Case Study

Let's say, we need to show Warning Order and Medical Condition exchange elements that are produced and consumed by the performer Search Node. Exchange elements are information indirectly related to the Search Node element.

We will analyze the OV-2 diagram from the DoDAF sample project.

First, we will show the exchange elements produced by the Search Node.

Let's create the **Produces Exchange Element** derived property for the performer *Search Node*. Open the *Search Node* **Specification** window and in the **Traceability** property group click the **Create** button. In the opened **Criterion Editor** dialog, select the **Meta Chain** tab. Then specify the derived property name and the expression for the meta chain as it is shown in the following figure.

For the	r name and expression for the operation of the operation specification use, one operation of the operation o	derived property. of the following modes: simple, OCL, allows the definition of a transitive re	reference to		
betwee	en the target and context elements	by specifying a chain of interconnec	tions between		
lame					
roduces	Exchange Element				
Expressi	ion				
Simple	OCL Reference to code class M	eta Chain			
-Meta 🕻	Chain Expression				
📃 💽 Meta Chain Expression 📃					
Nam Produ	Meta Chain is a path through mo the target element. Meta Chain a To create a link (i.e. a part) of a	del elements and properties from th allows creating a multilevel relation. concrete Meta Chain, click the Inser	e context element to t button and select a		
	Metaclass or Stereotype	Property or Tag	Insert		
	Class	Client Dependency	Bemaua		
	Dependency	Target	Kenove		
	🔷 Operational Activity Activity	producesOperationalExchange	Thems		

Specification of derived property name and expression

In the following figure, you can see that a new subgroup named **Other** is created in the performer **Specifi cation** window. Our created **Produces Exchange Element** derived property is placed under this subgroup. The **Produces Exchange Element** derived property has *Warning Order* and *Medical Condition* exchange elements as its values.

Performer - Search Node Specification of Traceability The Traceability contains a list of	specific Traceability properties.
Search Node Search No	History : Search Node [Operational Viewpoint::0V-2] Traceability Produces Exchange Element Performs Operational Activity Performs Operational Activity Produces Exchange Element Or Create Or Edit Delete Delete Delete Delete Delete Delete Delete Delete Delete Delete Dele
Close	Back Eorward Help

Example of newly created derived property

Next, we need to display values of the **Produces Exchange Element** derived property for the Search Node performer in the OV-2 diagram.

A derived property is applicable to an element type, not the specific element. In this particular example, our created derived properties are applicable to all performers, not only to Search Node.

Related procedure

 Displaying Information Indirectly Related to Element through Derived Properties We can use a Note element wherein we can display information indirectly related to the Search Node. Let' s draw a Note and connect it to the Search Node performer. Then click the Edit Compartment as it is shown in the following figure. In the **Compartment Edit** dialog, select the **Element Properties** tab. From the properties list, select to display the **Produces Exchange Element** property. After clicking the **OK** button, *Warning Order* and *Medical Condition* exchange elements are displayed in the Note.



Information indirectly related to Search Node is displayed in Note

Now, let's create a generic table wherein we can also display information indirectly related to the *Search Node*, as well as to other performers. For that purpose, we select Performer as an **Element Type** and add existing performers to the table. Then we select which information to display as new columns. Previously created **Produces Exchange Element** derived property is also available to add as a new column through the **Show Columns** menu (see the following figure).

D A	dd New 🗋 Add Existing 🖷	Delete From Table 🍵 Delete	💧 Up 🐥 Down 🦌 Show Columns
Crite	ria		
Elem	ent Type: Performer		
#	Name	Performs Operational Activity	Produces Exchange Element
1	🛞 SAR Concept		
2	🛞 Person In Distress	关 Send Distress Signal	 Distress Signal
3	😞 Rescue Node	Rescue	Medical Condition Updated Location
4	😞 Tactical C2 Node	승 Search & Rescue	
5	😞 Place Of Safety	승 Transit To SAR Operation	
6	😞 SAR Asset Controller		
7	😞 Search Node	⇔ Search ⇒ Send Warning Order	Warning Order Medical Condition
8	용 Monitoring Node	😂 Search & Rescue	

Produces Exchange Element derived property displayed as column

Now, let's create a new derived property directly in the generic table. This property will show which exchange elements are consumed by the performer element. We can do that using the same **Criterion Editor** and doing the same actions as described previously. In the following figure is the example of the **C onsumes Exchange Element** derived property expression.

Specify For the code, o	n Editor name and expression for the expression specification use, one r metachain. A Metachain mode a	e derived property. of the following modes: simple, OG llows the definition of a transitive r	CL, reference to a elation between	Colorador I
Name	get and context elements by spec	anying a chair of interconnections b	eweentrie	-
Consumes	Exchange Element			
Simple Meta Q	OCL Reference to code class	Meta Chain		
Name Consu	Meta Chain is a path through model elements and properties from the context element to the target element. Meta Chain allows creating a multievel relation. To create a link (i.e. a part) of a concrete Meta Chain, click the Insert button and dd			Ndd move
_	Metaclass or Stereotype	Property or Tag	Insert	
	Class	Client Dependency Target	Remove	
	OperationalActivity [Activity]	ty] consumesOperationalExchang	geI	
	OK	Ca	incel	

Consumes Exchange Element derived property expression

When the expression is specified, the newly created derived property is displayed as a new column (see the following figure).

D A	dd New 🗋 Add Existing	🍟 Delete From Table 🍵 Delet	te 🏠 Up 🖡 Down 👫 S	Show Columns 📑 Export	
Crite	ria				
Element Type: Performer					
â	Name	Performs Operational Activity	Produces Exchange Element	Consumes Exchange Element	
1	🖧 SAR Concept				
2	🐣 Person In Distress	승 Send Distress Signal	 Distress Signal 		
3	윤 Rescue Node	Rescue	 Medical Condition Updated Location 	 Medical Condition Distress Signal 	
4	🐣 Tactical C2 Node	Search & Rescue		-	
5	용 Place Of Safety	😔 Transit To SAR Operation		Warning Order	
6	🕀 SAR Asset Controller				
7	윤 Search Node	⇔ Search ⇒ Send Warning Order	 Warning Order Medical Condition 	Distress Signal	
8	🐣 Monitoring Node	Search & Rescue			

Consumes Exchange Element derived property added as new column