



Vertex

Synapse Bootcamp

Module 14

Modeling Data Manually

v0.4 - May 2024



Objectives

- Discuss use cases for creating nodes manually
- Understand how to map real-world data and information into Synapse's data model
- Gain familiarity with some forms that may require manual modeling
- Describe how you can use Synapse to represent strategic data



Modeling Data Manually



Modeling Manually

- Capture information that cannot be ingested automatically
- May include:
 - One-off indicators or information
 - Unstructured or badly-formatted data
 - Non-traditional indicators
- Often records:
 - Supporting evidence
 - Strategic data
- Capture more abstract or complex concepts
 - Classes or categories (`ou:industry`)
 - Objectives (`ou:goal`, `ou:campaign`)
 - Attacks or compromises (`risk:attack`, `risk:compromise`)



Common 'One-Off' Data

Form	Object	Purpose
ou:org	Company, government ministry, group...	Represent a real organized entity
ps:contact	A collection of data associated with a purported individual or organization	Capture identifying data for entity resolution
ps:person	A known person	Represent a real individual
media:news	Article, blog, whitepaper, report...	Source for other data (indicators, victims, real world events)



Common 'One-Off' Data

Form	Object	Purpose
<code>inet:service:account</code> <code>inet:web:acct</code>	User or group account (e.g., social media, forum user, etc.)	Account owned by threat actor Account used maliciously
<code>inet:service:message</code> <code>inet:web:post</code>	Message posted to a service	Social media post, forum post
<code>inet:service:message</code> <code>inet:web:mesg</code>	Private message between accounts	Social media phishing, threat actor communications...
<code>tel:txtmesg</code>	Mobile device message (SMS, iMessage...)	Smishing, threat actor communications...

`inet:service:*` forms were introduced in June 2024 and will replace `inet:web:*` forms.



Node Deconfliction

- Many nodes we create manually are **guid** nodes
 - o Easily create an arbitrary guid using '*'
 - o [ou:org=* :name='the vertex project']
- Problem: how to avoid duplicate nodes?
 - o Two users create two different **arbitrary** ou:org nodes for The Vertex Project
- Solution: check whether the node already exists
 - o Use a "meaningful" secondary property
 - o ou:org:name='the vertex project'
 - o ou:name='the vertex project' -> ou:org
 - o Use Lookup mode to search (e.g., 'vertex')

Manually checking for duplicates works...but is an imperfect solution.



Storm gen.* Commands

- Storm gen.* ("generate") commands can deconflict for you!
- Commands for many common guid forms
 - o Orgs, threats, vulnerabilities...
- Takes property value(s) as input
- Checks for an existing node, based on the value
 - o **Lifts** (returns) the existing node if found
 - o **Creates** (generates) a new node (based on the provided value(s)) if not

```
gen.ou.org 'the vertex project'
```




Modeling Data Demo



Strategic Data



Strategic Data

- Synapse can represent a broad range of data
- Much of this data is **tactical**
 - Atomic indicators or objects
 - Files, URLs, organizations
 - Concrete observables or relationships
 - A file connected to an IP, a domain was registered through a specific company
- Strategic analysis commonly done "the long way"
 - Review and consolidate multiple reports
 - Write another report



Strategic Data

- Synapse allows you to:
 - o Record more abstract concepts ('goals')
 - o Represent concise data for events ('attacks', 'compromises')
 - o Link events to concrete indicators
 - o Link events to their objectives
- Structurally representing things like:
 - o IOCs linked to...
 - o ...individual attacks that are part of...
 - o ...specific compromises meant to achieve...
 - o ...particular objectives
- ...allows you to **answer questions** about strategic data as well

Many "strategic" forms are used for Synapse's **threat intel** data model.

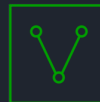


Sample Strategic Forms

Events		Objectives	
Form	Purpose	Form	Purpose
<code>risk:attack</code>	Specific / atomic malicious event	<code>ou:goal</code>	Objective (broad or tactical)
<code>risk:attacktype</code>	User-defined set of categories	<code>ou:camptype</code>	User-defined set of categories
<code>risk:compromise</code>	Broader event; comprised of one or more attacks	<code>ou:campaign</code>	Broad objective; comprised of one or more goals

These are not mutually exclusive - for example, attacks can have goals and be part of campaigns.

risk:attack



Category	Questions	Model Element
Who	Who/what was attacked (host, location)? Who carried out the attack? Who is reporting on the attack?	-(targets)> :attacker / #rep.mandiant.apt41 :reporter:name / :reporter
What	What kind of attack was this? Was the attack targeted? Was the attack successful? Was the attack part of a larger compromise? A broader campaign?	:type :targeted :success :compromise, :campaign
When	When did the attack occur? When was it detected?	:time :detected
Why	What was the purpose of the attack?	:goal
How	What did the attacker use to carry out the attack? How sophisticated was the attack? How bad was any impact from the attack?	-(uses)> :sophistication :severity



risk:compromise

Category	Questions	Properties
Who	Who/what was the target/victim? Who was the perpetrator? Who is reporting on the compromise?	:target :attacker / #rep.mandiant.apt41 :reporter:name / :reporter
What	What kind of compromise was this? Was the compromise part of a broader campaign?	:type :campaign
When	When did the compromise start? End? How long did the compromise last?	:time / :lasttime :duration
Why	What was the purpose of the compromise?	:goal :goals
How	How did the compromise impact the victim? How did the attacker carry out the compromise? How significant was the impact of the compromise?	:loss:* / :ransom:* / :theft:* / :response:cost -(uses)> :severity



Modeling Strategic Data - Demo



Summary

- There are many cases where you will need to **manually** model data
 - **One-off** objects or occurrences
 - Non-standard or less common **indicators**
 - Capturing supporting **evidence**
 - Representing more **strategic** or **abstract** information
- Modeling entails:
 - Identify the appropriate **form** to use
 - Map real-world data to the form **properties**