

# Competency questions

The following document shows the competency questions for the Change Detection Ontology (CDO)<sup>1</sup>. These questions have been answered using SPARQL queries, which have been executed on a sample instance graph<sup>2</sup>. The prefixes used within the queries are available<sup>3</sup>.

Competency question	SPARQL Query Answer	Result Value
Who executed the process?	<pre>SELECT ?owner WHERE {   ?changeLog a cdo:ChangeLog;              cdo:hasOwner ?owner . }</pre>	<code>&lt;http://www.example.com/userActor/1&gt;</code>
What log stores the changes?	<pre>SELECT ?changeLog WHERE {   ?changeLog a cdo:ChangeLog . }</pre>	<code>&lt;http://www.example.com/changeLog/0&gt;</code>
What changes occurred?	<pre>SELECT ?change WHERE {   ?changeLog a cdo:ChangeLog;              cdo:hasChange ?change . }</pre>	<code>&lt;http://www.example.com/insertChange/4&gt;</code> <code>&lt;http://www.example.com/insertChange/1&gt;</code> <code>&lt;http://www.example.com/insertChange/2&gt;</code> <code>&lt;http://www.example.com/insertChange/5&gt;</code> <code>&lt;http://www.example.com/deleteChange/1&gt;</code> <code>&lt;http://www.example.com/insertChange/6&gt;</code> <code>&lt;http://www.example.com/deleteChange/0&gt;</code> <code>&lt;http://www.example.com/insertChange/3&gt;</code> <code>&lt;http://www.example.com/insertChange/0&gt;</code>
When did the changes occur?	<pre>SELECT ?detectionTime WHERE {   ?changeLog a cdo:ChangeLog;              cdo:hasChange ?change.   ?change lode:atTime ?detectionTime . }</pre>	<code>&lt;http://www.example.com/detectionTime/4&gt;</code> <code>&lt;http://www.example.com/detectionTime/1&gt;</code> <code>&lt;http://www.example.com/detectionTime/2&gt;</code> <code>&lt;http://www.example.com/detectionTime/5&gt;</code> <code>&lt;http://www.example.com/</code>

<sup>1</sup> Change Detection Ontology (CDO) specification at <https://alex-randles.github.io/Change-Detection-Ontology/>

<sup>2</sup> Sample instance graph queried at [https://github.com/alex-randles/MEPDaW-2022/blob/main/sample\\_graph.ttl](https://github.com/alex-randles/MEPDaW-2022/blob/main/sample_graph.ttl)

<sup>3</sup> Prefixes used within SPARQL queries at [https://drive.google.com/file/d/1zxbNLA8VljNNj7Ms\\_lm9-\\_WgcA2O4sKK/view?usp=sharing](https://drive.google.com/file/d/1zxbNLA8VljNNj7Ms_lm9-_WgcA2O4sKK/view?usp=sharing)

		detectionTime/8> <http://www.example.com/ detectionTime/6> <http://www.example.com/ detectionTime/7> <http://www.example.com/ detectionTime/3> <http://www.example.com/ detectionTime/0>
What type of changes occurred?	SELECT DISTINCT ?changeType WHERE { ?changeLog a cdo:ChangeLog; cdo:hasChange ?change. ?change a ?changeType . }	cdo:InsertSourceData cdo>DeleteSourceData
Why did the change occur?	SELECT ?changeReason WHERE { ?changeLog a cdo:ChangeLog; cdo:hasChange ?change. ?change cdo:hasReason ?changeReason . }	"Sport: Null Value" "Sport: 100" "Name: Venus Williams" "Name: Demi Moore" "Name: Venus" "Column Added: Sport" "ID: 10" "ID: 20" "ID: 10"
What notification policy has been defined?	SELECT ?notificationPolicy WHERE { ?notificationPolicy a rei-policy:Policy . }	<http://www.example.com/ notificationPolicy/0>
Who owns the policy?	SELECT ?actor WHERE { ?notificationPolicy a rei-policy:Policy; rei-policy:grants ?obligation. ?obligation rei-policy:actor ?actor . ?actor a rei-entity:Agent . }	<http://www.example.com/ userActor/1>
How will the user be notified?	SELECT ?email WHERE { ?actor a rei-entity:Agent; a foaf:Person; foaf:mbox ?email }	"alex.randles@adaptcentr e.com"
When will the user be notified of these changes?	SELECT ?detectionStart ?detectionEnd WHERE { ?notificationPolicy a rei-policy:Policy; cdo:hasDetectionStart ?detectionStart; cdo:hasDetectionEnd ?detectionEnd. }	"2022-07-20 22:15:44.952566"^^xsd:da teTime "2022-09-01 00:00:00.0000"^^xsd:date Time
What is the notification method?	SELECT ?obligedActor WHERE { ?notificationPolicy a rei-policy:Policy; rei-policy:grants	cdo:softwareAgent

	<pre> ?obligation. ?obligation rei-deontic:obligedTo ?obligedActor . } </pre>	
What is the notification condition?	<pre> SELECT ?constraint WHERE {     ?notificationPolicy a rei-policy:Policy;                         rei-policy:grants ?obligation.     ?obligation rei-deontic:startingConstraint ?constraint . } </pre>	<pre> &lt;http://www.example.com/ notificationConstraint/0 &gt; </pre>