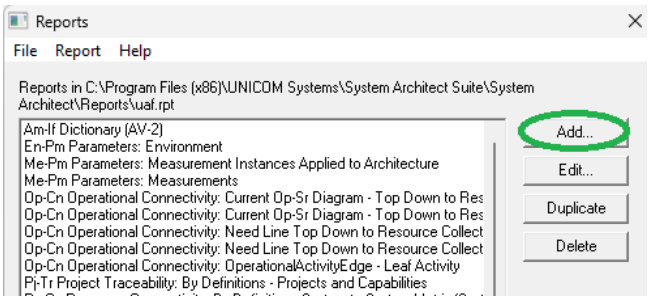
This report generates to HTML output, that you can save to PDF.



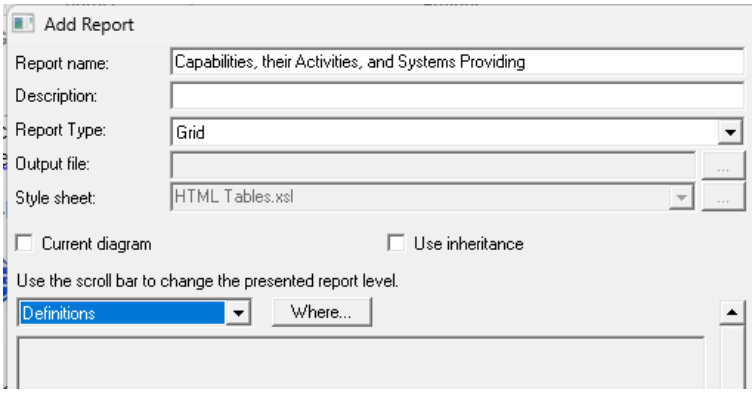
From SystemName	System Description	Part of System	Resource Flow	Reference Documents	Description	To SystemName	System Description	Part of System
Crow UAV			_6			EMILY Sea Robot	Emergency Integrated Lifesaving Lanyard	
Distress Beacon			Distress			MR Aircraft Radio		Marine Rescue (MR) Aircraft
EMILY Sea Robot	Emergency Integrated Lifesaving Lanyard		_7			Crow UAV		
GPS System			Location			Distress Beacon		
MR Aircraft Radio		Marine Rescue (MR) Aircraft	VictimLocation			MR Boat Radio		Marine Rescue (MR) Boat
MR Boat Radio		Marine Rescue (MR) Boat	BoatLocation			MR Aircraft Radio		Marine Rescue (MR) Aircraft

Add a New Report

1. In the **Reports** dialog, click the **Add** button.

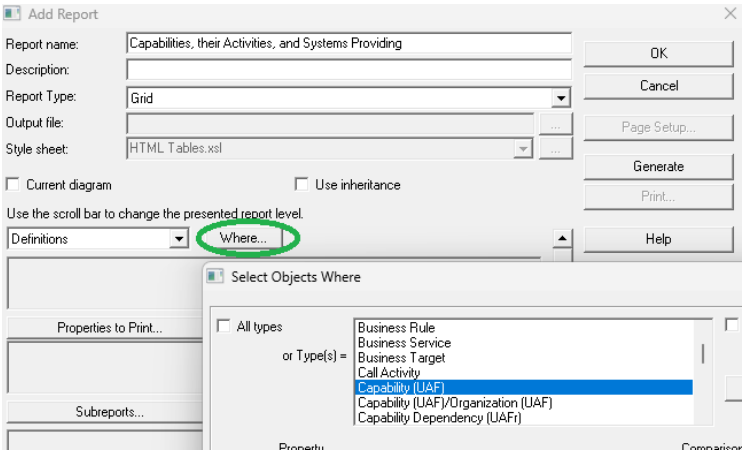


2. Type in a new Report Name – **Capabilities, their Activities, and Systems Providing**.

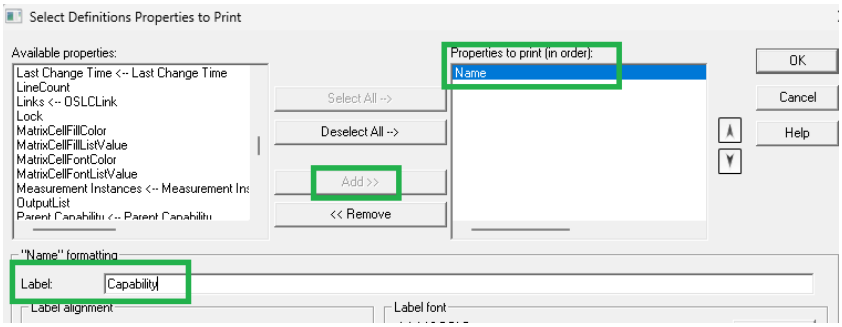


3. On the first level of the report – select **Definitions** from the drop-down list (that also has Diagrams and Symbols). See picture to right.

4. Click the Where button, and in the dialog that opens, toggle **off** All types, and select **Capability (UAF)** from the list. Click OK to close the dialog.

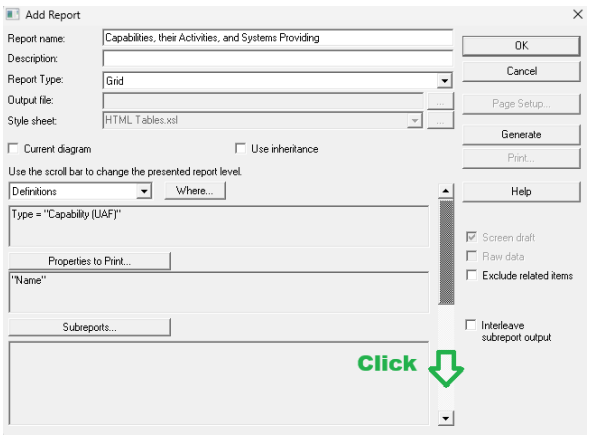


5. Back on the main report dialog, click **Properties to Print**, and in the dialog that opens – find **Name** on the left side, and click **Add** to move it to the right side.



6. Select **Name**, and type in **Capability** in the Label box in the middle of the dialog. Click OK to close the dialog.

7. Back on the main report dialog click the scroll bar once – it will move down a level in the report.



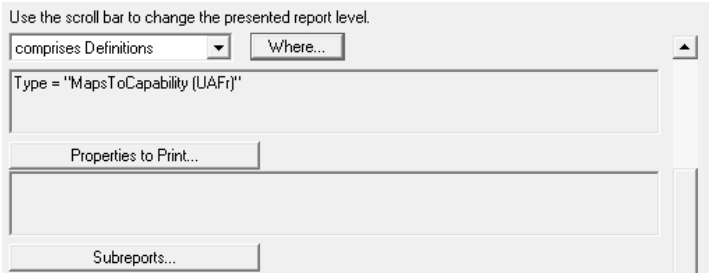
8. From the drop-down list on this next level, select **comprises Definitions**.

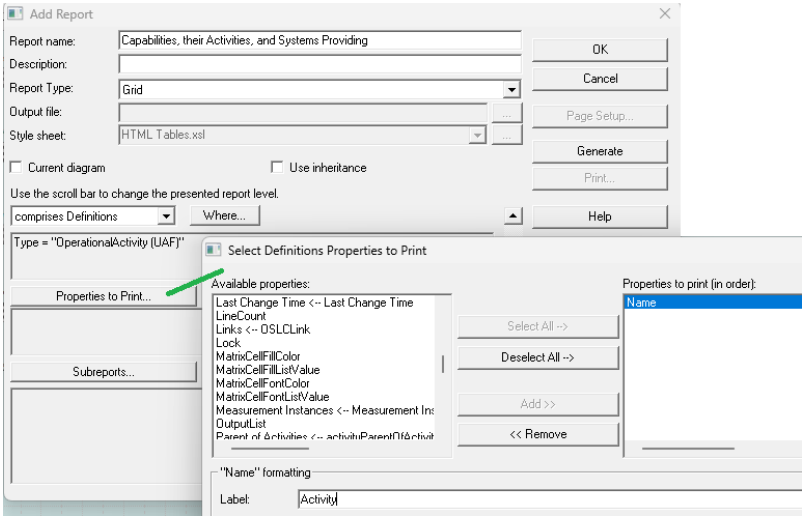
9. Click the **Where** button, untoggle All types, and select MapsToCapability (UAF). Click Ok.

10. Click the scroll bar to go down another level in the report.

11. On the next level, select comprises Definitions – and click the **Where** button.

12. In the dialog that opens, move **Name** to the right side, and highlight Name and type the label **Activity** in the Label property. Click OK.



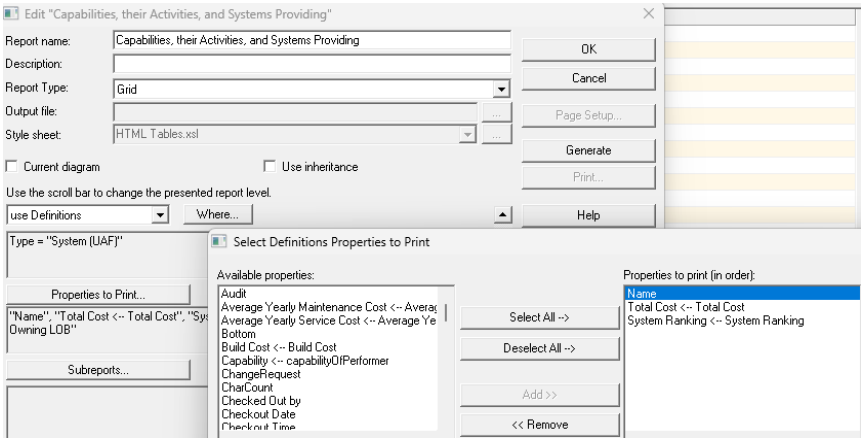


13. Back on the Report dialog, click the scroll bar to go down another level, and this time select **use Definitions.**

14. Click the Where button, toggle off All types, and select System (UAF). Click OK.

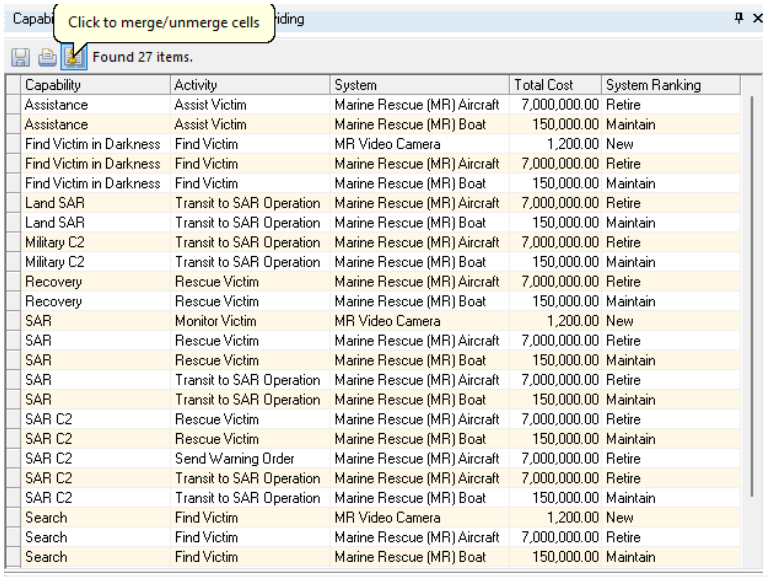
15. Click the Properties to Print button, and select and move over to the right the properties **Name, Total Cost,** and **System Ranking**.

16. For Name, type in a **Label** of **System**. Click OK.

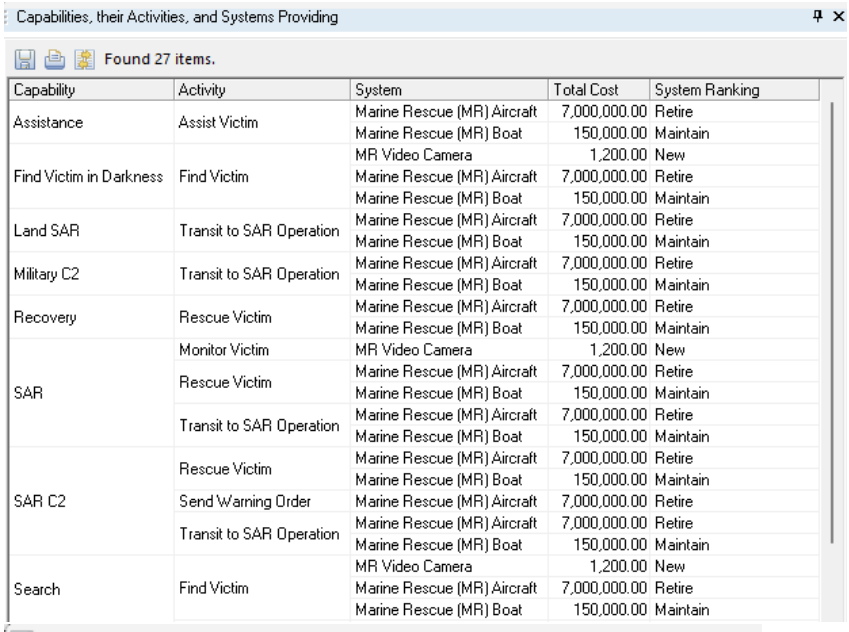


17. In the main report dialog, click **Generate** to run the report. The report generates to grid.

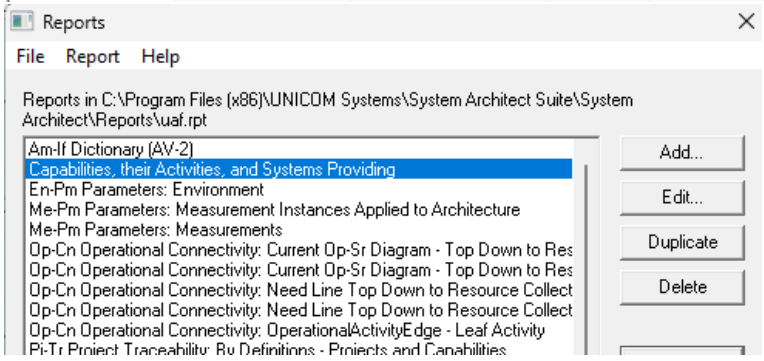
18. Click on the 3rd button from the left on the top of the report – Click to merge/unmerge cells. This will provide a cleaner look of the grid output.



Capability	Activity	System	Total Cost	System Ranking
Assistance	Assist Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
Assistance	Assist Victim	Marine Rescue (MR) Boat	150,000.00	Maintain
Find Victim in Darkness	Find Victim	MR Video Camera	1,200.00	New
Find Victim in Darkness	Find Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
Find Victim in Darkness	Find Victim	Marine Rescue (MR) Boat	150,000.00	Maintain
Land SAR	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
Land SAR	Transit to SAR Operation	Marine Rescue (MR) Boat	150,000.00	Maintain
Military C2	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
Military C2	Transit to SAR Operation	Marine Rescue (MR) Boat	150,000.00	Maintain
Recovery	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
Recovery	Rescue Victim	Marine Rescue (MR) Boat	150,000.00	Maintain
SAR	Monitor Victim	MR Video Camera	1,200.00	New
SAR	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
SAR	Rescue Victim	Marine Rescue (MR) Boat	150,000.00	Maintain
SAR	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
SAR	Transit to SAR Operation	Marine Rescue (MR) Boat	150,000.00	Maintain
SAR C2	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
SAR C2	Rescue Victim	Marine Rescue (MR) Boat	150,000.00	Maintain
SAR C2	Send Warning Order	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
SAR C2	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
SAR C2	Transit to SAR Operation	Marine Rescue (MR) Boat	150,000.00	Maintain
Search	Find Victim	MR Video Camera	1,200.00	New
Search	Find Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
Search	Find Victim	Marine Rescue (MR) Boat	150,000.00	Maintain



Capability	Activity	System	Total Cost	System Ranking
Assistance	Assist Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Find Victim in Darkness	Find Victim	MR Video Camera	1,200.00	New
		Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Land SAR	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Military C2	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Recovery	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
SAR	Monitor Victim	MR Video Camera	1,200.00	New
	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
SAR C2	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
	Send Warning Order	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Search	Find Victim	MR Video Camera	1,200.00	New
		Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain



Generate Report to HMTL

1. Select the report in the main Reports dialog, and click the **Duplicate** button.

2. Click **Edit** to edit the duplicate report.

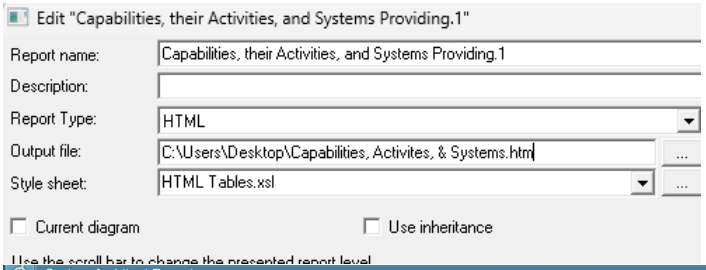
3. Change the Report Type

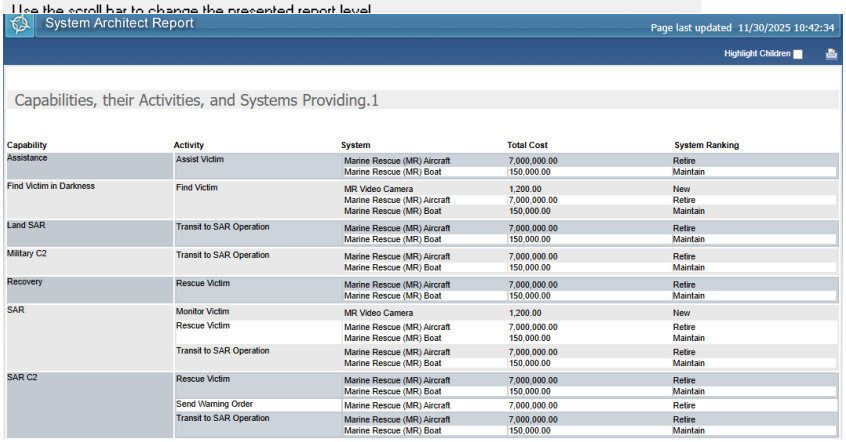
from Grid to HTML

4. Specify a place to generate the report and a name for the output file – generate it to your desktop and name it Capabilities, Activities, & Systems.

5. Leave the default Style Sheet of HTML Tables.xsl.

6. Click OK to close the report – then click Generate. The report will generate to HTML.





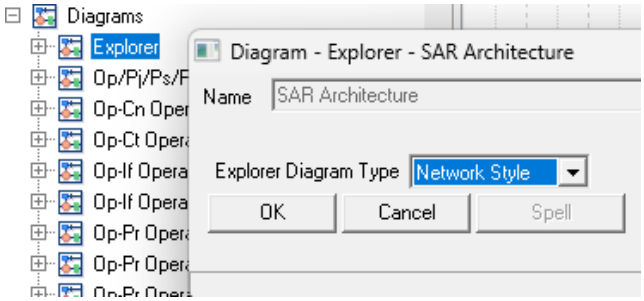
Capability	Activity	System	Total Cost	System Ranking
Assistance	Assist Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Find Victim in Darkness	Find Victim	MR Video Camera	1,200.00	New
		Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Land SAR	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Military C2	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
Recovery	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
SAR	Monitor Victim	MR Video Camera	1,200.00	New
	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
SAR C2	Rescue Victim	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain
	Send Warning Order	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
	Transit to SAR Operation	Marine Rescue (MR) Aircraft	7,000,000.00	Retire
		Marine Rescue (MR) Boat	150,000.00	Maintain

Visualize Portfolio Analysis with Explorer Diagram and Explorer Reports

Let's use an Explorer diagram to do some portfolio analysis, visually.

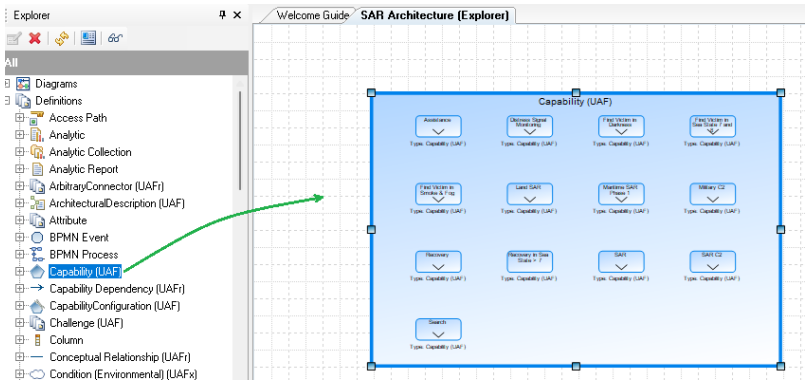
Create Line-of-Sight Diagram

1. Right-mouse click on the **Explorer** header under Diagrams in the Explorer tree and select New to create a new diagram of type **Explorer**, named **SAR** Architecture**.**

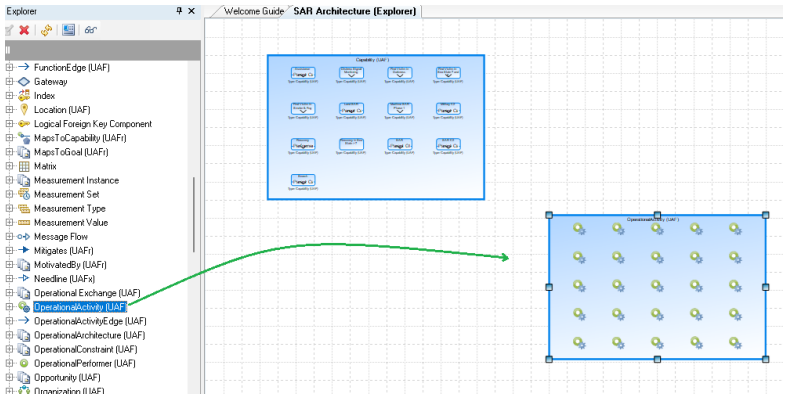


2. Leave the default type of **Network Style** and click **OK** to create the diagram.

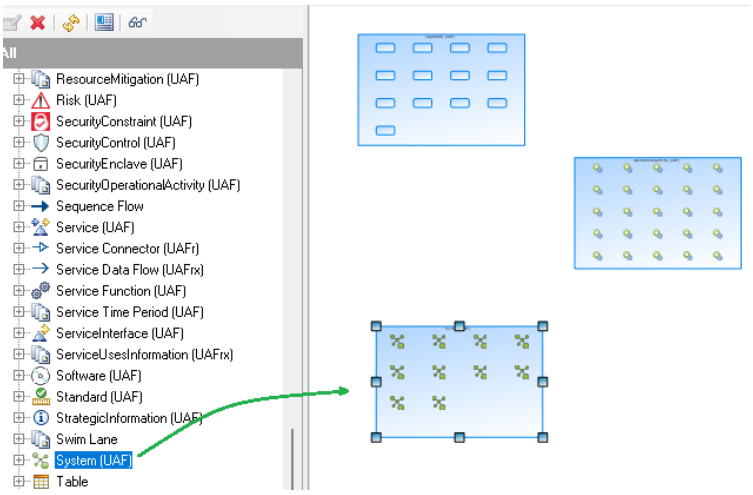
3. Expand the Definitions header in the Explorer tree, and drag the Capability (UAF) header onto the diagram. All Capabilities will be drawn, inside a collection box.



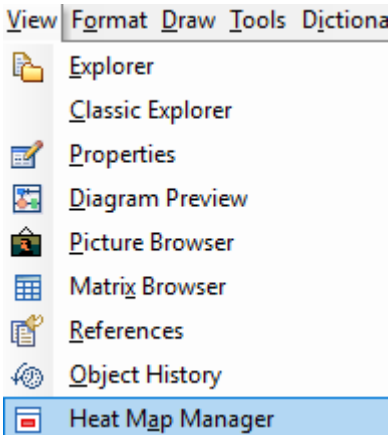
4. In a similar fashion, drag the OperationalActivity (UAF) header onto the diagram.

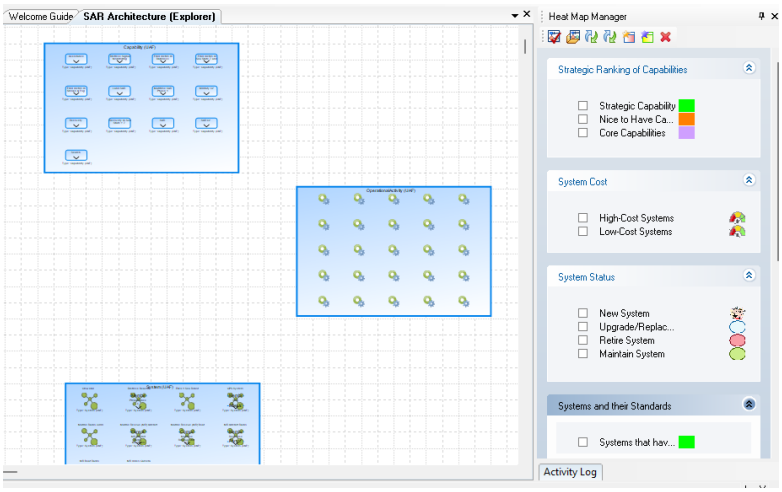


5. In a similar fashion, drag the System (UAF) header onto the diagram.

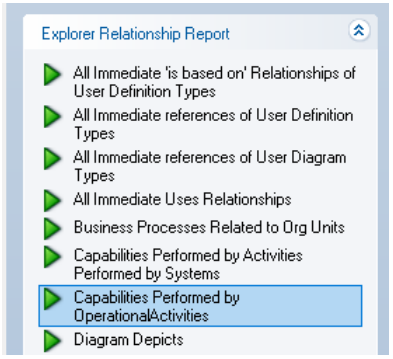


6. Select View, Heatmap Manager.

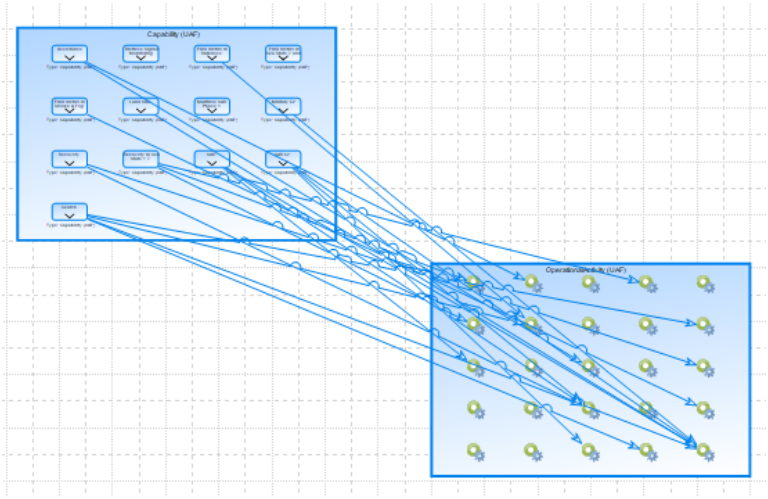




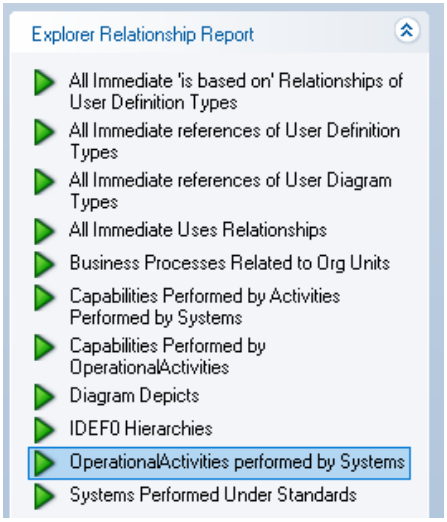
7. Use the scroll bar on the right side of the Heatmap Manager to navigate down to the Explorer Relationship reports.

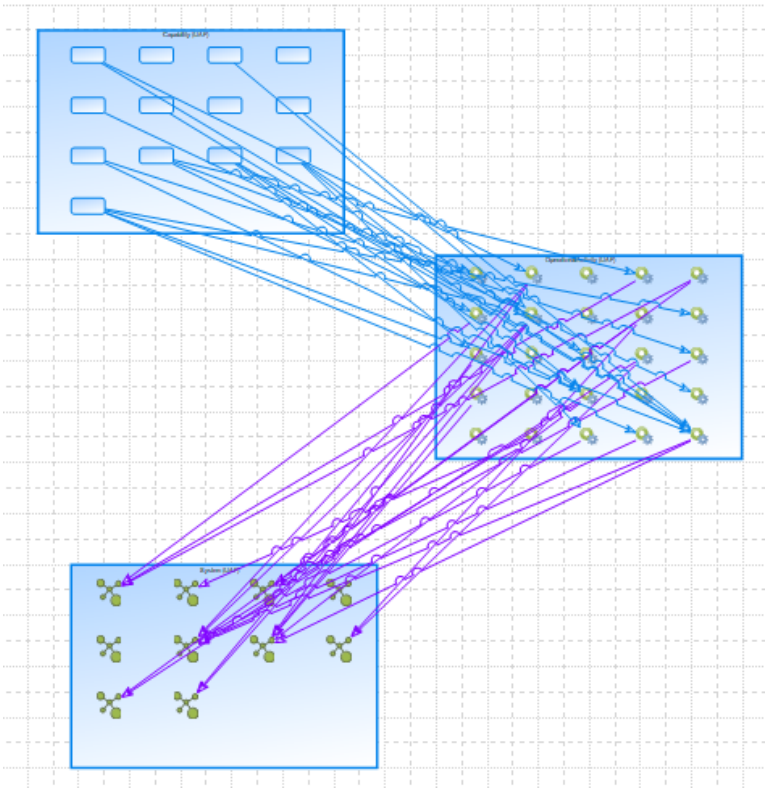


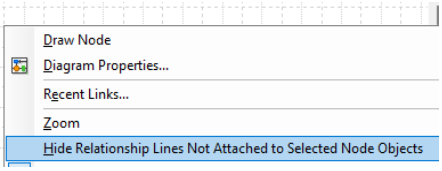
8. Click the report Capabilities Performed by Operational Activities. The report will run, and lines will be drawn on the diagram. This is not a direct relationship – it is calculated by the report – Capability to CapabilityMapstoActivity to Activity.

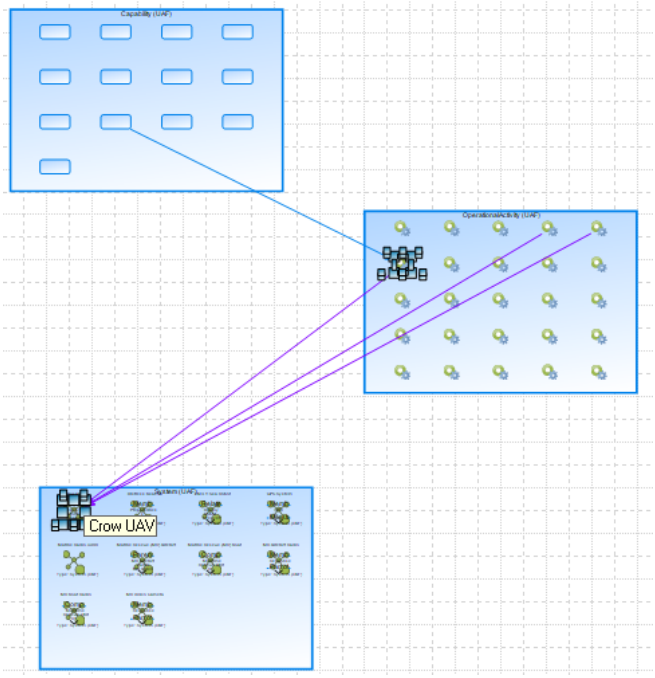


9. Next click the report OperationalActivites performed by Systems. Purple lines representing this calculated relationship will be drawn.



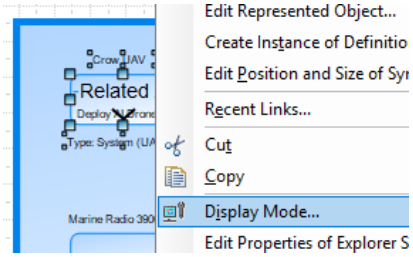




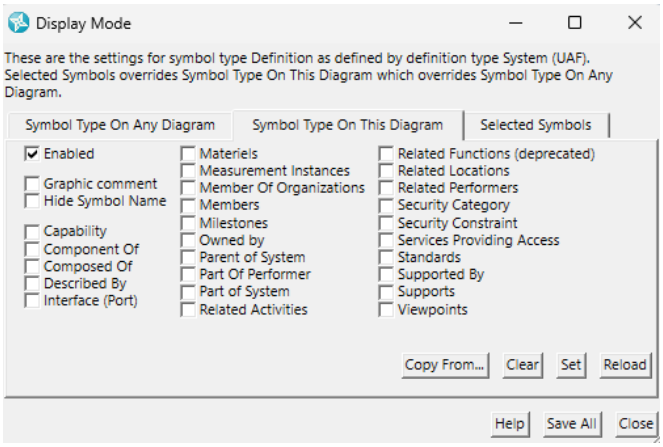


10. Right-mouse click on the diagram workspace, and select Hide Relationship Lines Not Attached to Selected Node Objects.
11. Select the system symbol **Drone UAV** – only the lines from it to connected objects – in this case the OperationalActivities it is related to – are shown.
12. Hold down your CTRL key and select one of the Activities it is related to – in turn any relationship lines it has to other objects are show. In our case

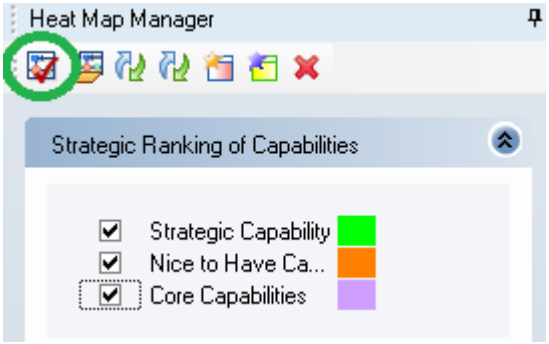
we click on the OperationalActivity **Deploy Robot Recovery**, and it shows that is related to the Capability **Recovery in Sea State > 7.**



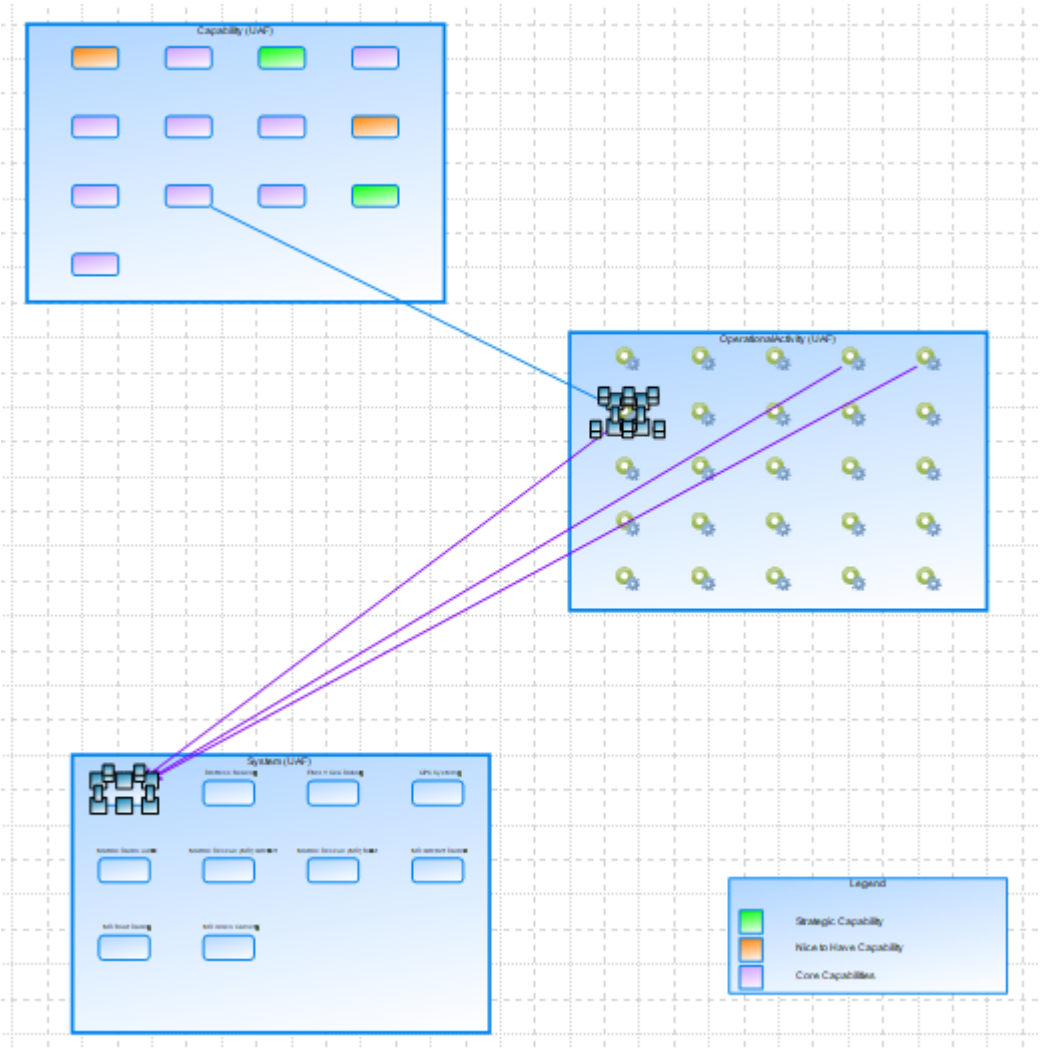
13. Right-mouse click on a Capability, and choose Display Mode.



14. Select the middle tab, and click Enabled, and leave everything off – then click Save All and Close.



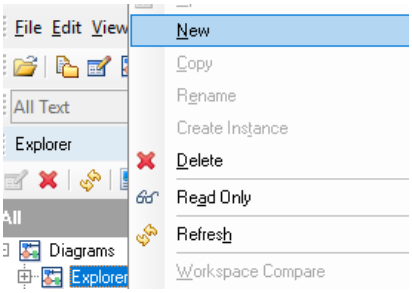
15. Back on the diagram, at the top of the Heatmap Manager, toggle on all of the Strategic Ranking of Capabilities analytics – and click the checkmark button on the top right of Heatmap Manager (see picture to right). The analytics will run – and color the Capabilities based on the reports. A legend will automatically be placed on the diagram.

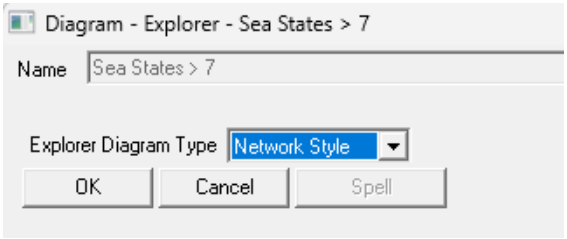

Capability (UAF)
OperationalActivity (UAF)
Systems (UAF)
Legend
Strategic Capability
Nice to Have Capability
Core Capabilities

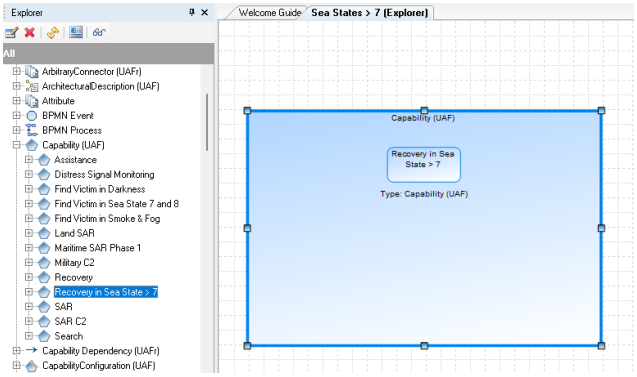
Isolation Analysis

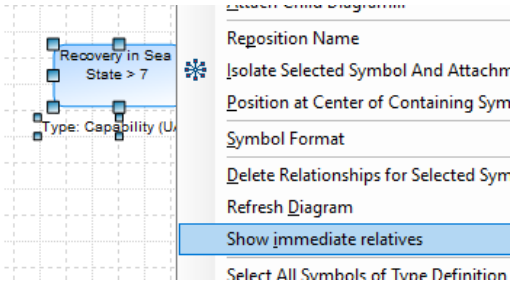
Create Isolation Analysis Diagram

1. Right-mouse click on the **Explorer** header under Diagrams in the Explorer tree and select New to create a new diagram of type **Explorer**, named **Sea States > 7.**
2. Leave the default type of **Network Style** and click **OK** to create the diagram.
3. Expand the **Definitions** header in the Explorer tree, and expand the Capability (UAF) header.
4. Find, select, and drag-and-drop onto the diagram the Capability named **Recovery in Sea State > 7**.
5. Select and delete the outer collection box encompassing it – you don't need it for this exercise.
6. Right-mouse click on the Recovery in Sea State > 7 capability, and choose **Select immediate relatives**.

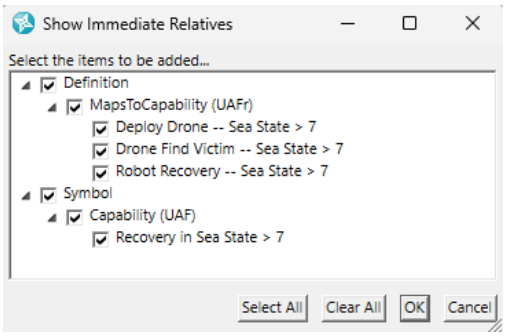




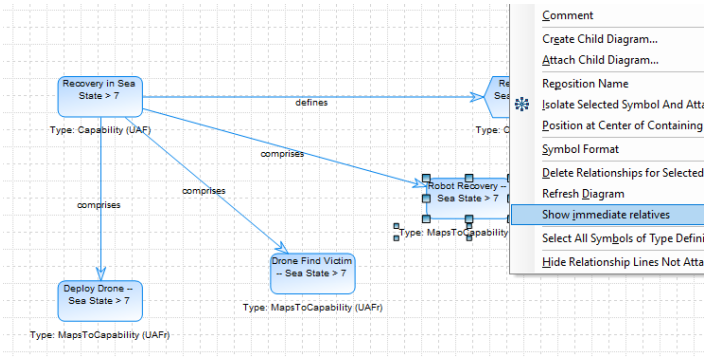




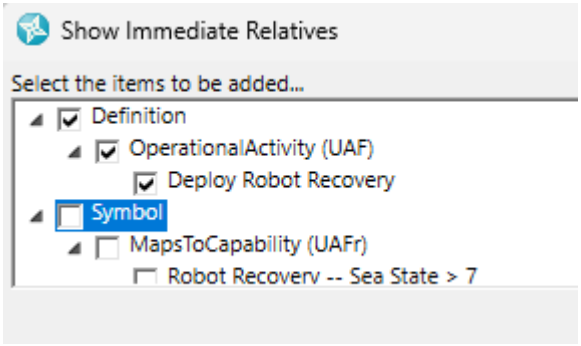
7. In the dialog that opens, leave all selections as is and click **OK**. Everything related to the Capability is added to the diagram, in a fan out.



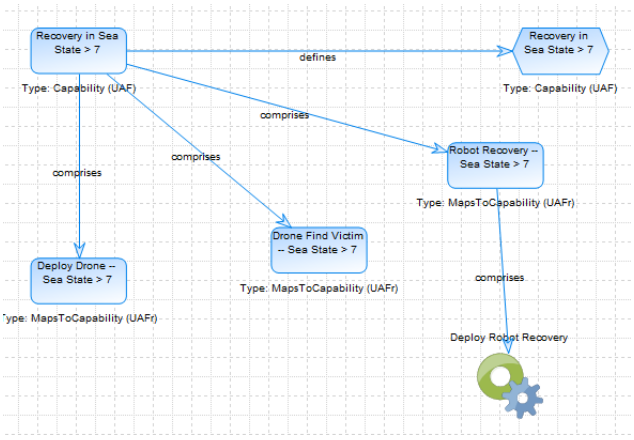
8. Right-mouse click on the related MapstoCapability definition, and select Show Immediate Relatives.



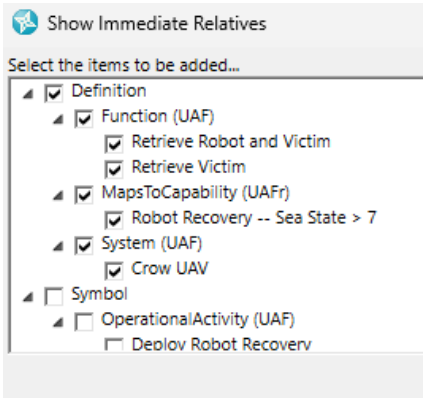
9. In the dialog that opens, toggle off Symbol, and leave Definition toggled on – click OK.



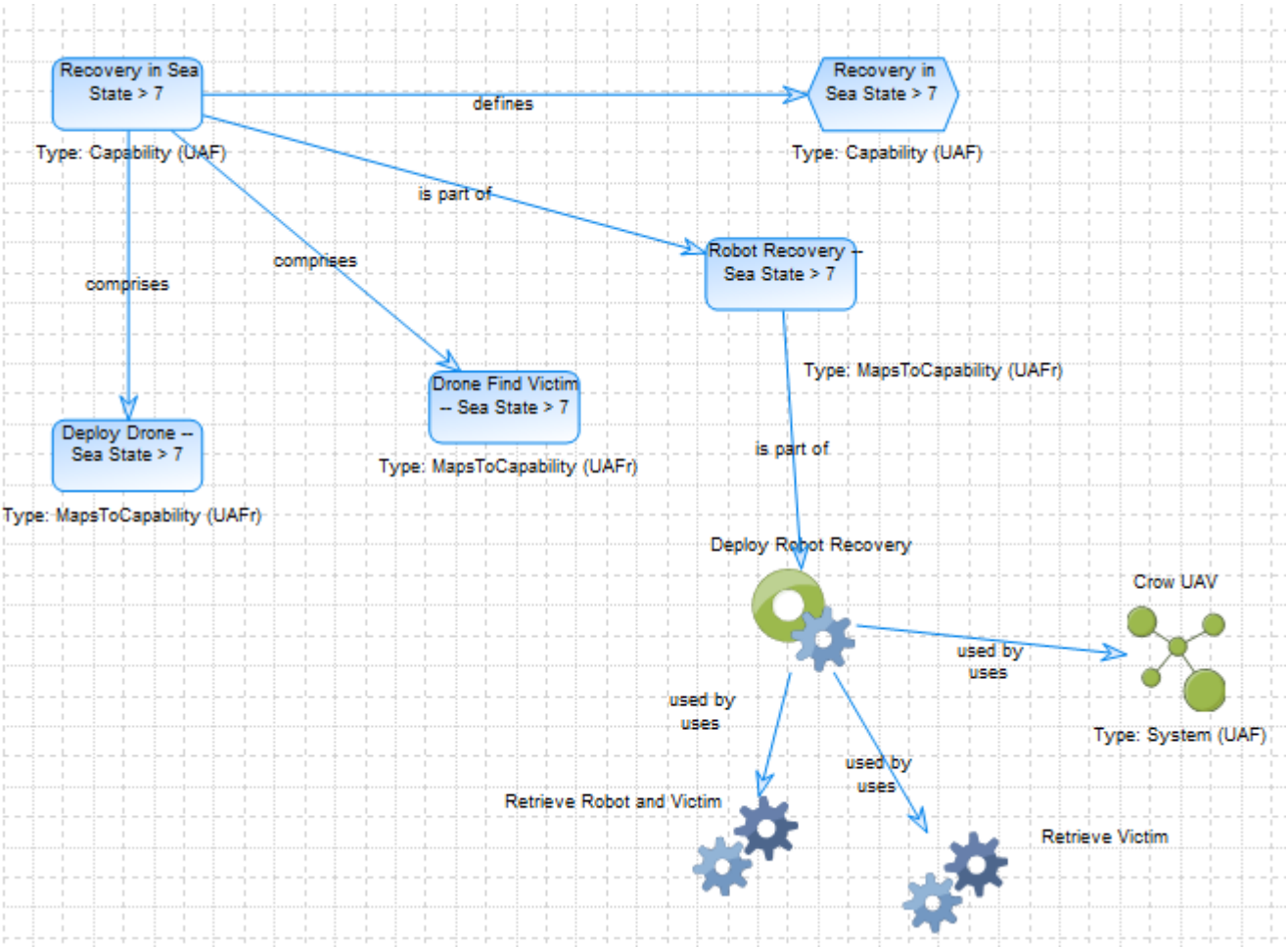
10. Again all related definitions are provided in a fan out – in this case, just one OperationalActivity.
11. Right-mouse click on the OperationalActivity – Deploy Robot Recovery – and choose Show Immediate Relatives.



12. In the dialog that opens, turn off Symbol and leave Definition (of all types) on. Click **OK**. Again a fan out is provided of related definitions – in this case the Systems and System Functions related to the OperationalActivity.



With this powerful feature in System Architect, you can quickly and easily get isolation analysis of any definition in System Architect. You can continue forward – for example Showing Immediate Relatives for the symbol Recovery in Sea State > 7 to find the diagrams it is on, etc.

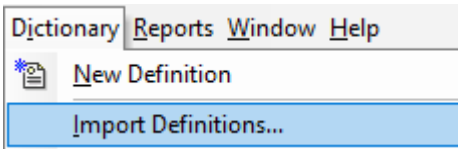

Recovery in Sea State > 7
defines
Recovery in Sea State > 7
Type: Capability (UAF)
Type: Capability (UAF)
is part of
comprises
comprises
Robot Recovery -- Sea State > 7
Type: MapsToCapability (UAFr)
Drone Find Victim -- Sea State > 7
Deploy Drone -- Sea State > 7
Type: MapsToCapability (UAFr)
Type: MapsToCapability (UAFr)
is part of
Deploy Robot Recovery
Crow UAV
used by uses
used by uses
used by uses
Type: System (UAF)
Retrieve Robot and Victim
Retrieve Victim

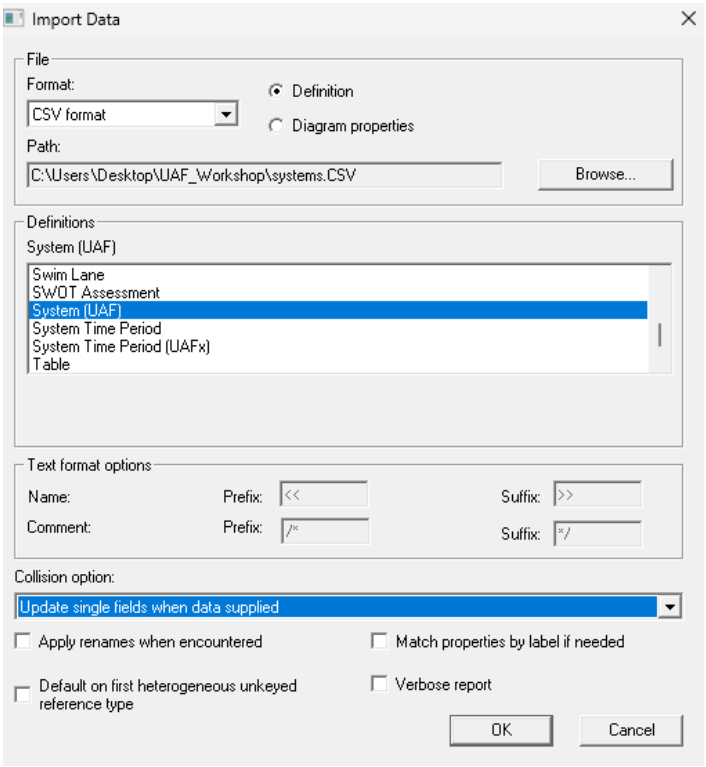
Run Analytics on Any Diagram Type

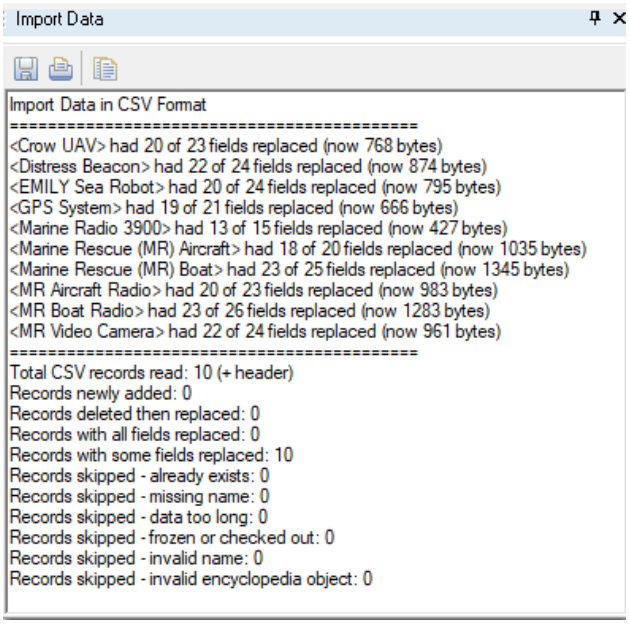
Analytics, Explorer Object, and Explorer Relationship Reports can be run on any diagram type, not just the Explorer diagram.

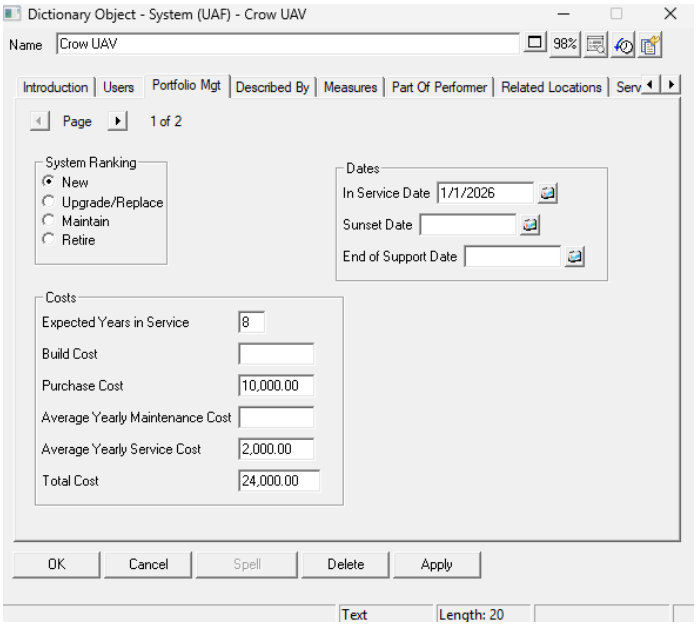
For the next exercise, we will import a spreadsheet of portfolio information for systems that we have, for example, received from the IT department. We will then use this information to run analytics on the Resource Structure view.

1. Select Dictionary, Import Definitions.
2. In the Import Data dialog, click the Browse button and navigate to the **UAF_Workshop** folder on your desktop, and select the **systems.csv** file provided.
3. Back in the Import Data dialog, find and select the definition type **System (UAF).**
4. In the Collision Option property at the bottom of the dialog, select **Update single fields when data supplied**. This will do a merge in.
5. Click OK. The file will be imported, and a report of what came in is provided.

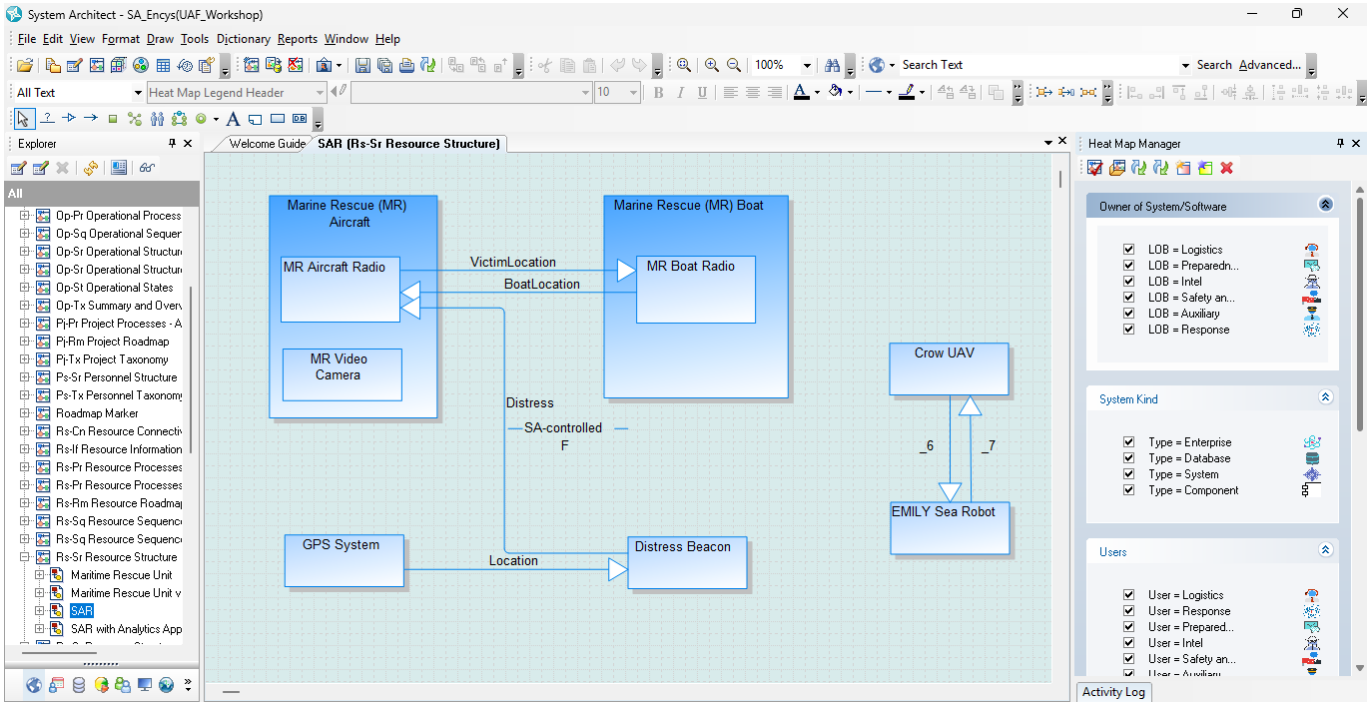


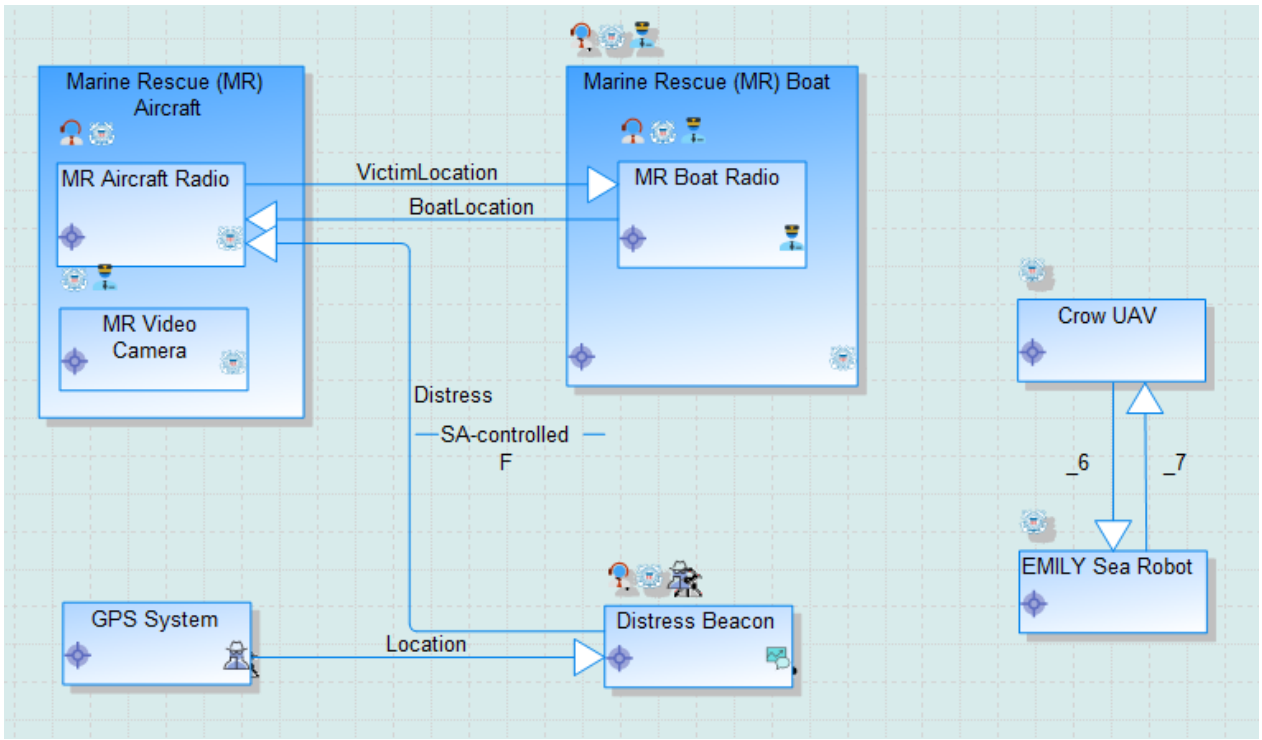






6. Open the Rs-Sr Resource Structure diagram **SAR** that we had open before.
7. Open the definition of the System named Crow UAV. Notice that on the Portfolio Mgt tab, it now has cost information, as well as a System Ranking and In Service Date. Note also on the Users tab, it has a Line of Business (LOB) that owns it, and LOB's that use it.
8. Select View, Heatmap Manager (if it is not already open).
9. Toggle on all of the analytics at the top of Heatmap Manager – there are 3 collections of analytics – you may have to scroll down to select them all.
10. Click the checkmark at the top right of Heatmap Manager (as you did in a prior exercise) to run them all. The diagram will be notated to reflect the analytics, and a legend is automatically provided on the diagram. (See picture below.)

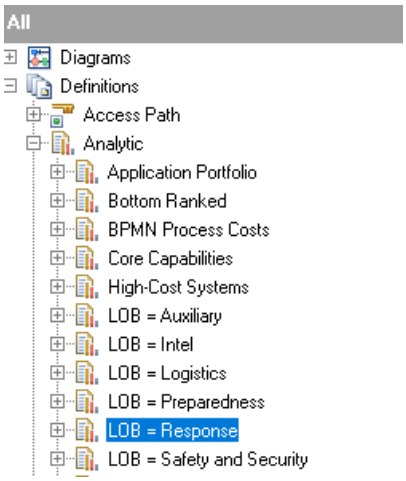

System Architect - SA_Encys(UAF_Workshop)
File Edit View Format Draw Tools Dictionary Reports Window Help
Explorer
Welcome Guide
SAR (Rs-Sr Resource Structure)
Heat Map Manager
Marine Rescue (MR) Aircraft
MR Aircraft Radio
MR Video Camera
Marine Rescue (MR) Boat
MR Boat Radio
VictimLocation
BoatLocation
Distress
SA-controlled
F
Crow UAV
_6
_7
EMILY Sea Robot
GPS System
Location
Distress Beacon
Owner of System/Software
System Kind
Users
Activity Log

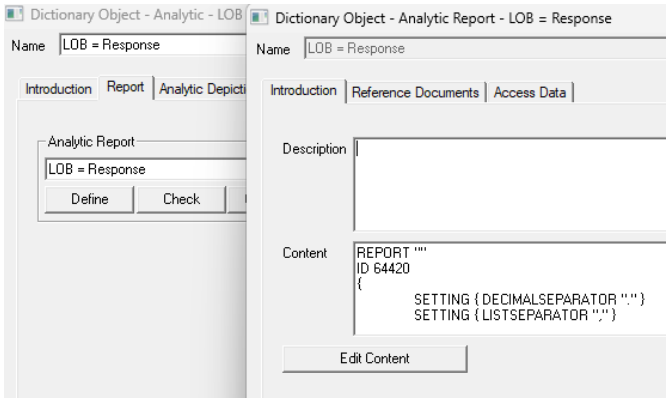

Marine Rescue (MR) Aircraft
MR Aircraft Radio
MR Video Camera
Marine Rescue (MR) Boat
MR Boat Radio
VictimLocation
BoatLocation
Distress
SA-controlled
F
Crow UAV
_6
_7
EMILY Sea Robot
GPS System
Location
Distress Beacon

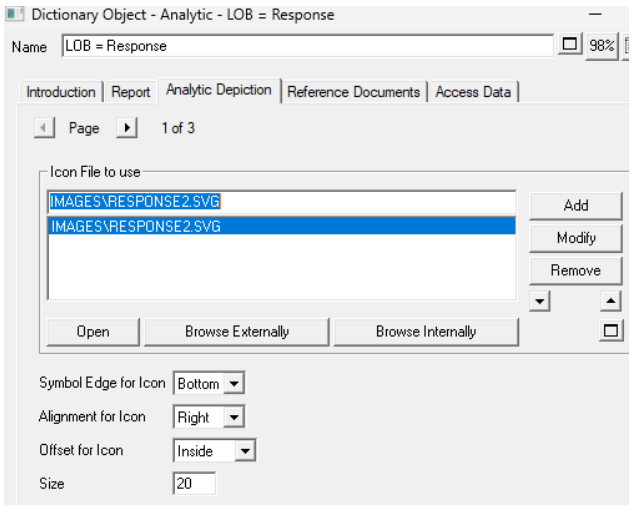
11. In the Explorer tree under Definitions, expand the **Analytic** definition type, and open the analytic definition **LOB = Response**.
12. Examine the definition -- note that:

- On the 1st tab it shows to be a Report Based analytic.
- On the Report tab, the report that runs is shown. Note that you can click on Define to open the Report definition, then Edit Content if you want to edit the report.
- On the Analytic Depiction tab, you can edit the icon used to denote the output of the analytic, and specify exactly where the analytic will be displayed on each symbol. On pages 2 and 3 of the Analytic Depiction tab, you can specify if the symbol is colored in any way for a positive report output.

Analytics and their corresponding Analytic Reports are normally created via a wizard found at the top of Heatmap Manager. Once created they become definitions in System Architect – as we have just seen.







Dashboards in SA XT

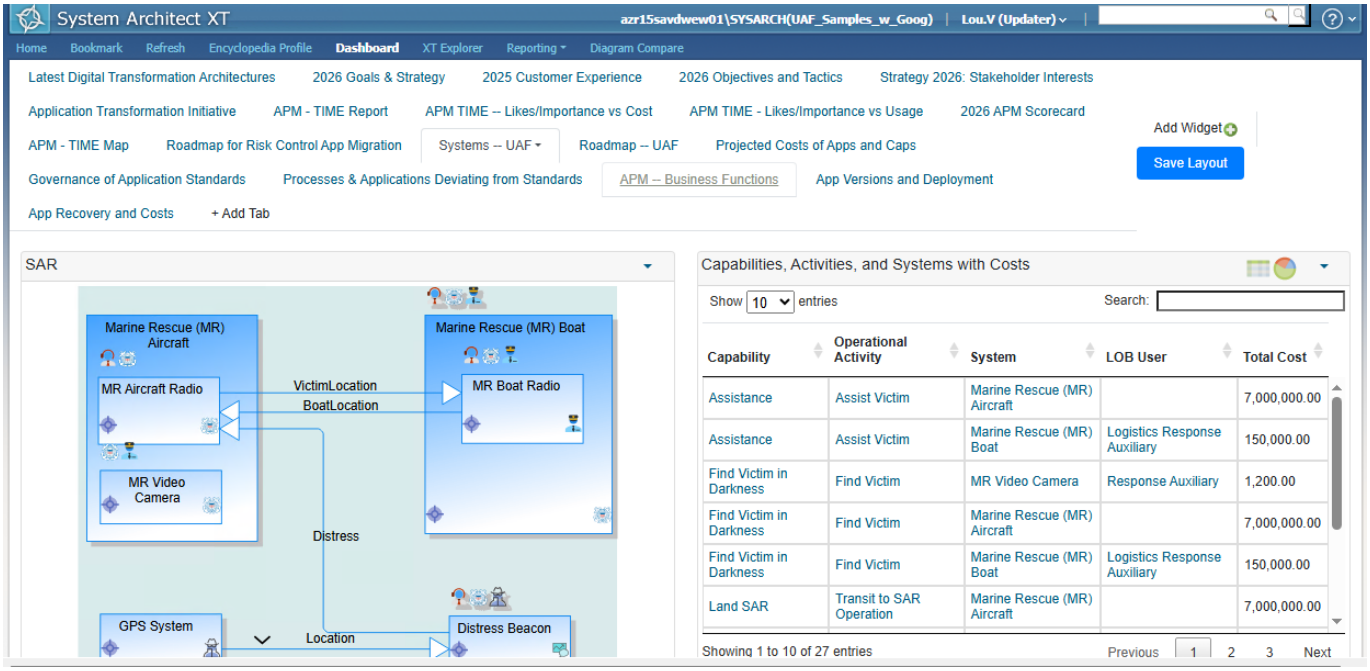
Goals of this Lab:

- Understand how the reports generated could be shown as dashboards in SA XT.

Viewing the Architecture in SA XT

This workshop does not cover working hands-on in SA XT (System Architect eXtended Team) – the thin web-browser version of System Architect. However, SA XT uses the same Reporting Engine as the one used in SA – albeit with a web interface to build reports.

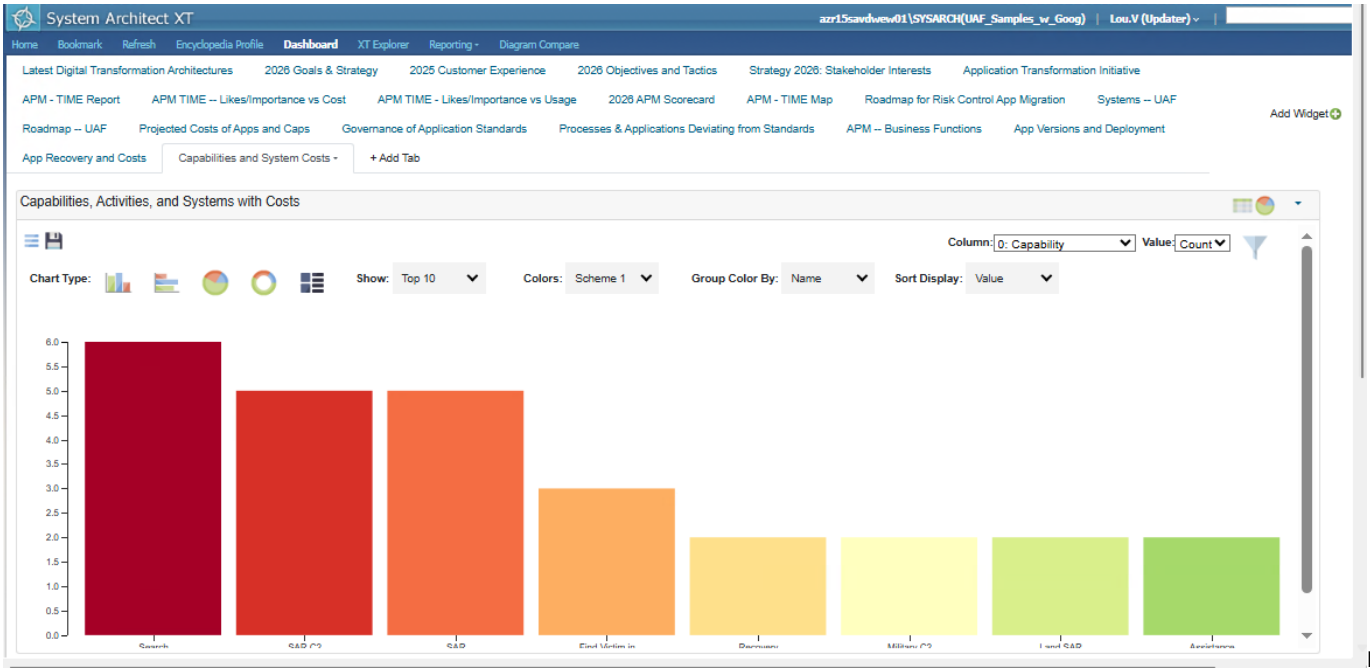
Users can create their own personalized dashboards and place reports in tabs within their dashboards.



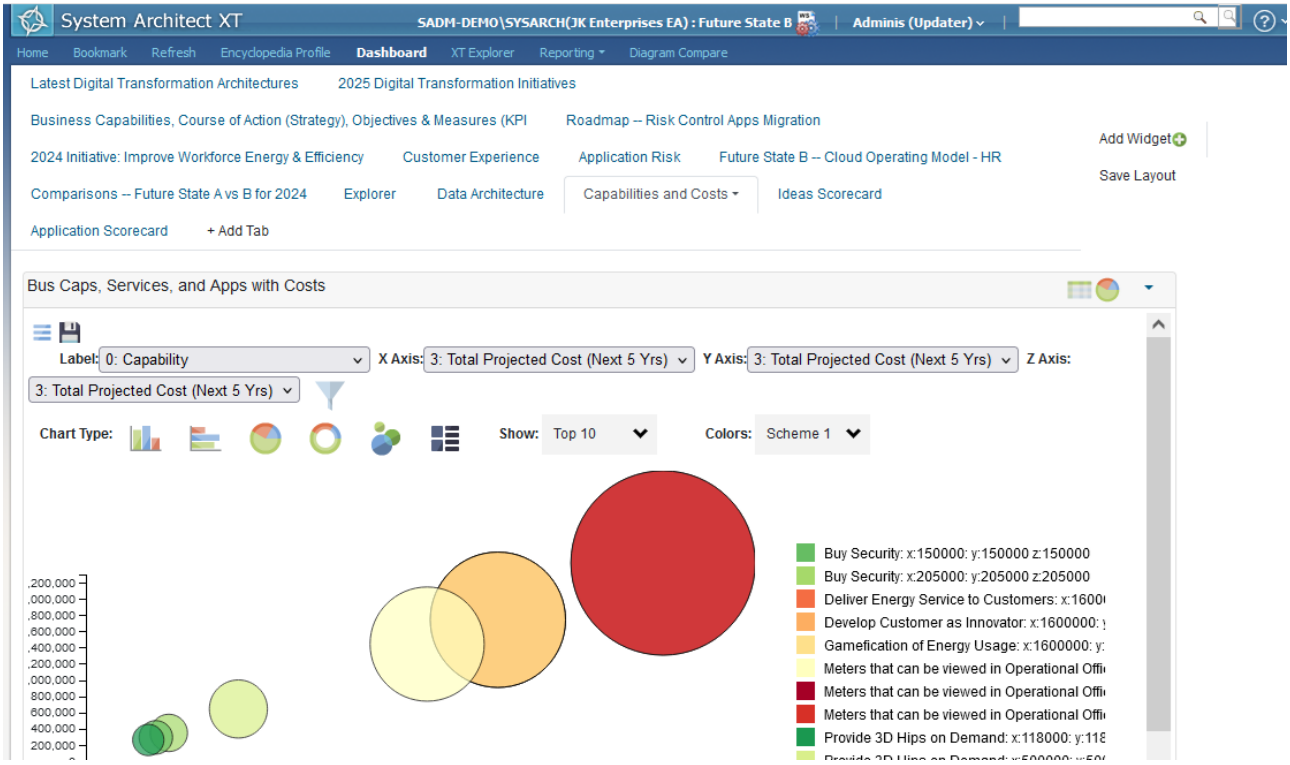
In SA XT, you can flip between different views of the report – showing it as a table (above) or via various charts (such as the bar chart below).

You can also select Bubble Charts, Tree Charts, Pie Charts, Scorecards, and get live views of diagrams, that you can edit.

You can also create UAF diagrams in a web browser.


System Architect XT
azr15savdwew01\SYSARCH(UAF_Samples_w_Goog) | Lou.V (Updater)
Home
Bookmark
Refresh
Encyclopedia Profile
Dashboard
XT Explorer
Reporting
Diagram Compare
Latest Digital Transformation Architectures
2026 Goals & Strategy
2025 Customer Experience
2026 Objectives and Tactics
Strategy 2026: Stakeholder Interests
Application Transformation Initiative
APM - TIME Report
APM TIME -- Likes/Importance vs Cost
APM TIME - Likes/Importance vs Usage
2026 APM Scorecard
APM - TIME Map
Roadmap for Risk Control App Migration
Systems -- UAF
Roadmap -- UAF
Projected Costs of Apps and Caps
Governance of Application Standards
Processes & Applications Deviating from Standards
APM -- Business Functions
App Versions and Deployment
App Recovery and Costs
Capabilities and System Costs
+ Add Tab
Add Widget
Capabilities, Activities, and Systems with Costs
Column: 0: Capability
Value: Count
Chart Type:
Show: Top 10
Colors: Scheme 1
Group Color By: Name
Sort Display: Value

n SA XT.


System Architect XT
SADM-DEMO\SYSARCH(JK Enterprises EA) : Future State B
Adminis (Updater)
Home
Bookmark
Refresh
Encyclopedia Profile
Dashboard
XT Explorer
Reporting
Diagram Compare
Latest Digital Transformation Architectures
2025 Digital Transformation Initiatives
Business Capabilities, Course of Action (Strategy), Objectives & Measures (KPI
Roadmap -- Risk Control Apps Migration
2024 Initiative: Improve Workforce Energy & Efficiency
Customer Experience
Application Risk
Future State B -- Cloud Operating Model - HR
Comparisons -- Future State A vs B for 2024
Explorer
Data Architecture
Capabilities and Costs
Ideas Scorecard
Application Scorecard
+ Add Tab
Add Widget
Save Layout
Bus Caps, Services, and Apps with Costs
Label: 0: Capability
X Axis: 3: Total Projected Cost (Next 5 Yrs)
Y Axis: 3: Total Projected Cost (Next 5 Yrs)
Z Axis:
3: Total Projected Cost (Next 5 Yrs)
Chart Type:
Show: Top 10
Colors: Scheme 1
Buy Security: x:150000: y:150000 z:150000
Buy Security: x:205000: y:205000 z:205000
Deliver Energy Service to Customers: x:1600
Develop Customer as Innovator: x:1600000:
Gamefication of Energy Usage: x:1600000: y:
Meters that can be viewed in Operational Offi
Meters that can be viewed in Operational Offi
Meters that can be viewed in Operational Offi
Provide 3D Hips on Demand: x:118000: y:118

Communicating the EA with SA Publisher

Goals of this Lab:

- Understand how the Enterprise Architecture can be communicated to a wide audience with SA Publisher.

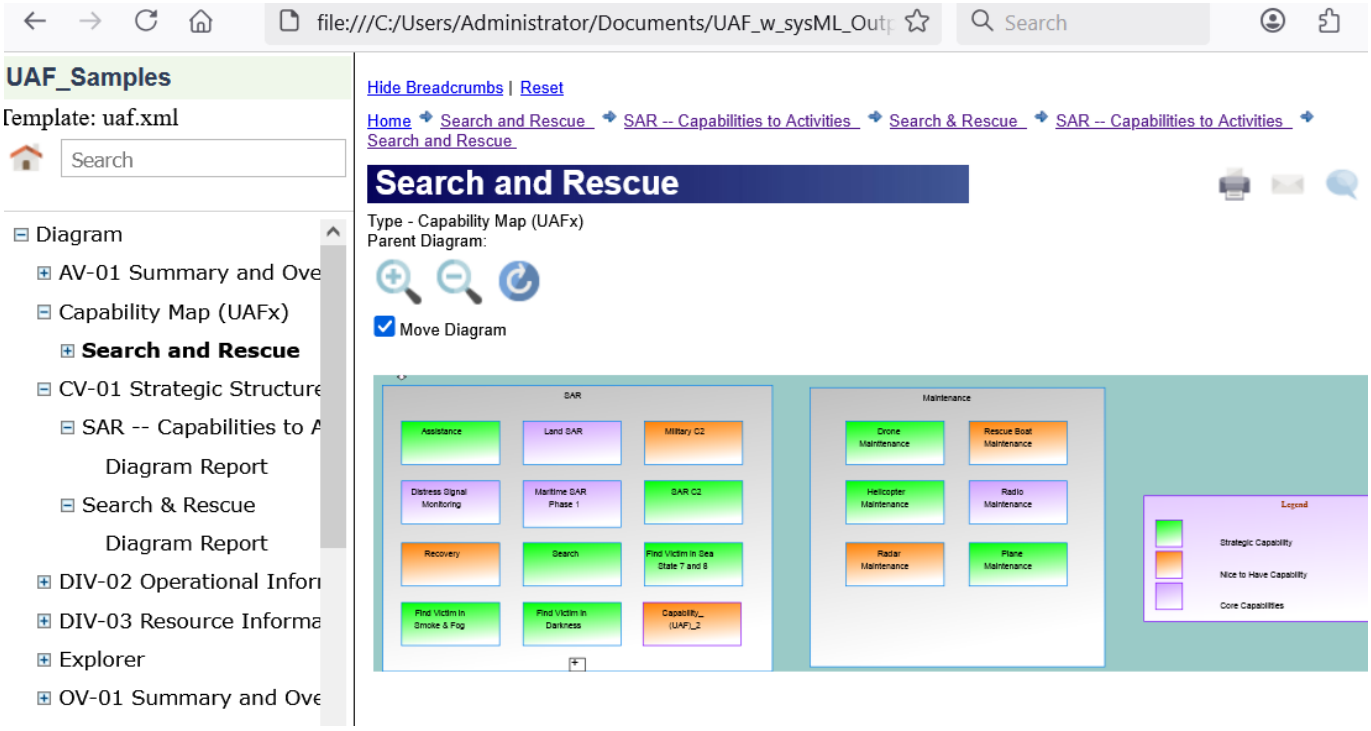
Communicating the Architecture via SA Publisher

SA Publisher is very popular add-on to System Architect, that allows reports (written with the same SA Reporting Engine) to be grouped and automatically generated to a website, including SVG's of diagrams.

The result is a sophisticated website of the enterprise architecture, that an infinite amount of people can view, without needing a license (just the one license of SA Publisher is needed to generate the website).

An example of SA Publisher output is shown below.

Users can navigate the EA as they would in System Architect, open diagrams, zoom in and out of diagrams, click on symbols in diagrams to open their definitions, etc.



You have finished the lab. Thank you for taking it. We hope it has been useful.

Appendix A. Notices

This information was developed for products and services offered in the U.S.A.

NOTES

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