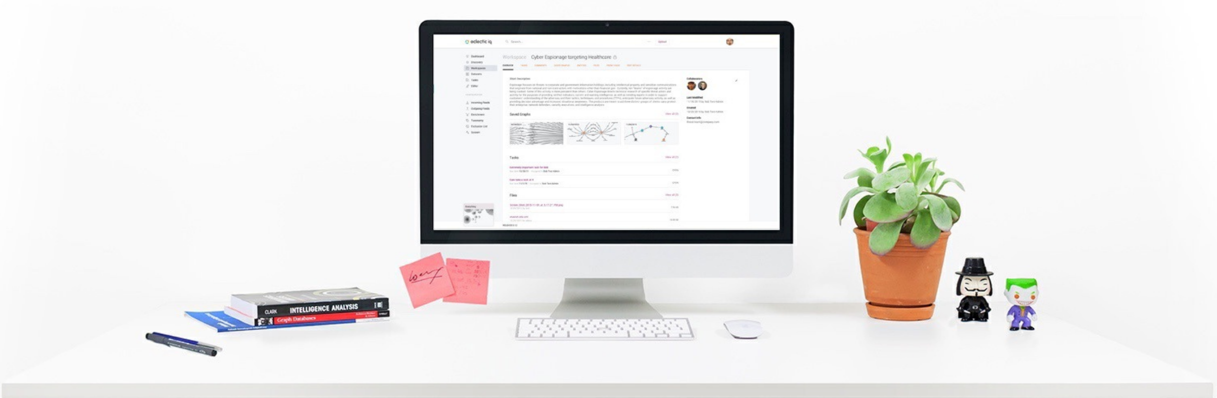
How-tos for EclecticIQ Platform

Hands-on articles on specific platform features

Last generated: July 21, 2017



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How to work with the Fox-IT InTELL Portal enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the Fox-IT InTELL Portal enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the Fox-IT InTELL Portal enricher

This article describes how to configure the Fox-IT InTELL Portal enricher parameters.
To configure the general options for the Fox-IT InTELL Portal enricher, see Configure enrichers.

Fox-IT InTELL Portal	**enricher**
Enricher name	Fox-IT InTELL Portal
API endpoint	`https://cybercrime-portal.fox-it.com/`
Input	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Output	Enriches the supported observable types with relevant contextual information from forums, chats, and IRC channels.
Description	Based on Fox-IT InTELL, the portal gathers cyber threat intelligence from a range of sources like forums and sites that have registered potentially suspicious activity.

Configure the Fox-IT InTELL Portal enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management** > **Dataset** > **Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✔ On the forms, input fields marked with an asterisk are required.

Under **Parameters**, define the specific configuration options for the Fox-IT InTELL Portal enricher:

- **Fox-IT InTELL portal URL** : the URL pointing to the API endpoint exposing the service that grants access to the enricher data. Contact the intel provider to subscribe to the service and to obtain this information.
- **SSL certificate file path**: enter the path to the locally stored *.pem* SSL certificate you obtain from Fox-IT after subscribing to InTELL.
- **SSL key file path**: enter the path to the locally stored *.pem* SSL private key related to the SSL certificate.
- **Username**: enter the user name associated to the Fox-IT InTELL Portal account to access and consume the InTELL service.
- **Password**: enter the password associated to the Fox-IT InTELL Portal account to access and consume the InTELL service.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▴ or a downward-pointing ▾ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **✚ Add** or **✚ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.

- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **+ Add** or **+ More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data. **TLP** `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **✚ Add** or **✚ More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

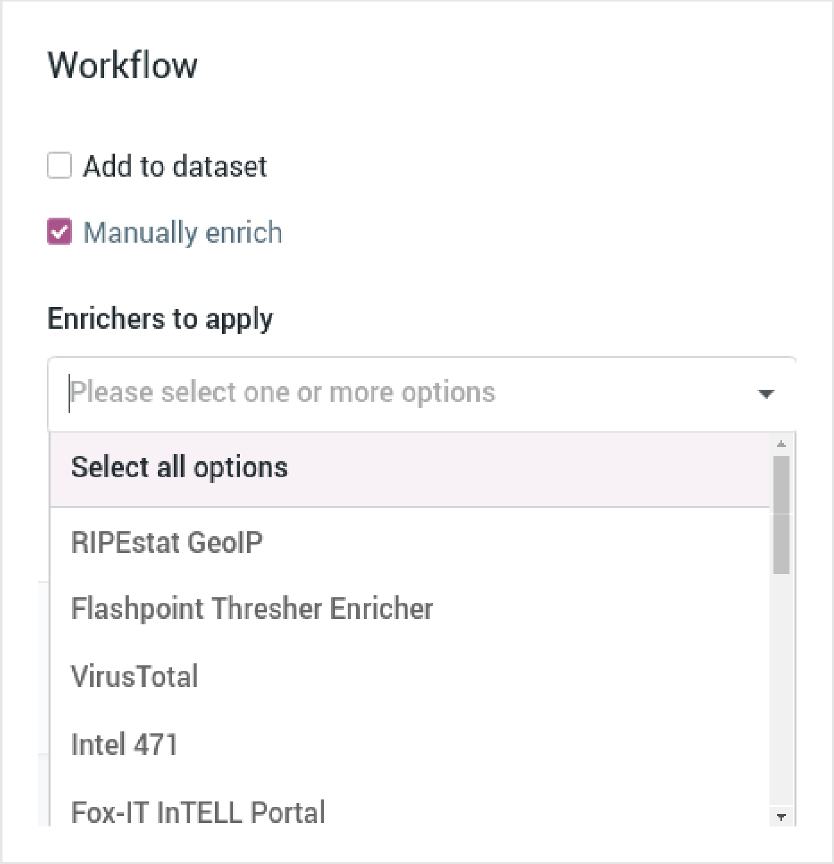
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

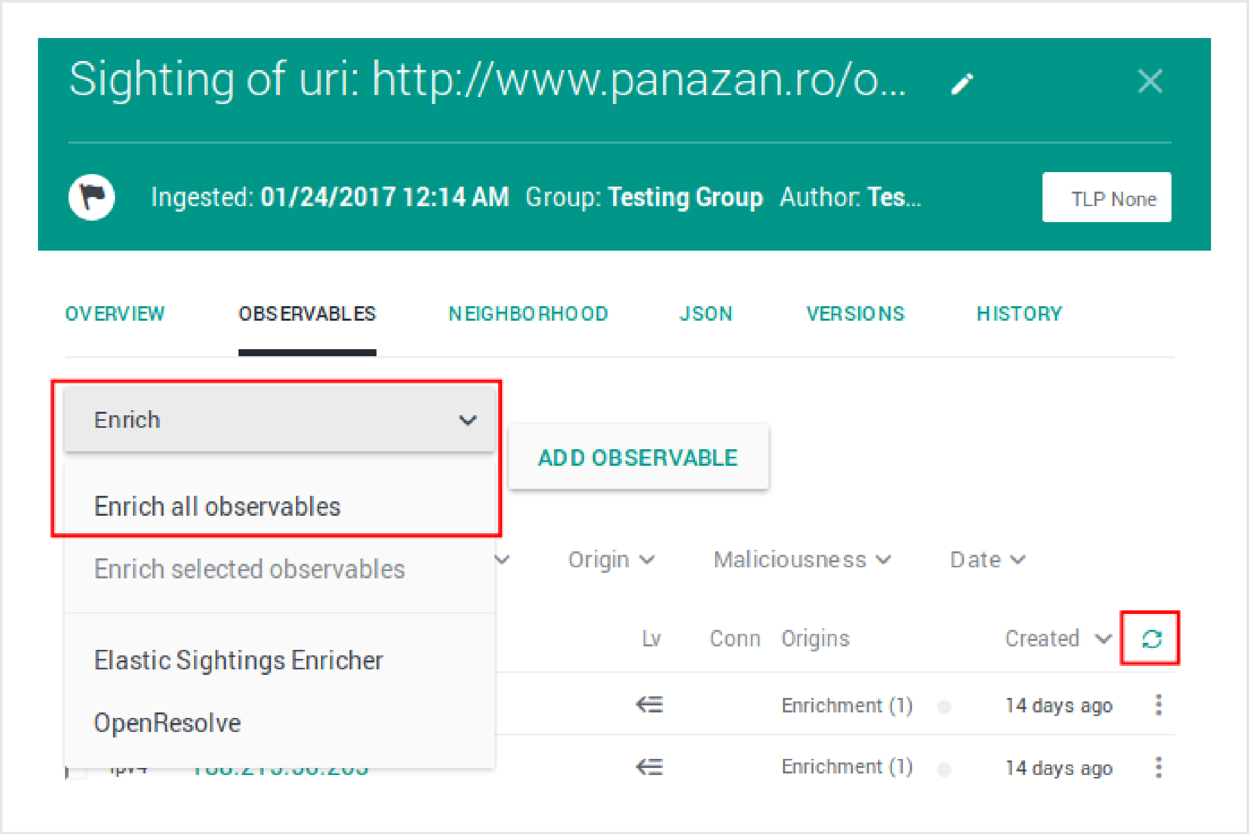
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the 🔄 refresh icon to trigger a task run that polls all the enrichers configured for the entity.

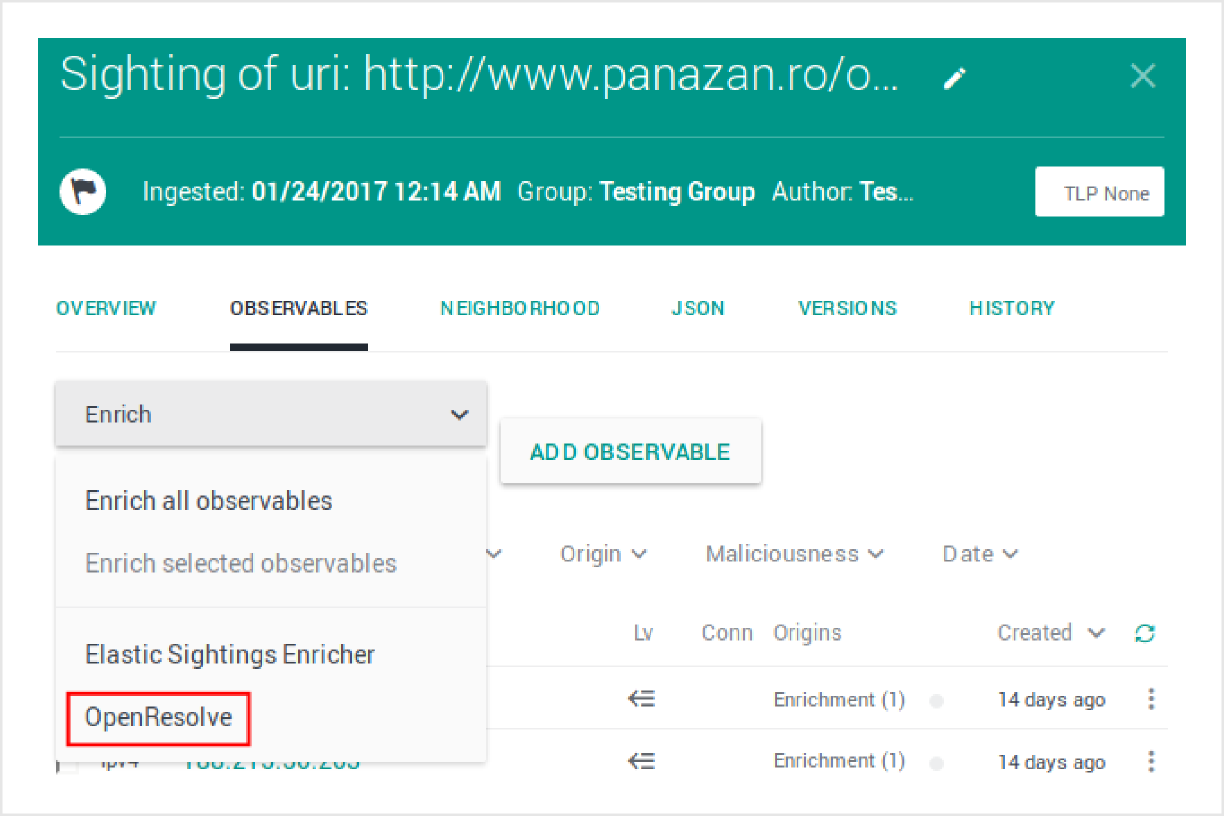
Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.



To poll a specific enricher:

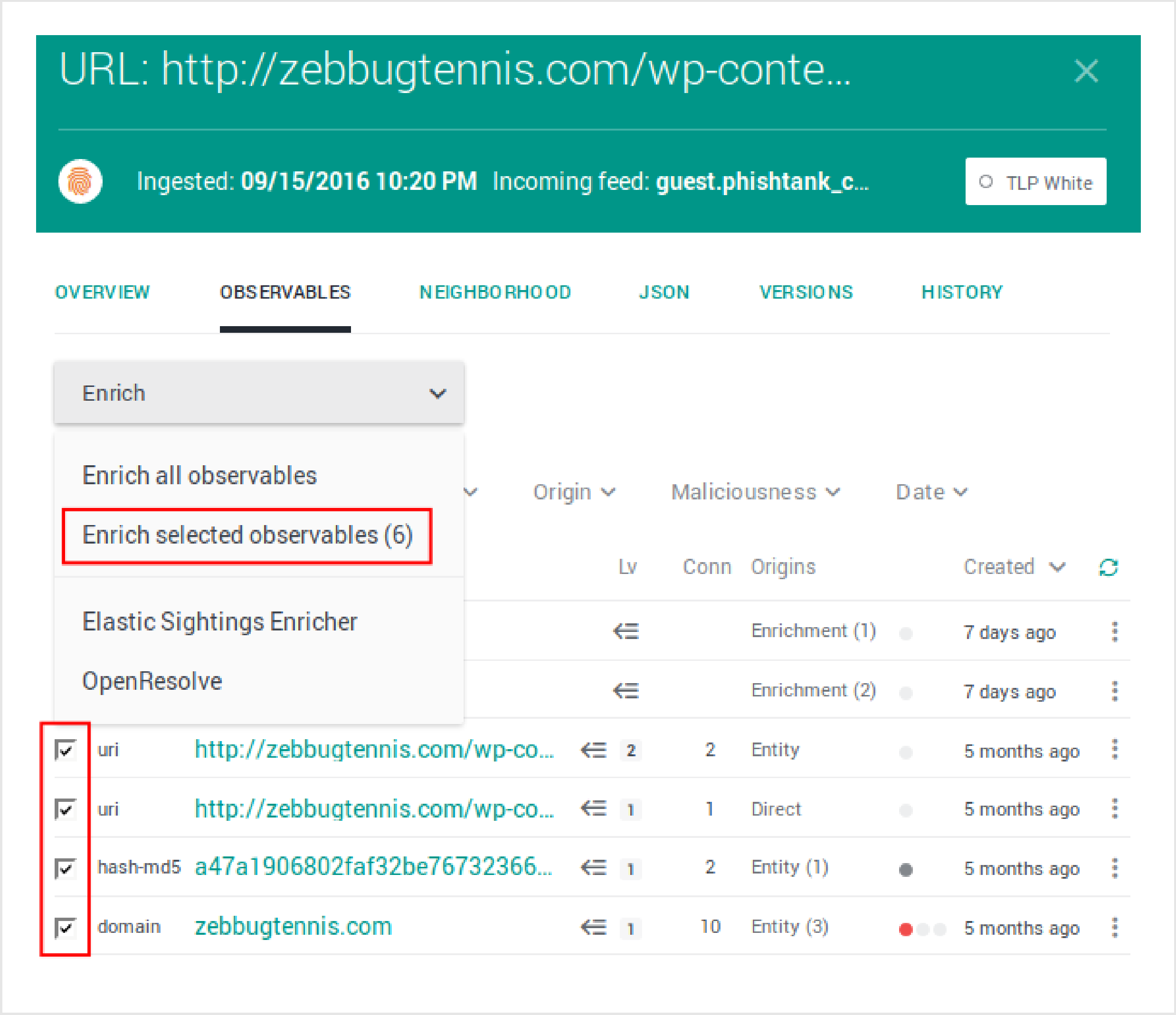
- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.

- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.



The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

The Fox-IT InTELL Portal enricher can take the following observable types as input:

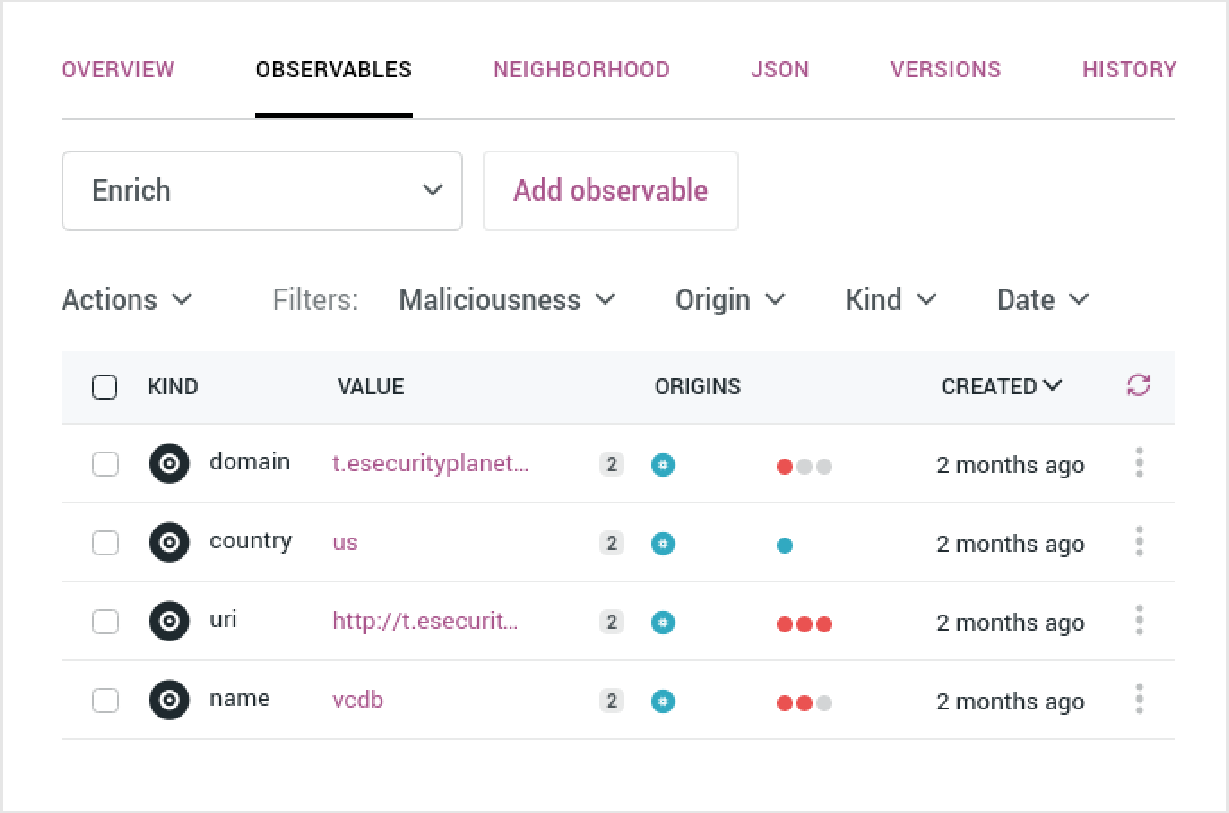
- *ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with Fox-IT InTELL Portal.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.

- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

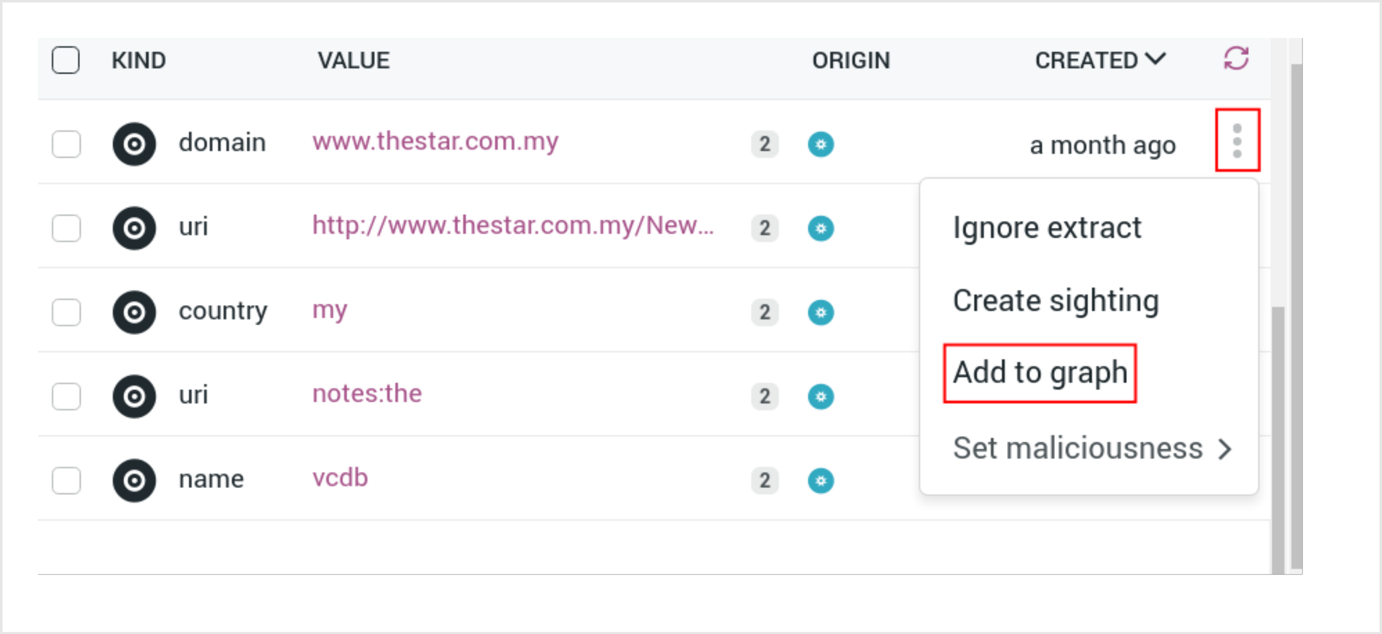


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Review enrichment observables on the graph

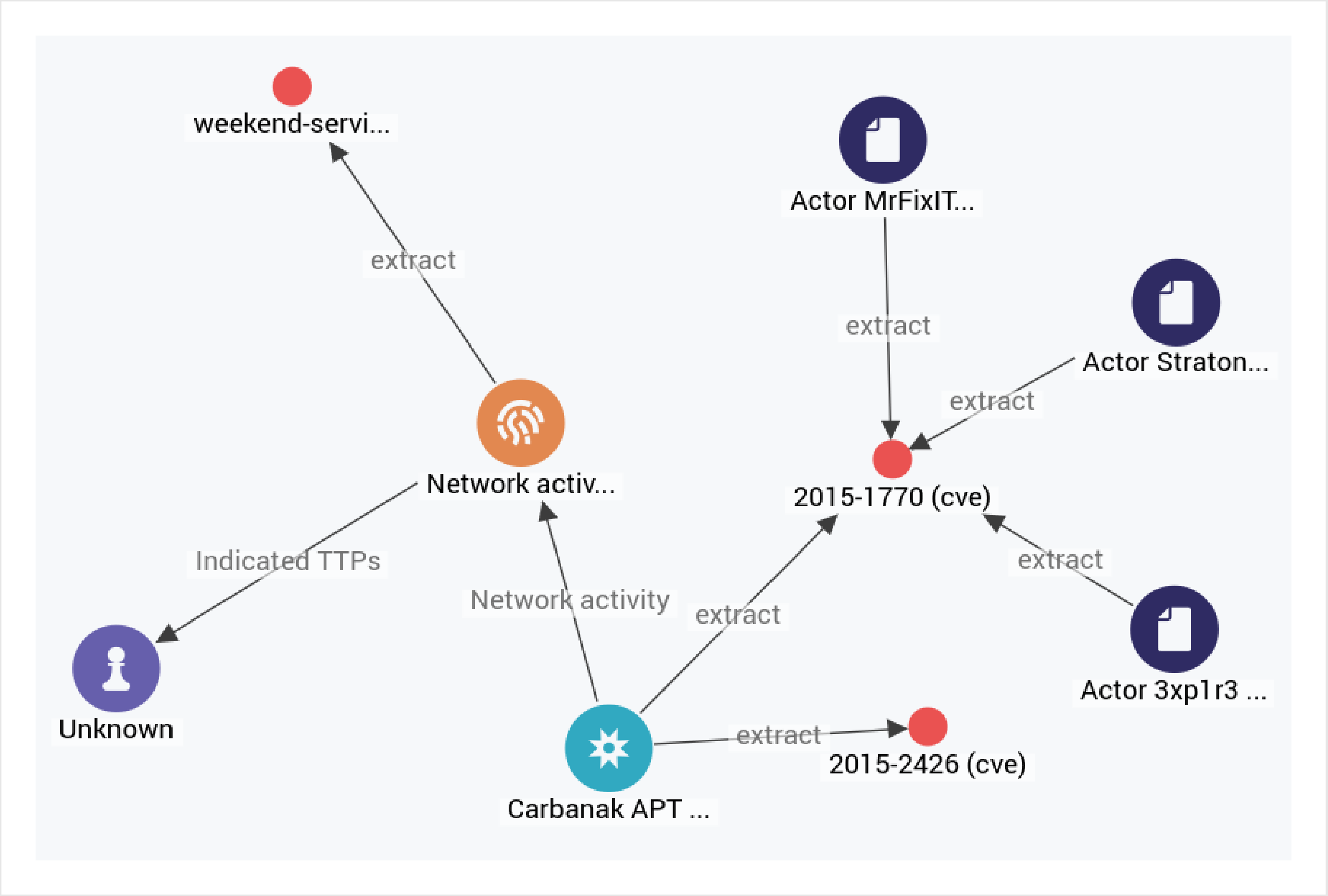
To view enrichment data and their connections with other entities and observables on the graph, do the following:

- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.

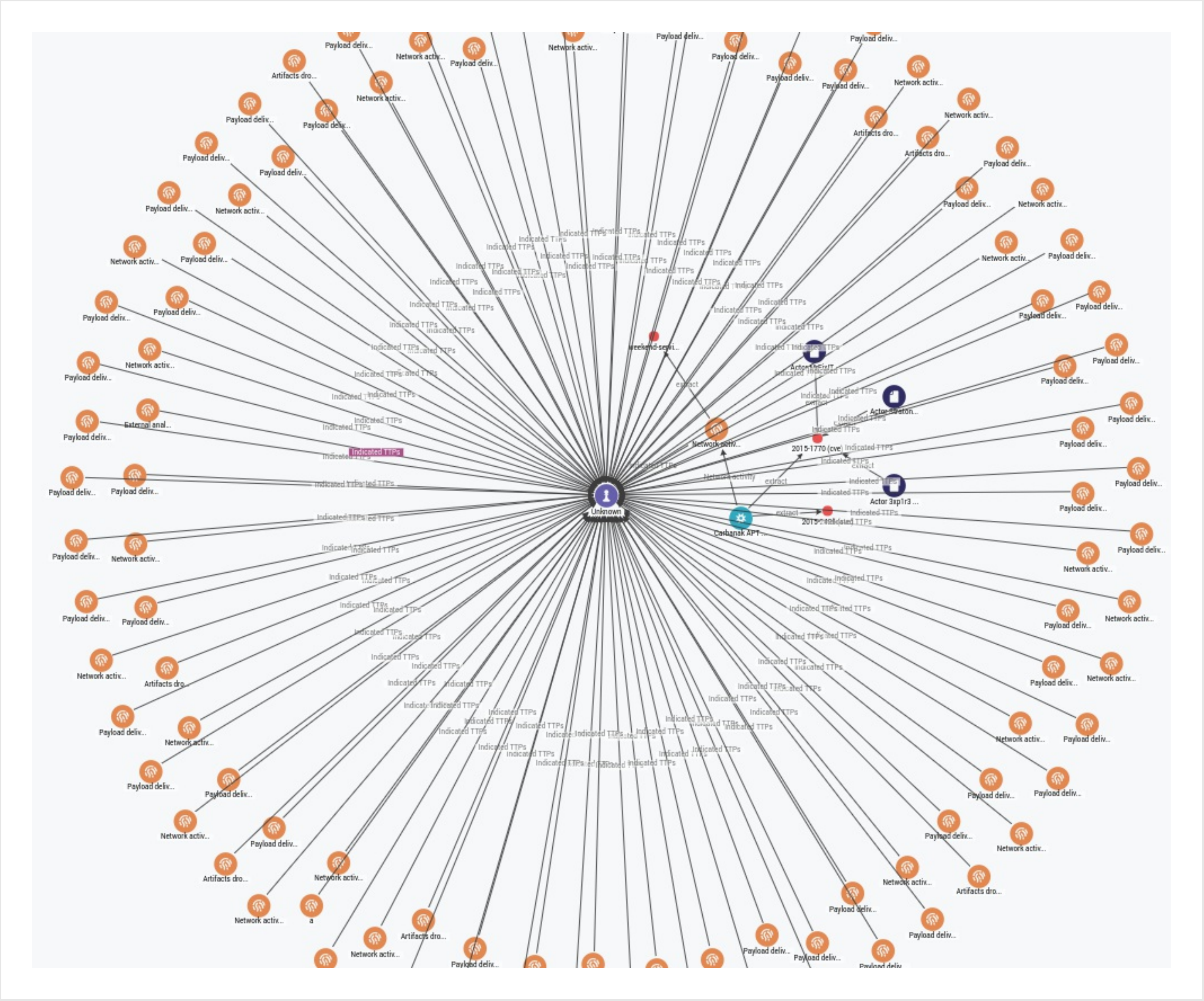


☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	a month ago
☐	uri	http://www.thestar.com.my/New...	2	
☐	country	my	2	
☐	uri	notes:the	2	
☐	name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.
- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

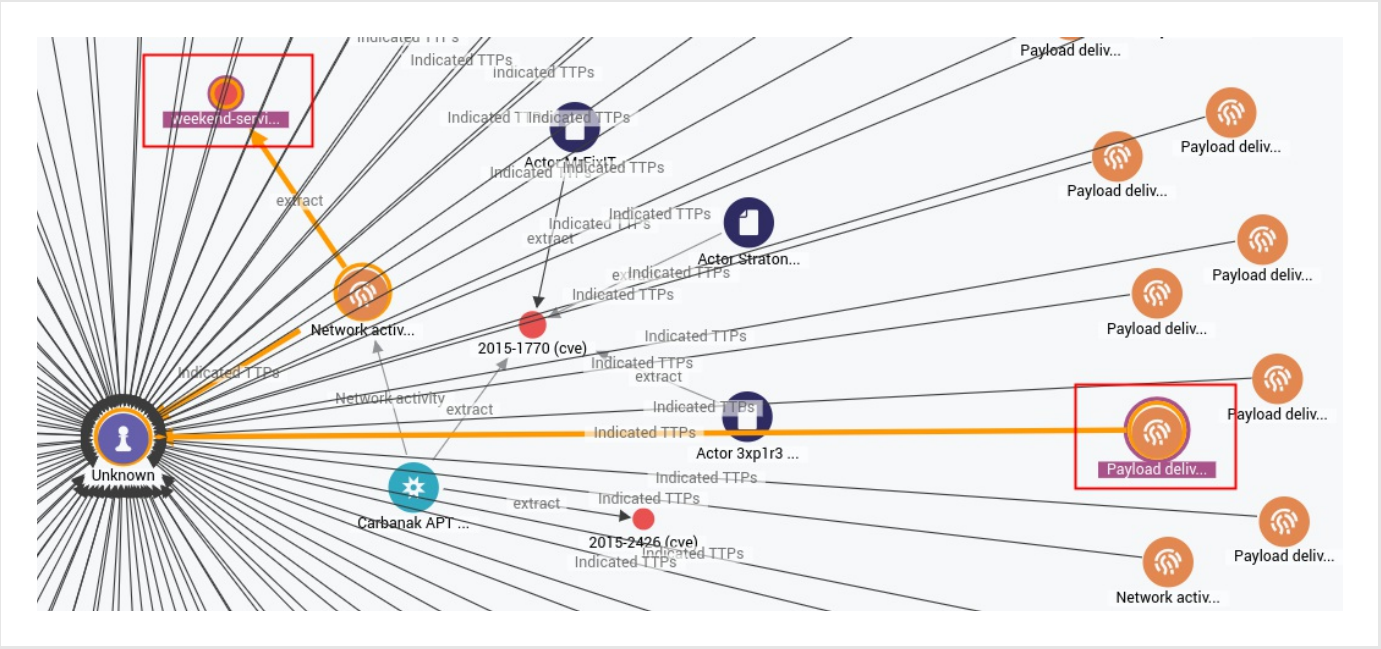


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



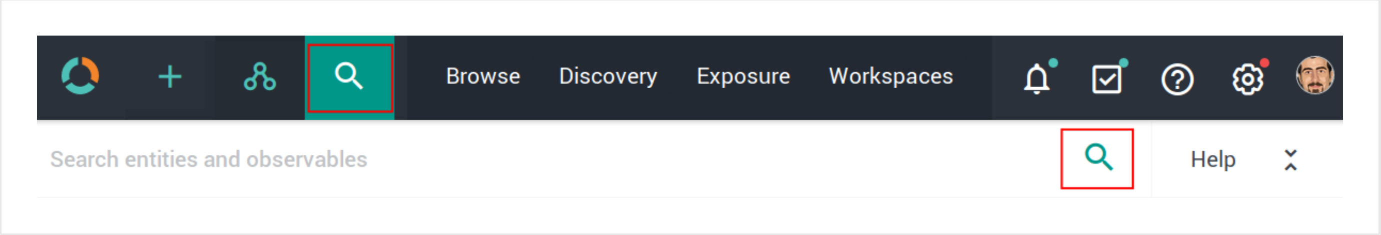
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

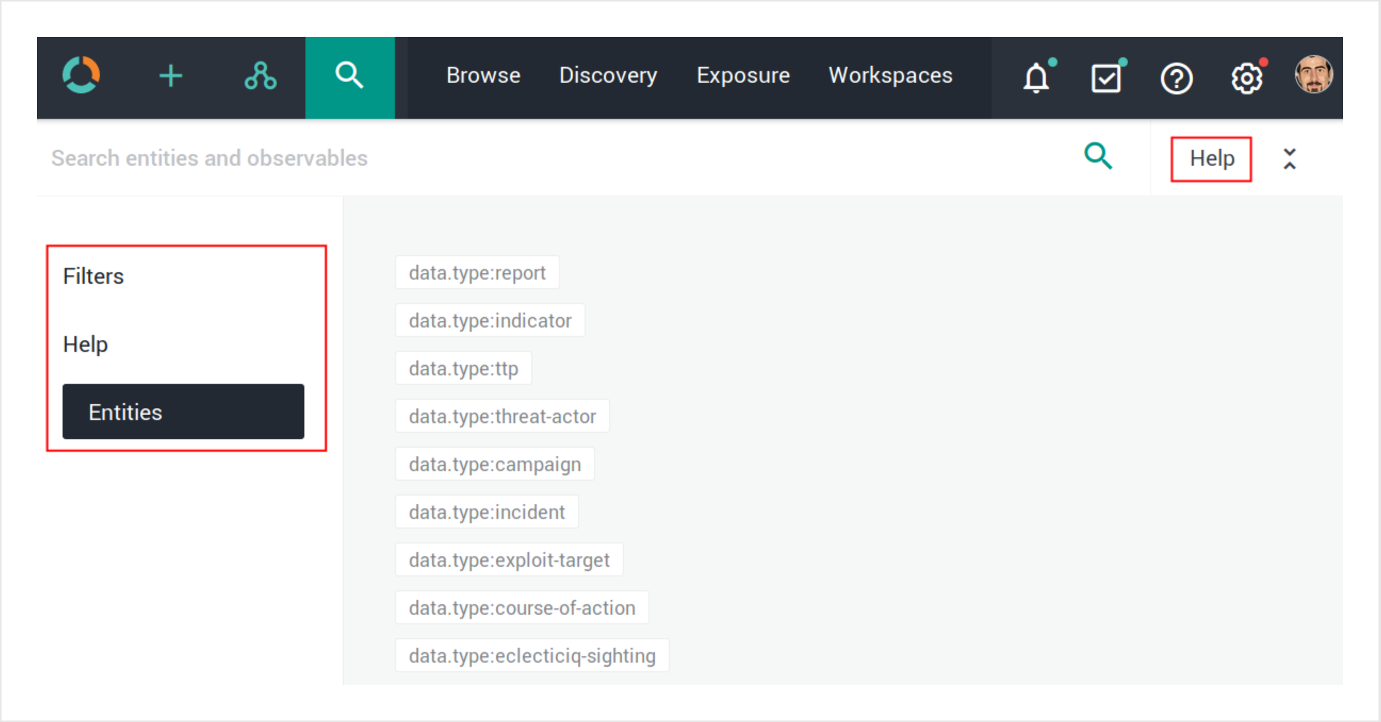


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

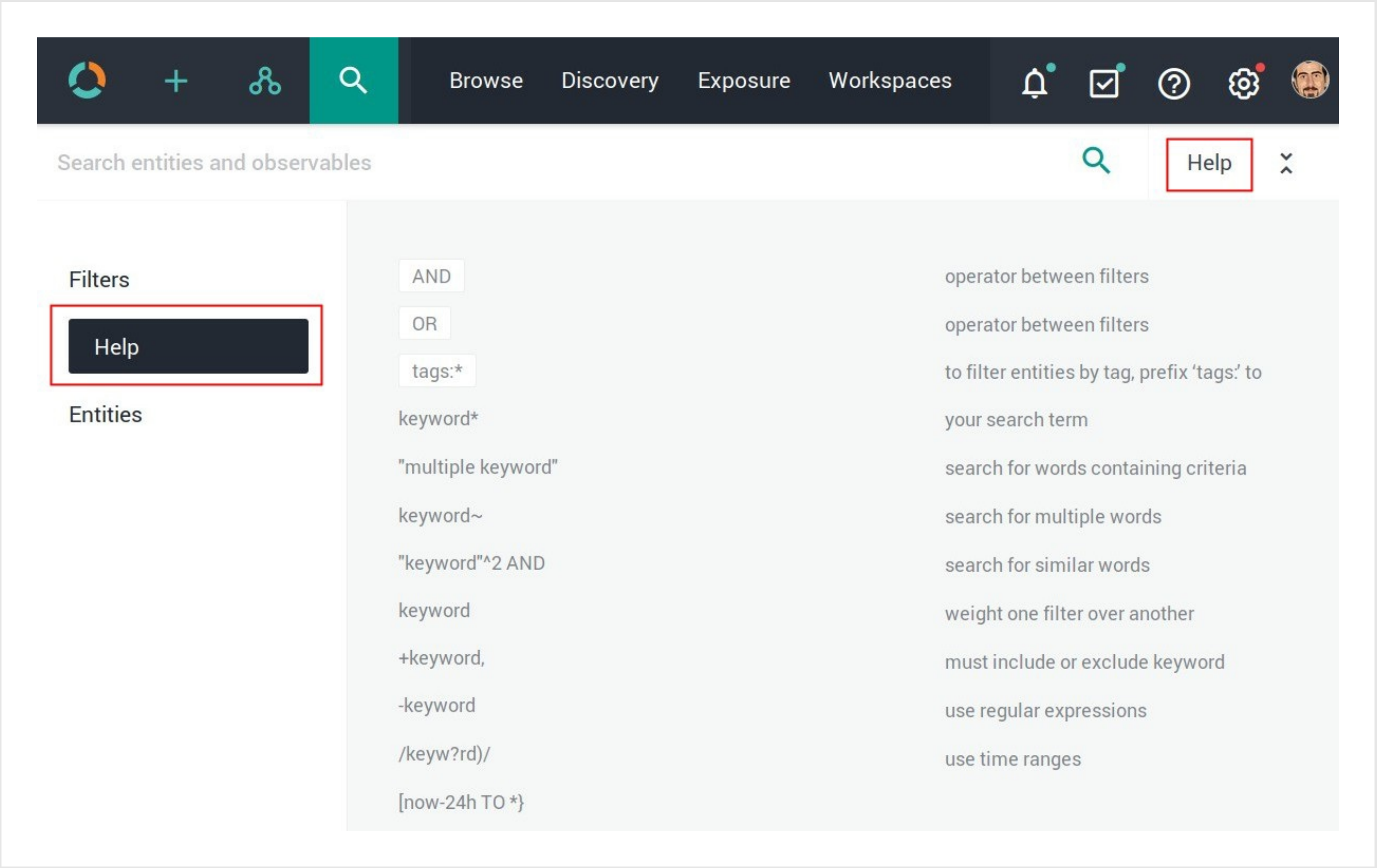
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

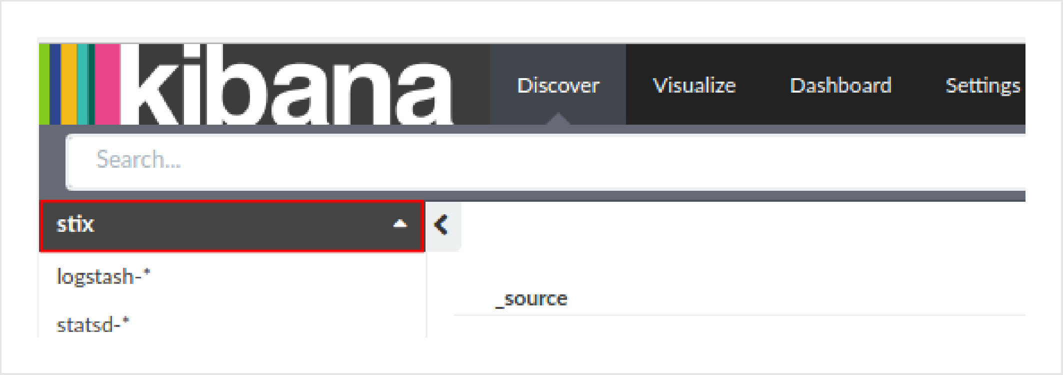
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

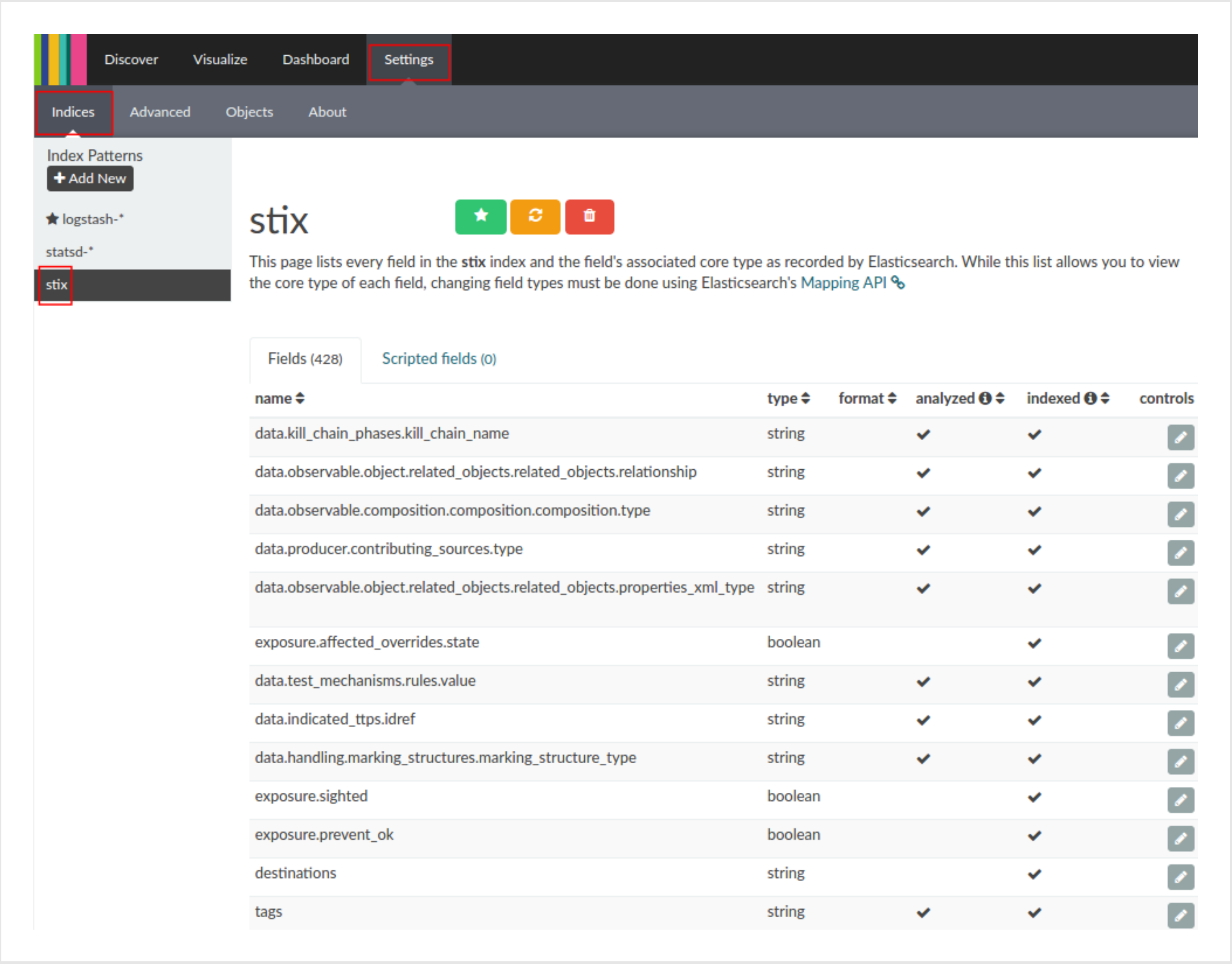
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

Fields (428) Scripted fields (0)

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the Intel 471 enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the Intel 471 enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the Intel 471 enricher

This article describes how to configure the Intel 471 enricher parameters.
To configure the general options for the Intel 471 enricher, see Configure enrichers.

Intel 471	**enricher**
Enricher name	Intel 471
API endpoint	`https://api.intel471.com/v1/`
Input	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
Output	Enriches the supported observable types with data focusing on threat actor information.
Description	Besides data on compromised IP addresses, domains, URLs, and emails, Intel 471 focuses on providing first-hand information about threat actors and groups.

Configure the Intel 471 enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✔ On the forms, input fields marked with an asterisk are required.

Under **Parameters**, define the specific configuration options for the Intel 471 enricher:

- **API URL**: the URL pointing to the API endpoint exposing the service that grants access to the enricher data source. Contact the intelligence provider to subscribe to the service and to obtain this information, as well as any required authentication and authorization credentials.
- **API key**: contact Intel 471 to receive an API key, and then enter it in the corresponding input field.
- **Email**: enter the email address associated to the Intel 471 account to access and consume the Intel 471 API service.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **✚ Add** or **✚ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.

- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.

- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **✚ Add** or **✚ More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

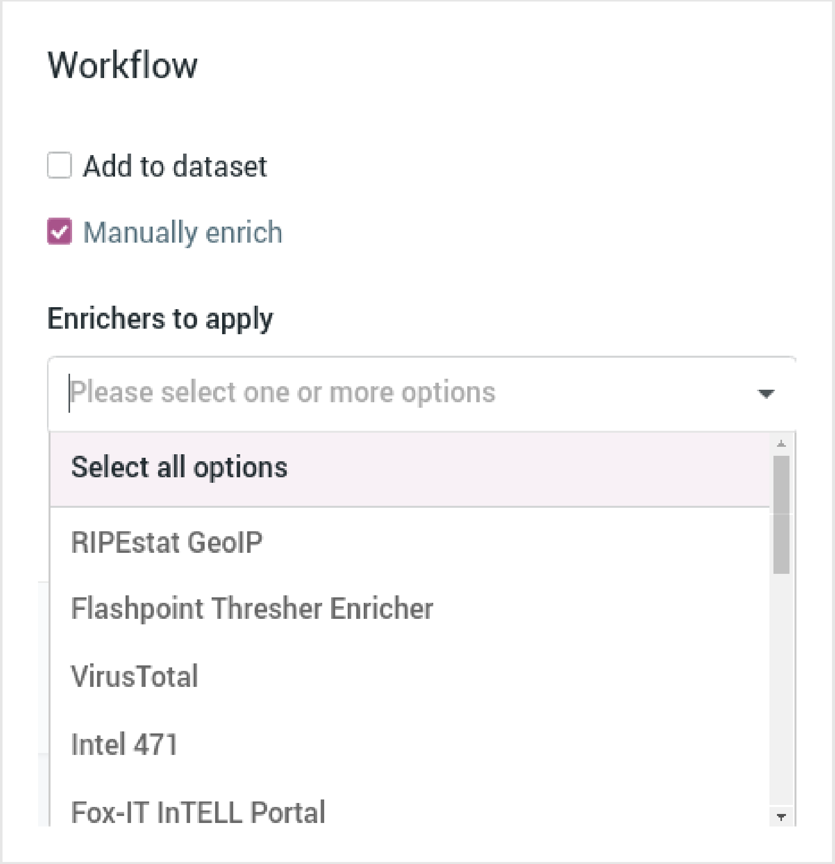
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

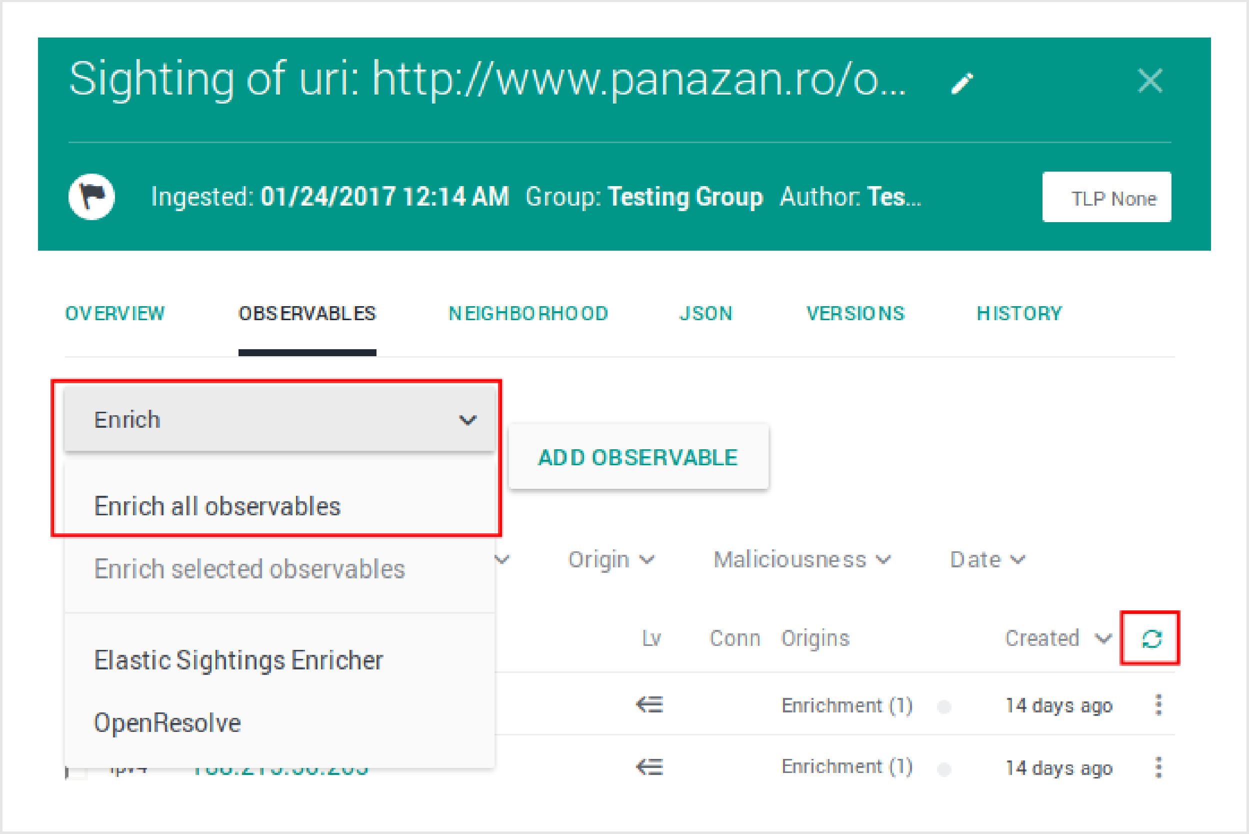
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ⟳ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

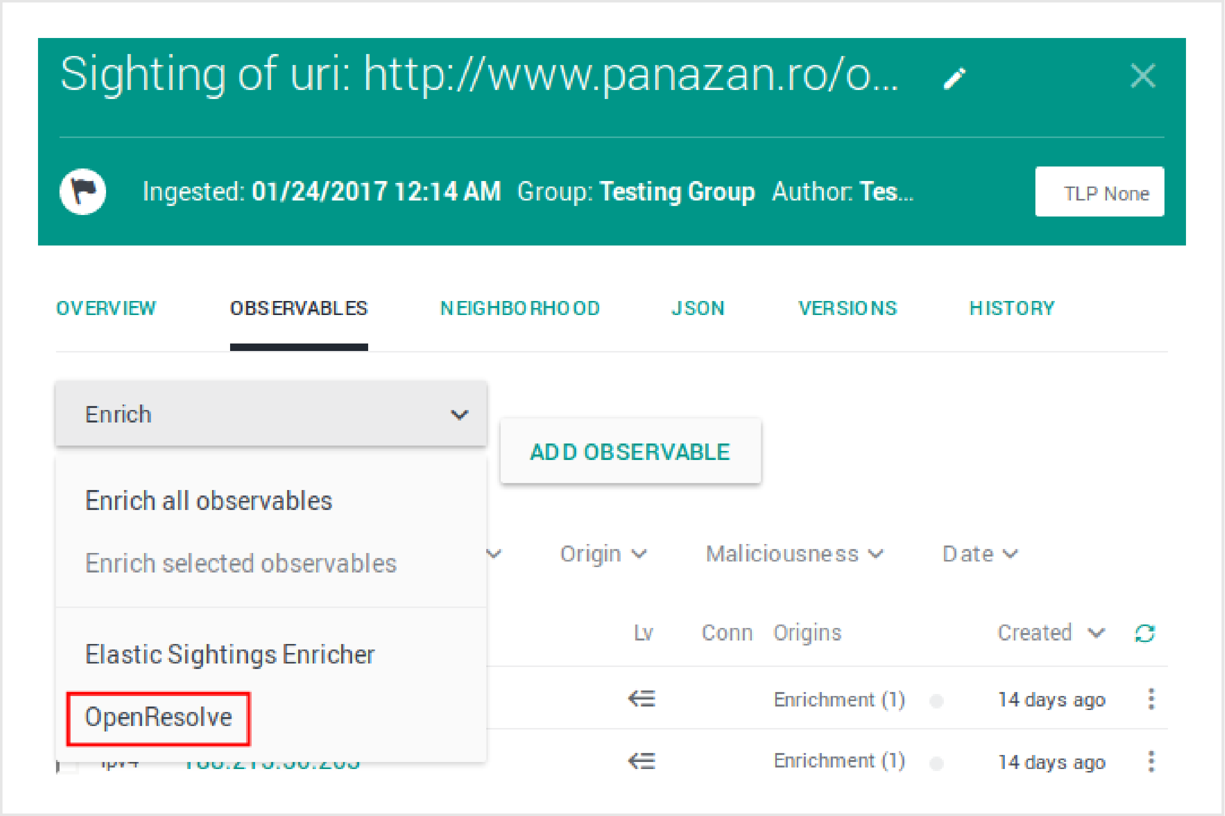


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.

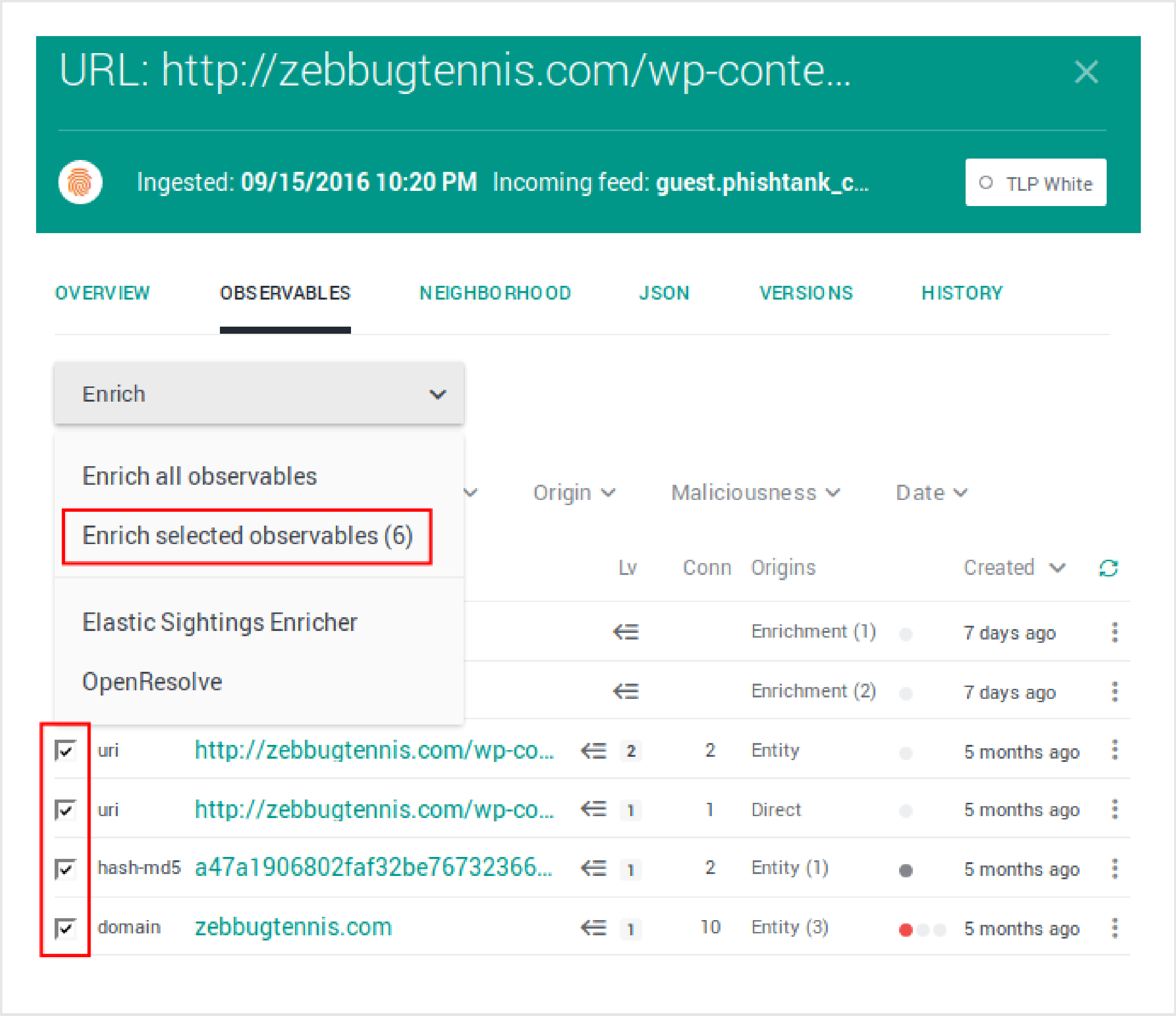


Sighting of uri: http://www.panazan.ro/o...

Ingested: 01/24/2017 12:14 AM Group: Testing Group Author: Tes...

To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...
Ingested: 09/15/2016 10:20 PM Incoming feed: guest.phishtank_c...
○ TLP White
OVERVIEW
OBSERVABLES
NEIGHBORHOOD
JSON
VERSIONS
HISTORY
Enrich
Enrich all observables
Enrich selected observables (6)
Elastic Sightings Enricher
OpenResolve
Origin
Maliciousness
Date

			Lv	Conn	Origins		Created
			⇚		Enrichment (1)	●	7 days ago
			⇚		Enrichment (2)	●	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	⇚ 2	2	Entity	●	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	⇚ 1	1	Direct	●	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	⇚ 1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	⇚ 1	10	Entity (3)	●●●	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher's content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

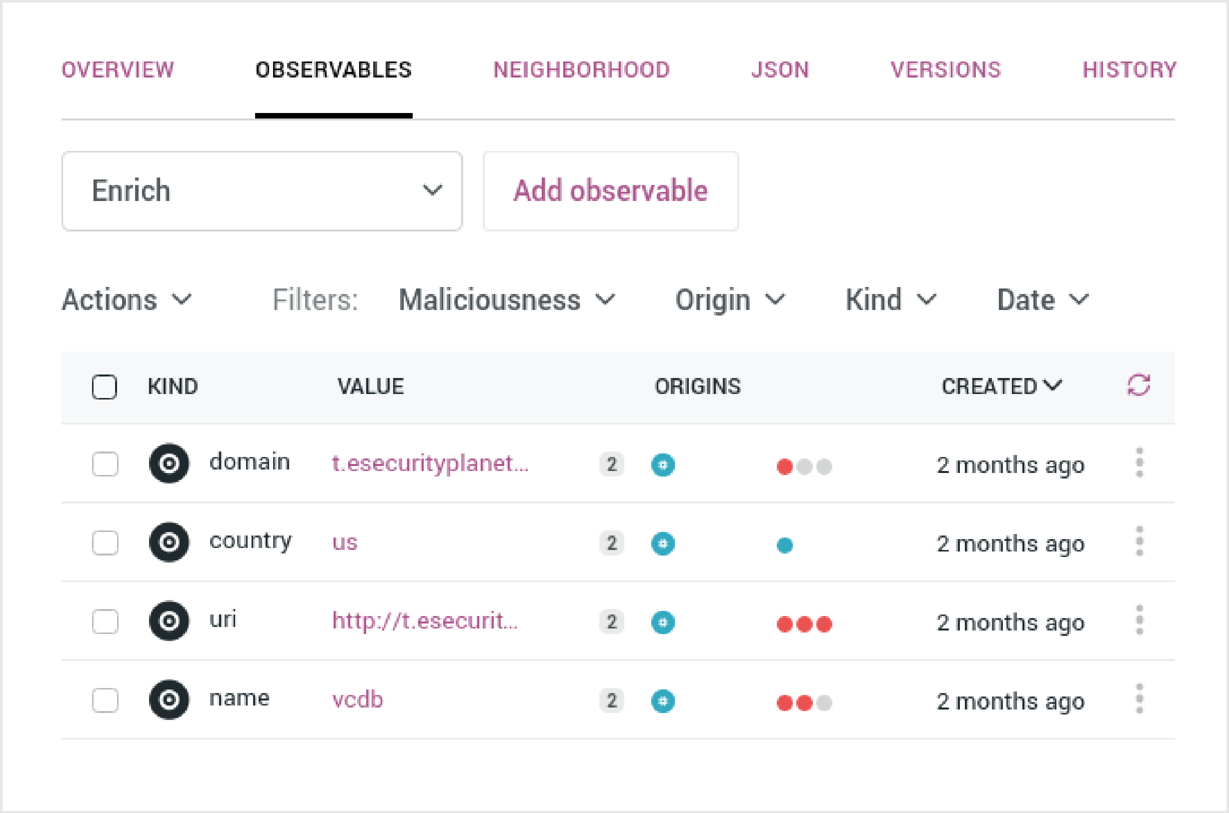
The Intel 471 enricher can take the following observable types as input:

- *ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with Intel 471.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

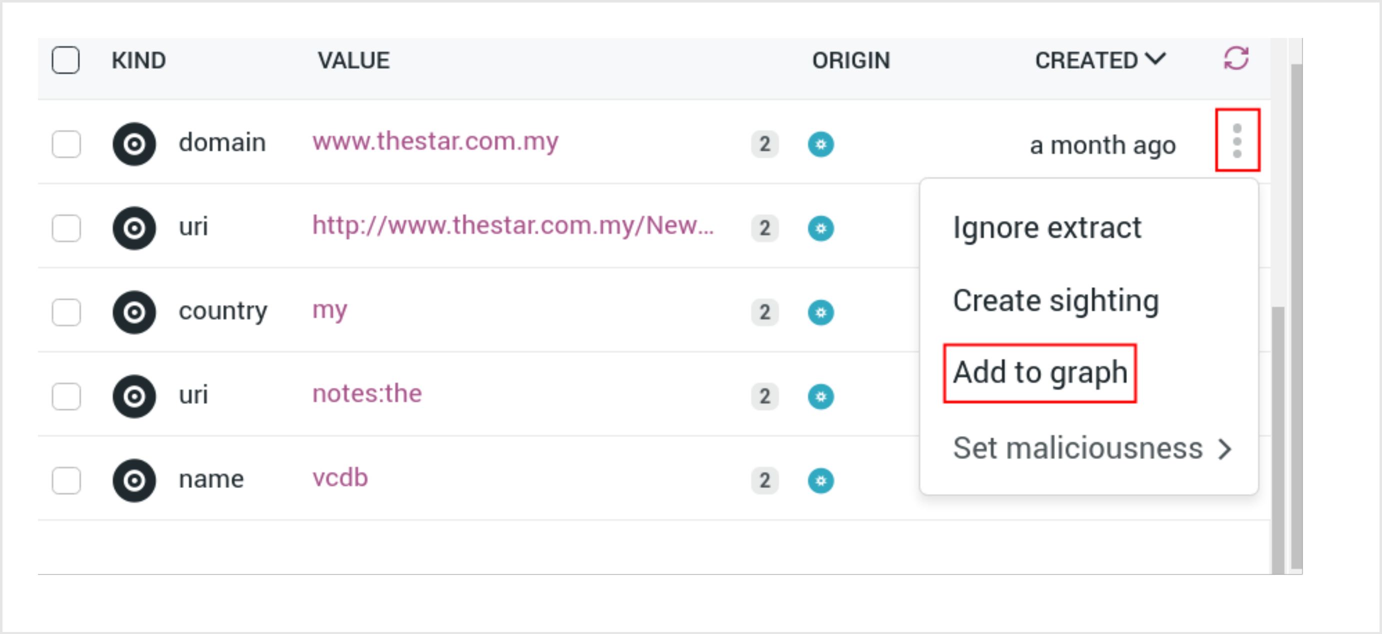


KIND	VALUE	ORIGINS	CREATED
domain	t.esecurityplanet...	2	2 months ago
country	us	2	2 months ago
uri	http://t.esecurit...	2	2 months ago
name	vcdb	2	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

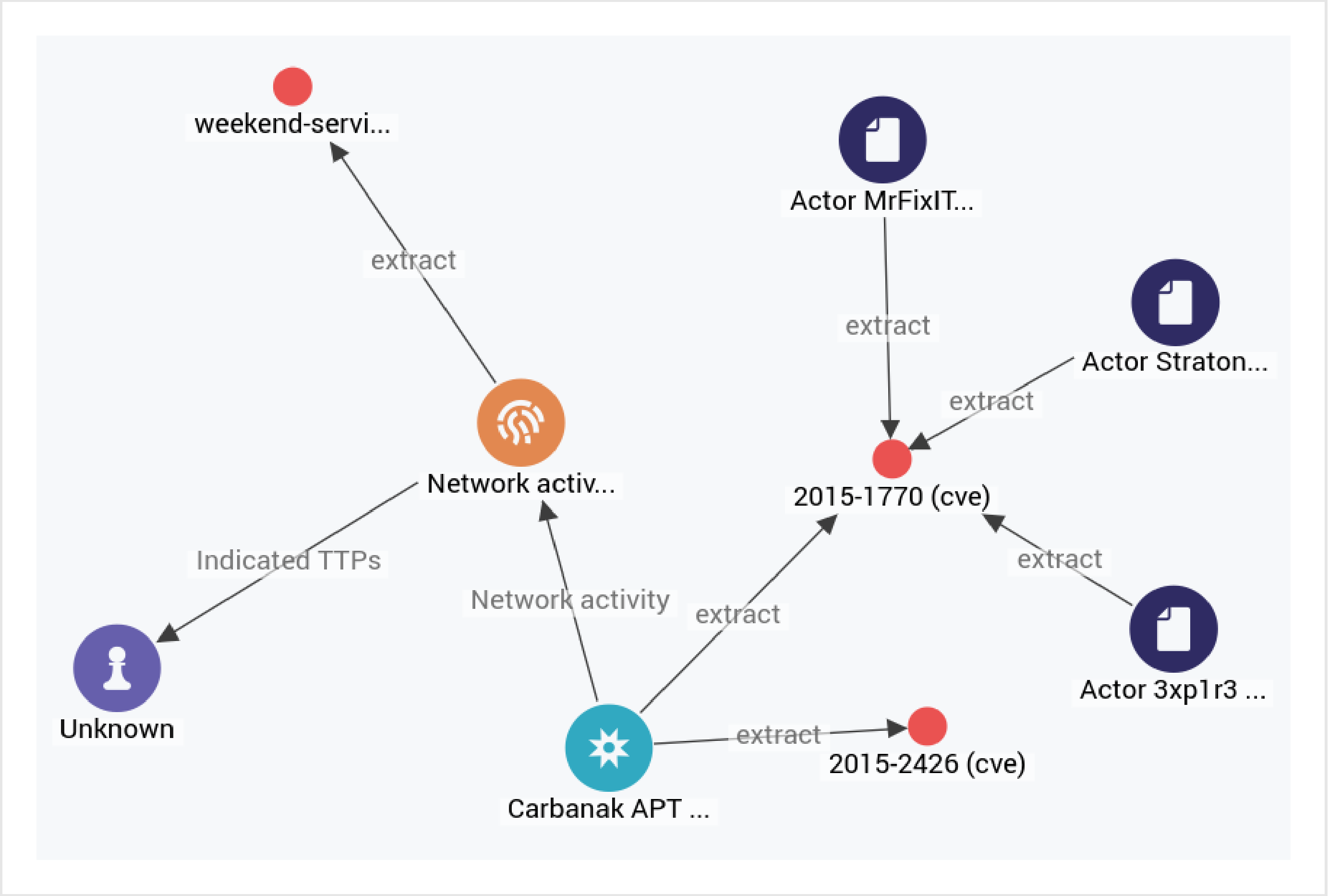
- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.



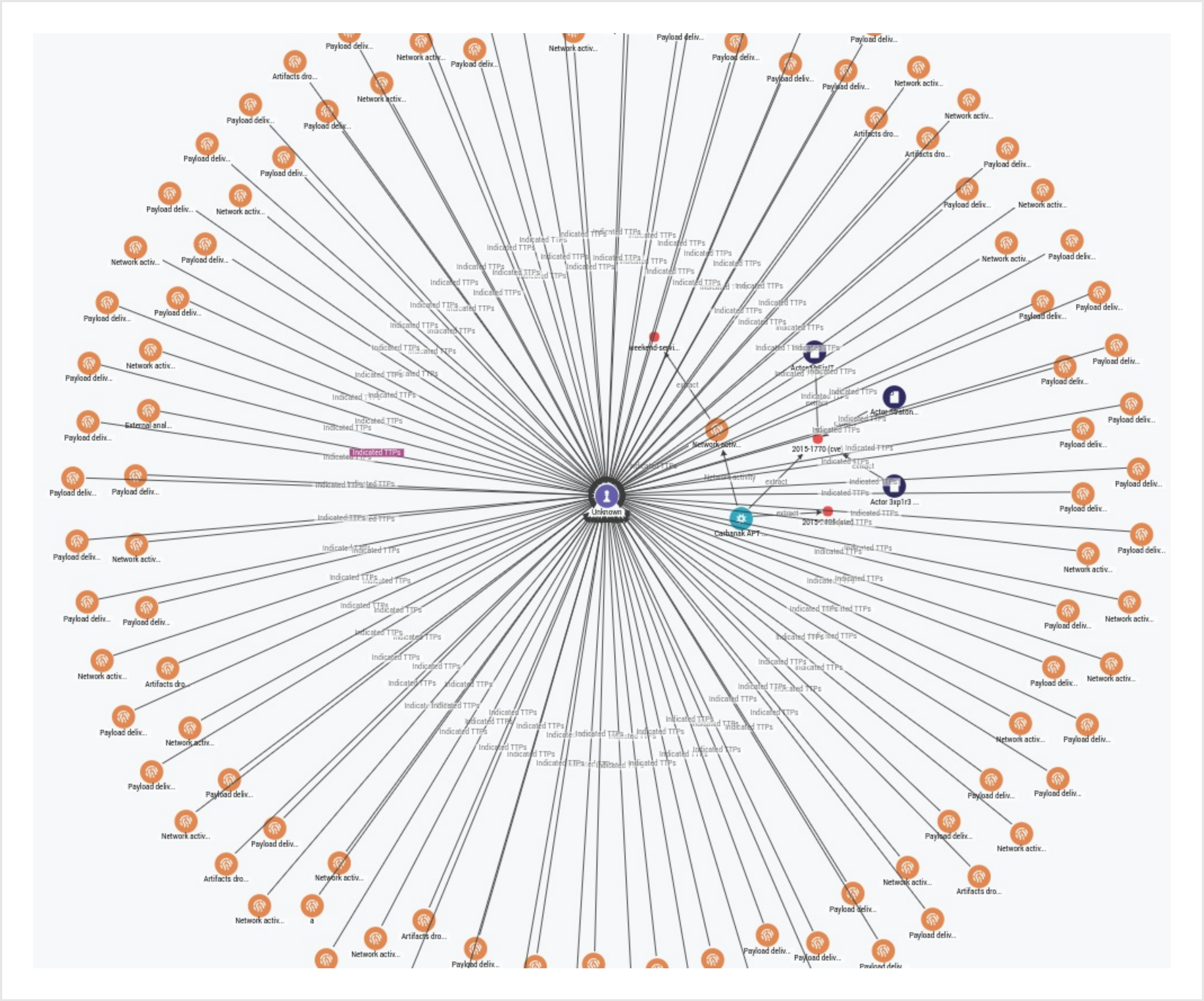
KIND	VALUE	ORIGIN	CREATED
domain	www.thestar.com.my	2	a month ago
uri	http://www.thestar.com.my/New...	2	
country	my	2	
uri	notes:the	2	
name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All**.

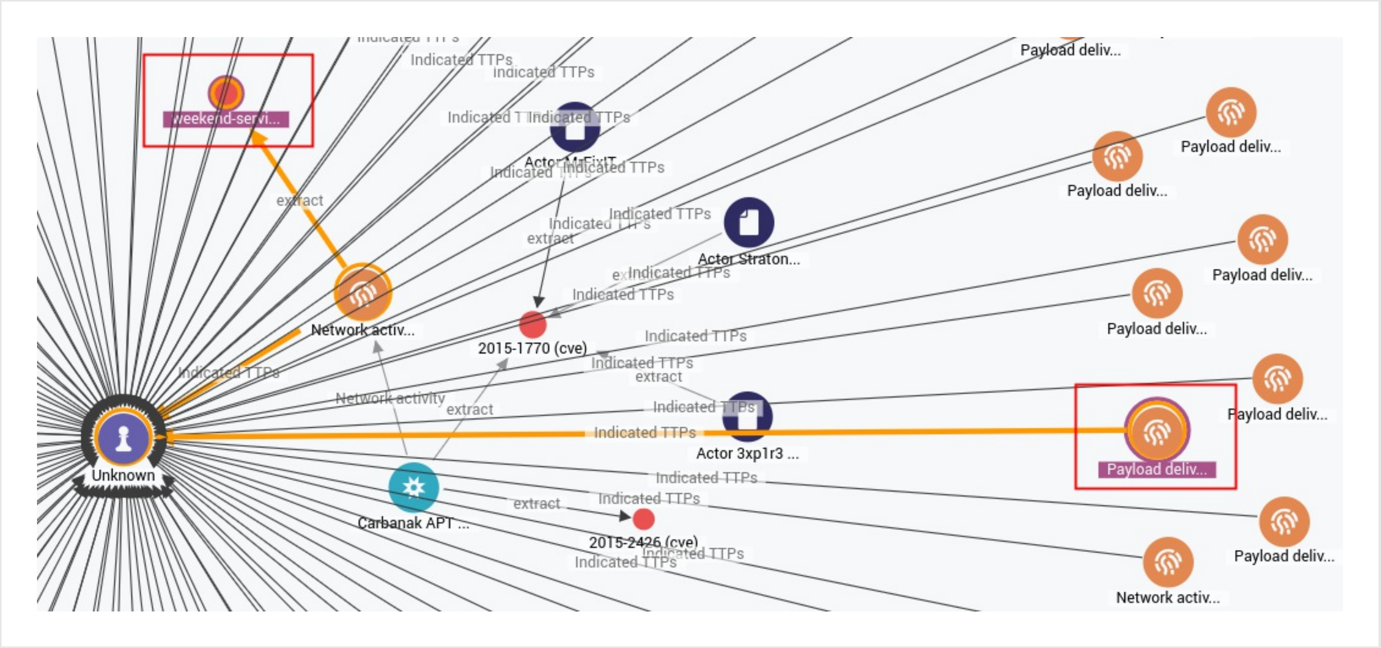


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All**.



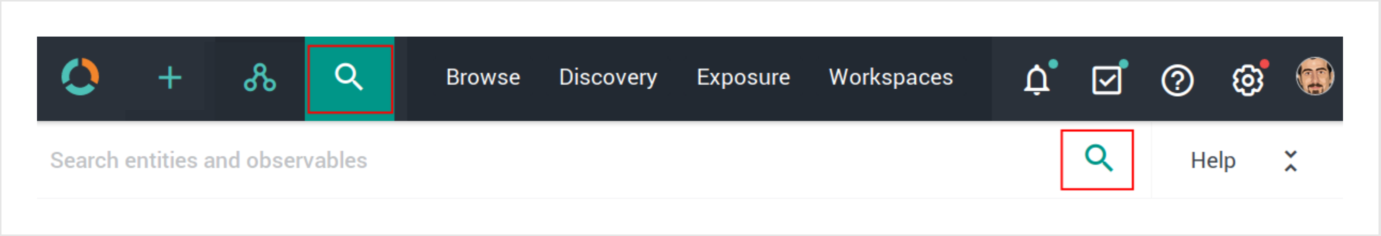
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

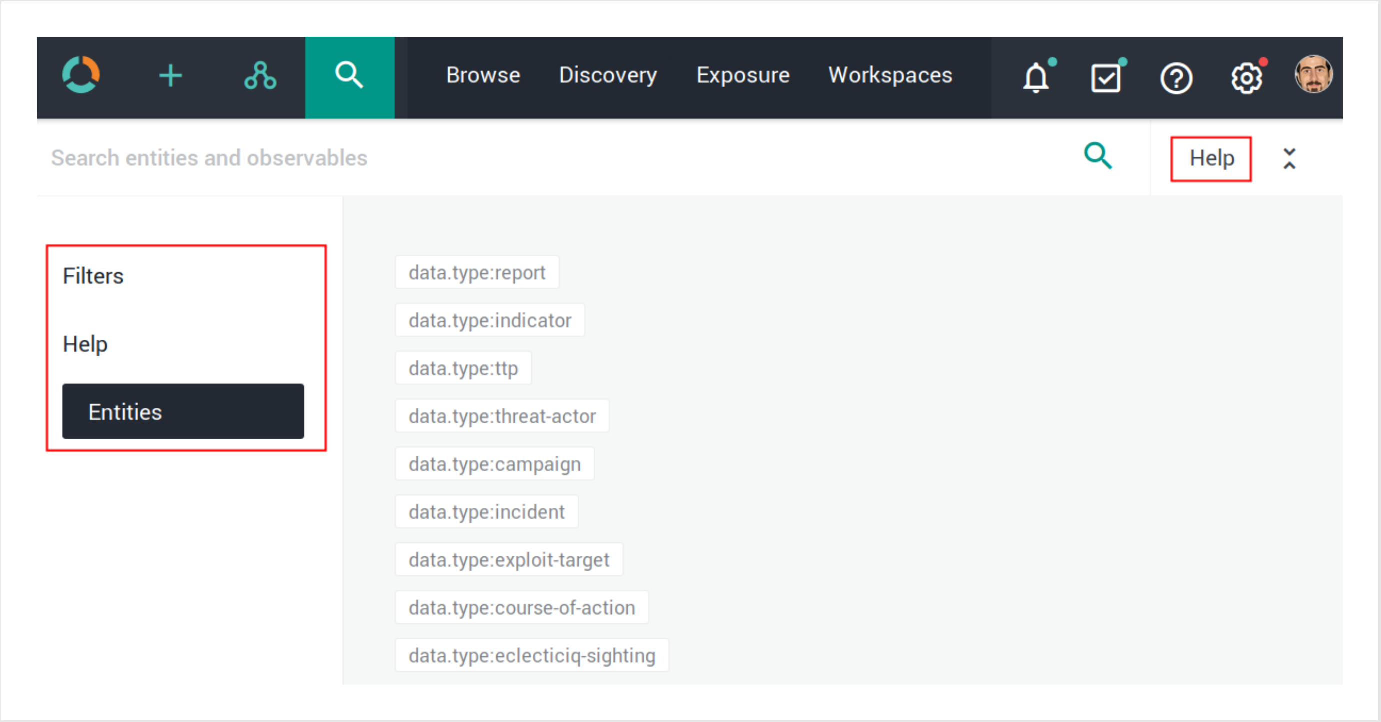


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

The search functionality uses **Elasticsearch query syntax** (https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).

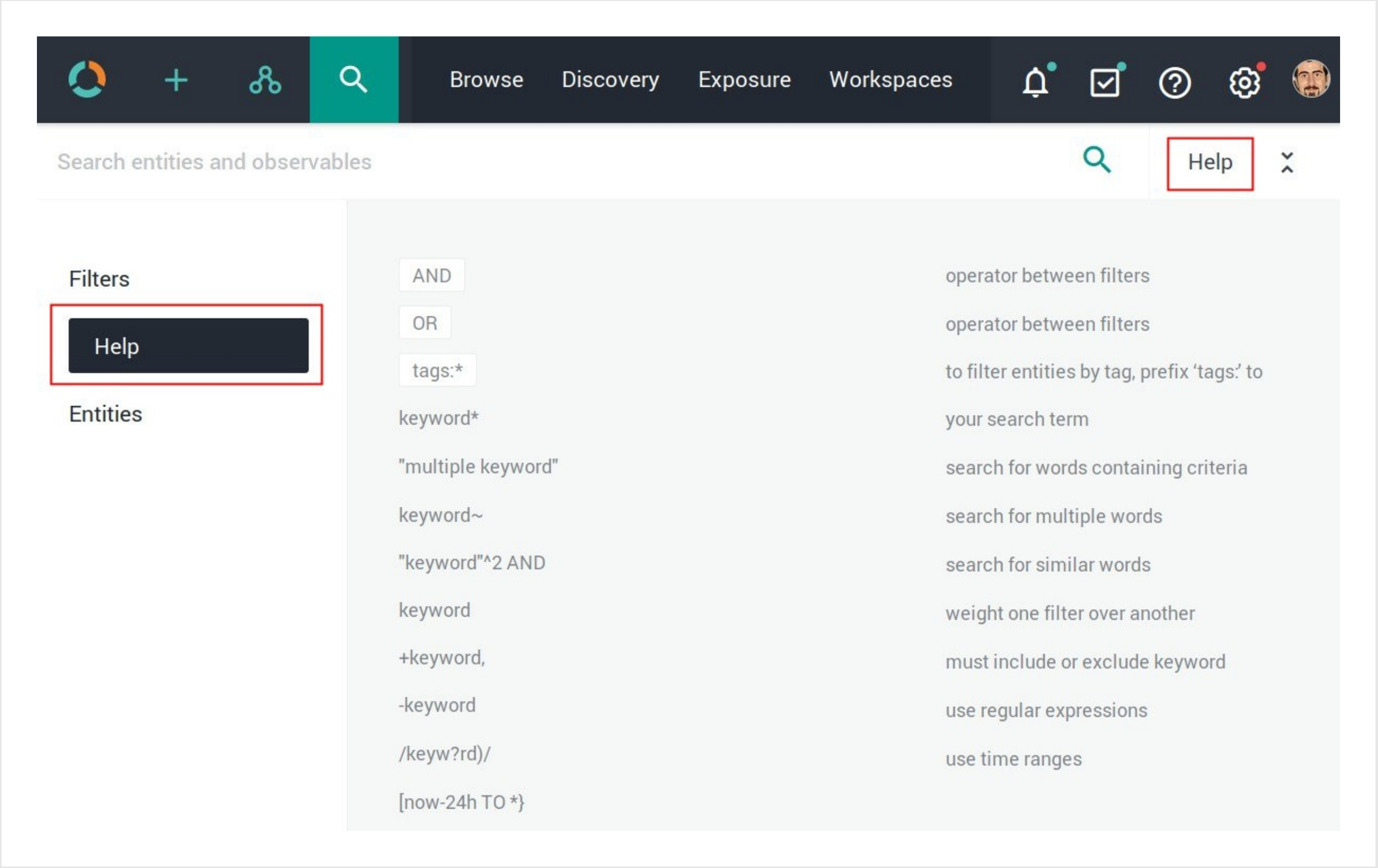
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

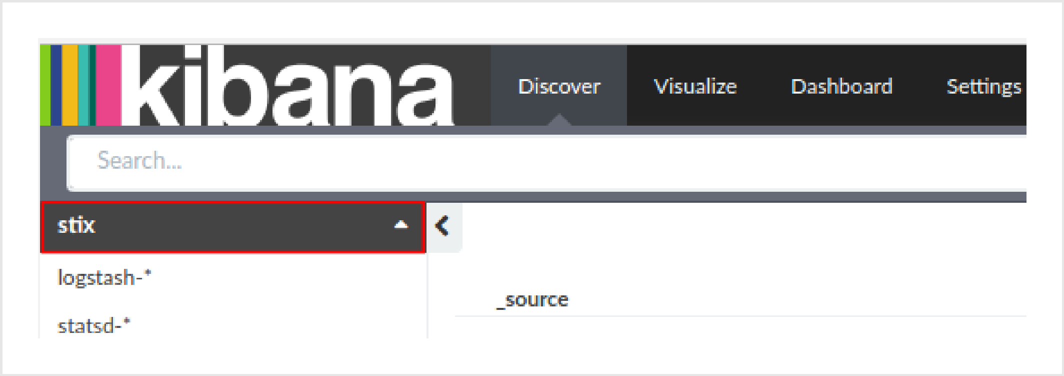
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

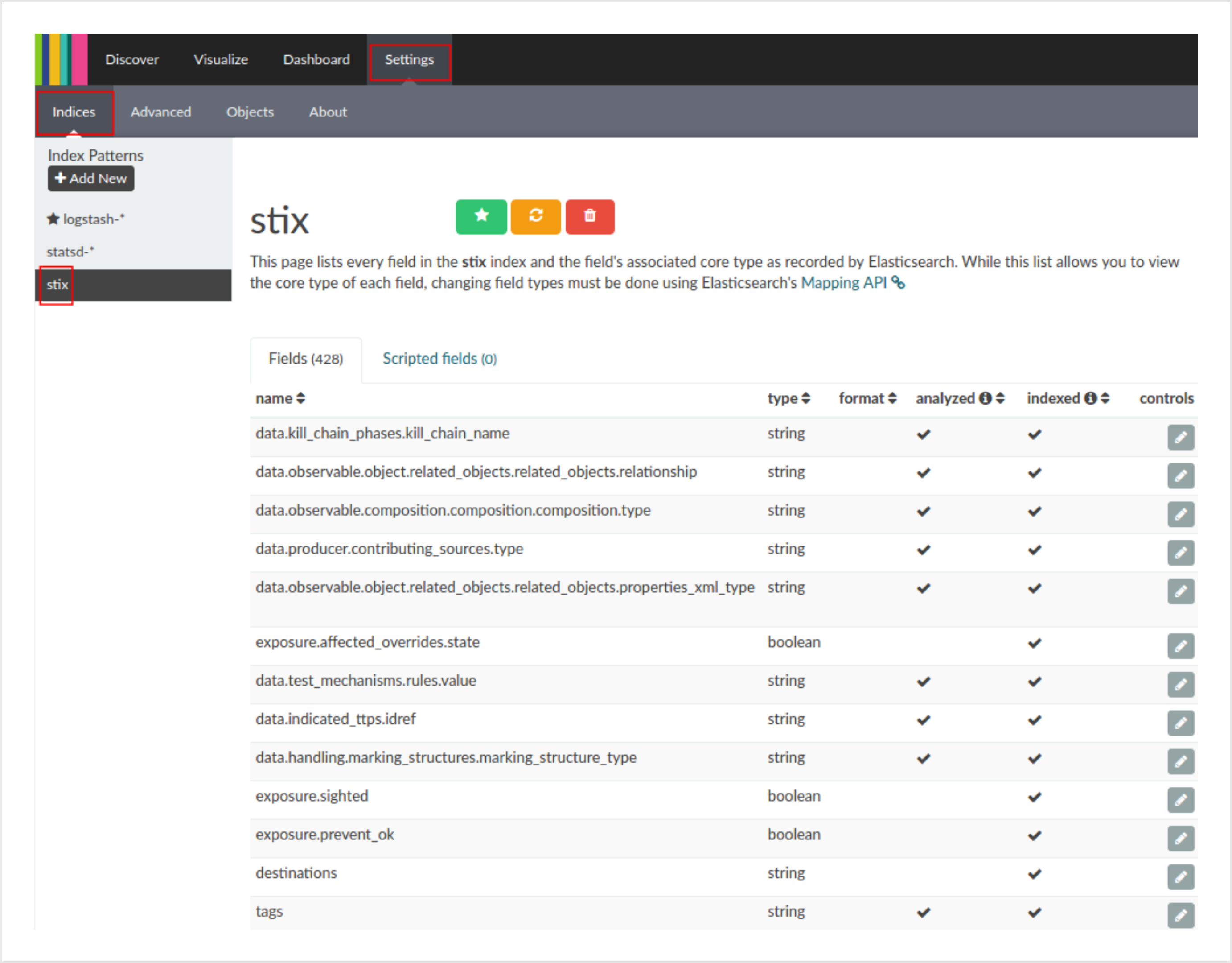
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the OpenResolve enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the OpenResolve enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

OpenDNS OpenResolve enricher

Configure the OpenDNS OpenResolve enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ **> Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: the name used to identify the enricher. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Cache validity (sec)**: defines for how long enrichment data remains stored in the cache. The value is expressed in seconds.
- **Rate limit (per sec)** : sets the maximum allowed number of requests/executions per second.
- **Monthly execution cap (executions)**: sets a maximum allowed number of requests/executions per month. Together with rate limiting, execution cap helps control data traffic for the enricher; for example, when the API or the service you are connecting to enforces usage limits.

- **Source reliability**: from the drop-down menu select an option to flag the content of the outgoing feed with a predefined reliability value to help other users assess how trustworthy the feed source is.
  Values in this menu have the same meaning as the first character in the **two-character Admiralty System code** `(https://en.wikipedia.org/wiki/admiralty_code)`.
  Example: *B - Usually reliable*
- **Enabled**: checkbox. Select the **Enabled** checkbox to enable the enricher task immediately after editing and saving it. If you select the checkbox, the rule is executed automatically. If you deselect it, you need to run the rule manually.
- Under **Parameters**, define the specific configuration options for the selected enricher, where applicable.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

> ✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **✚ Add** or **✚ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.

- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.

- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

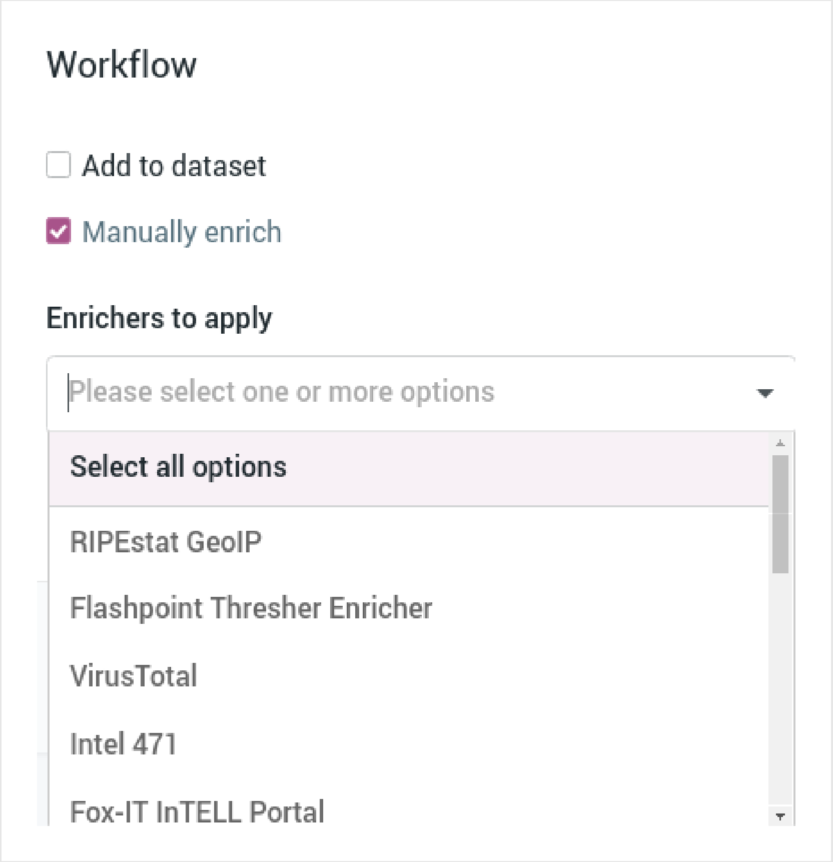
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

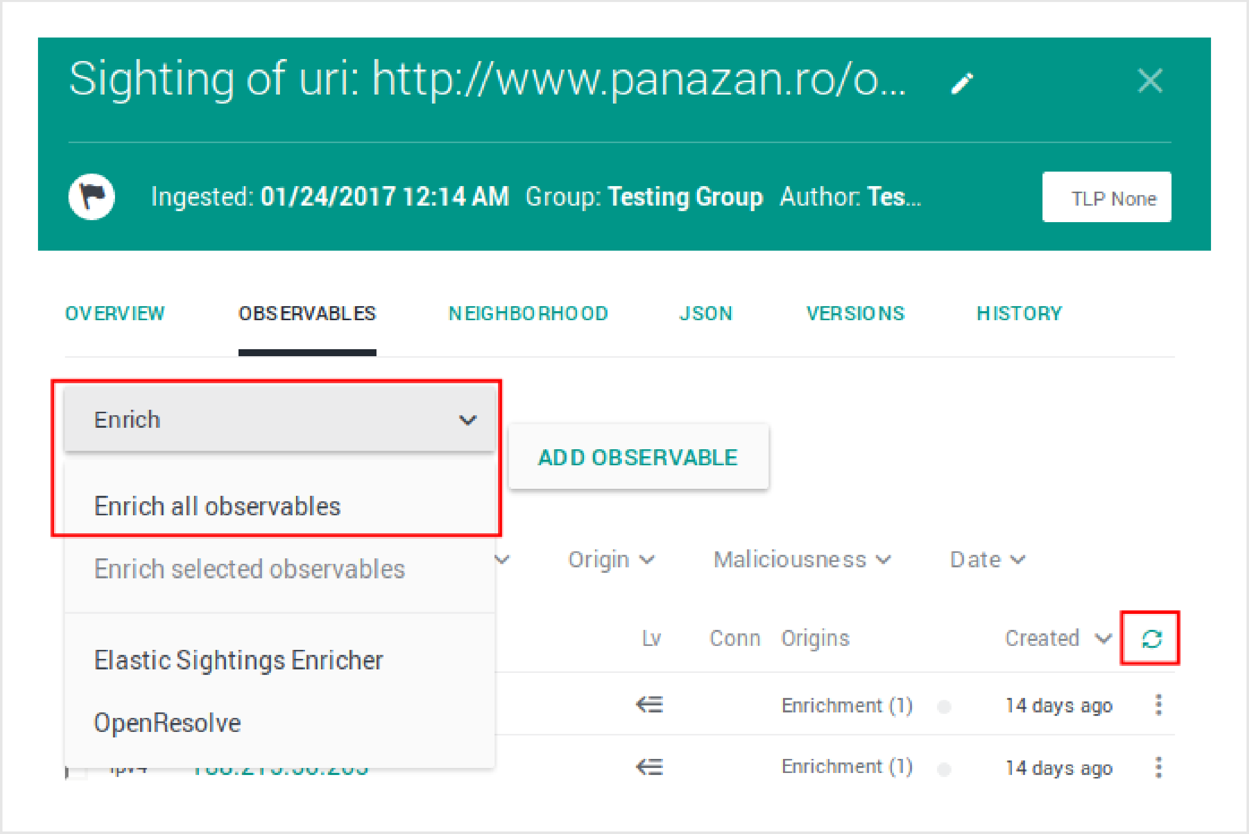
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ↻ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

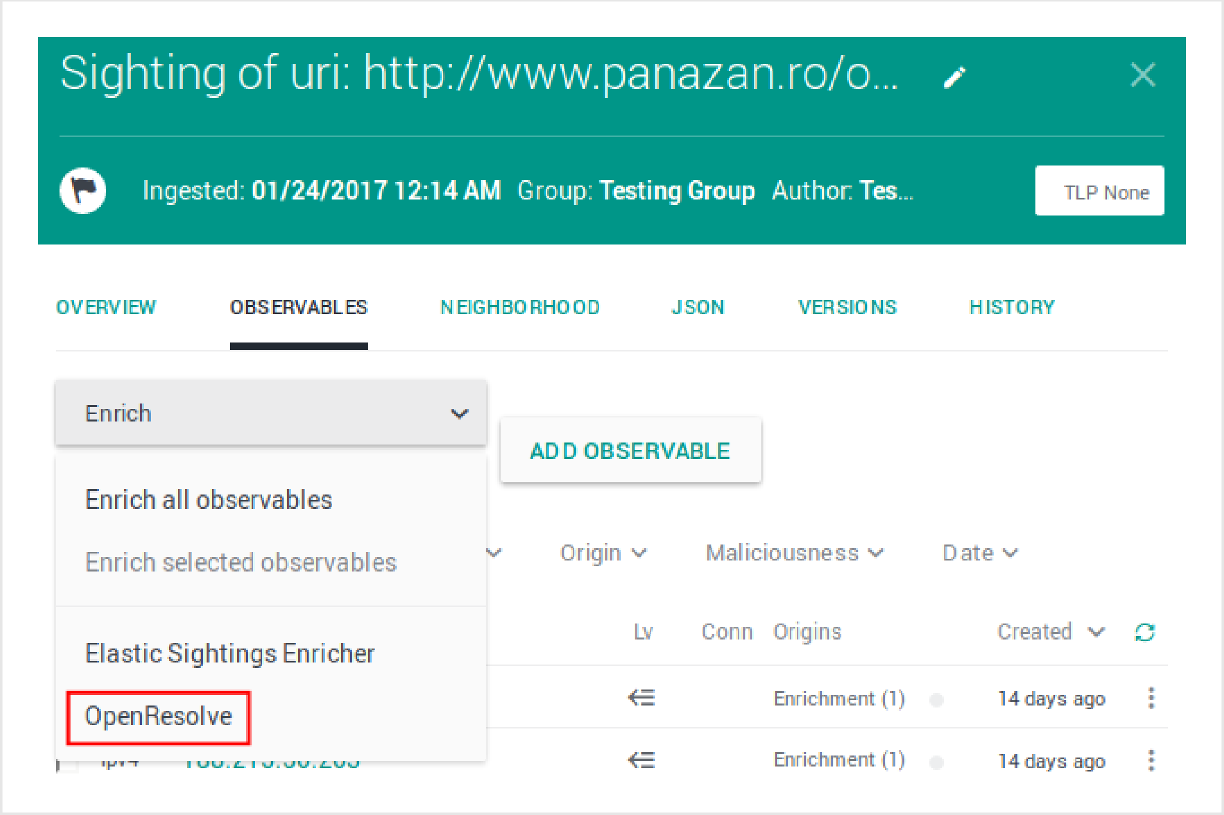
Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.



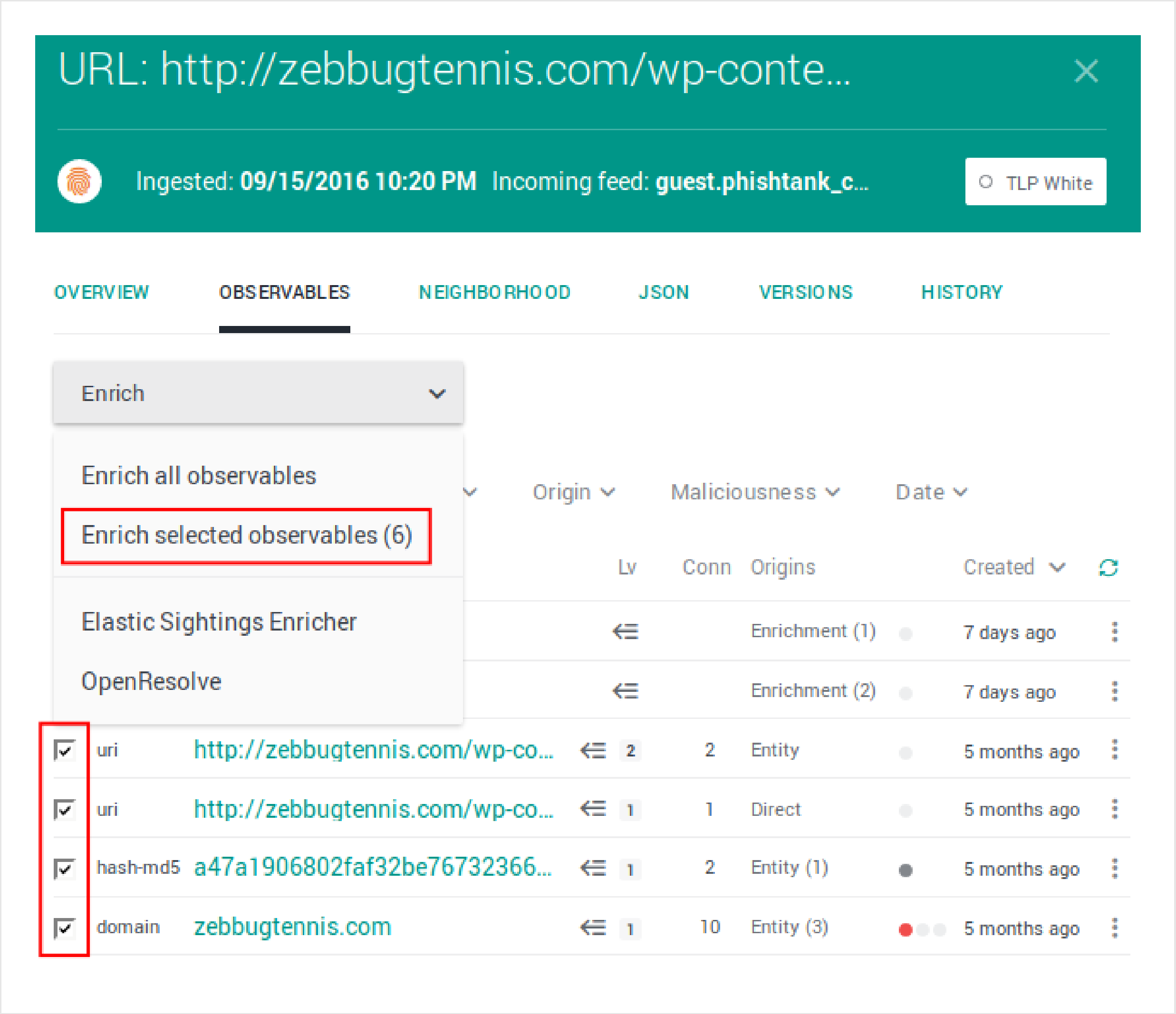
To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.



URL: http://zebbugtennis.com/wp-conte...

Ingested: **09/15/2016 10:20 PM** Incoming feed: **guest.phishtank_c...**

			Lv	Conn	Origins		Created
			⇇		Enrichment (1)	●	7 days ago
			⇇		Enrichment (2)	●	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	⇇ 2	2	Entity	●	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	⇇ 1	1	Direct	●	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	⇇ 1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	⇇ 1	10	Entity (3)	●●●	5 months ago

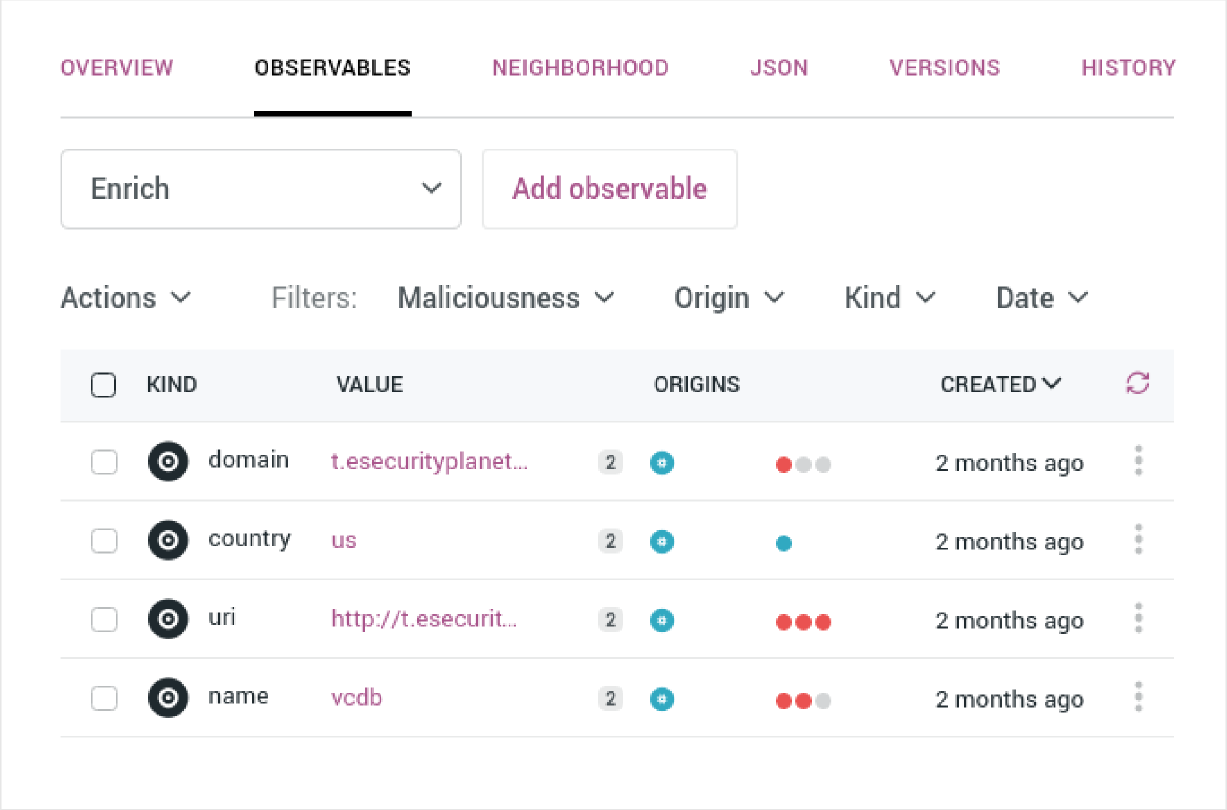
The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.

Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

To view enrichment information on the entity detail pane, do the following:

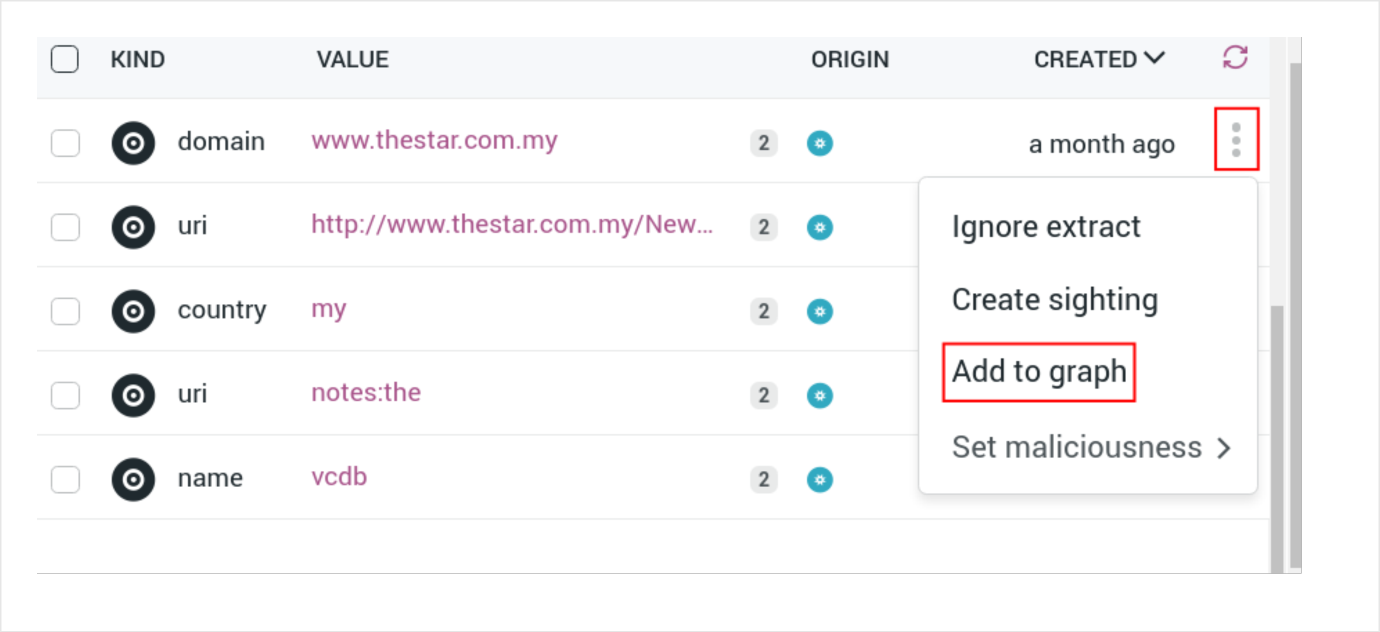
- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.



Review enrichment observables on the graph

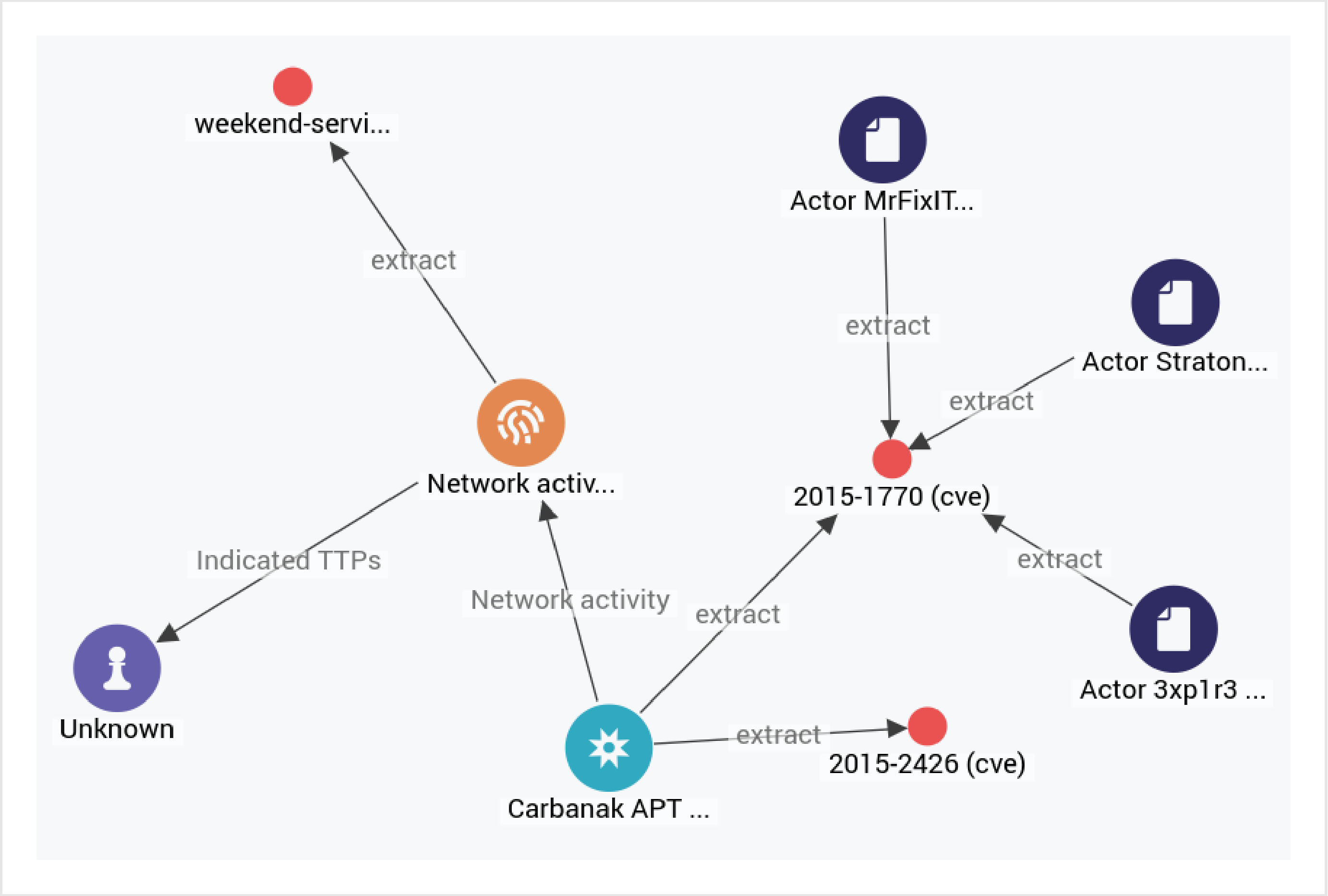
To view enrichment data and their connections with other entities and observables on the graph, do the following:

- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.

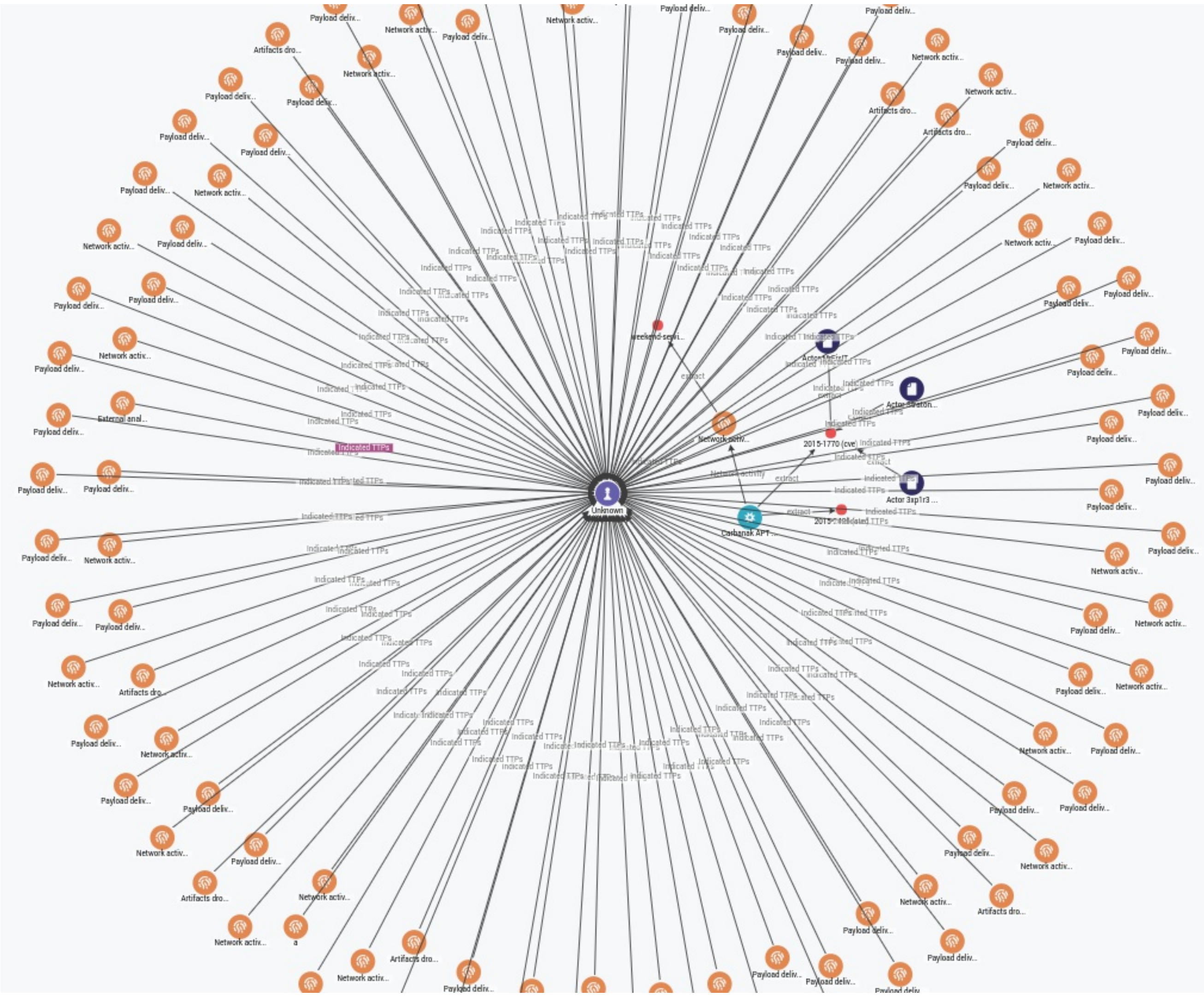


- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

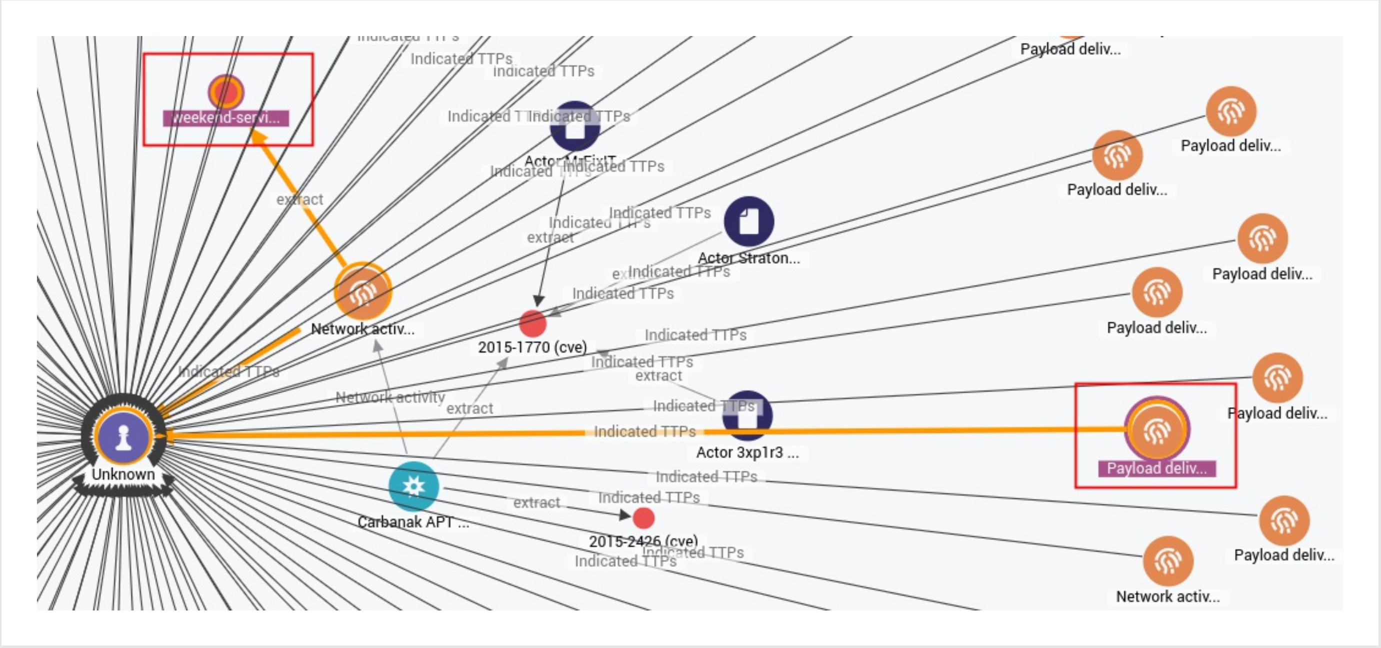


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



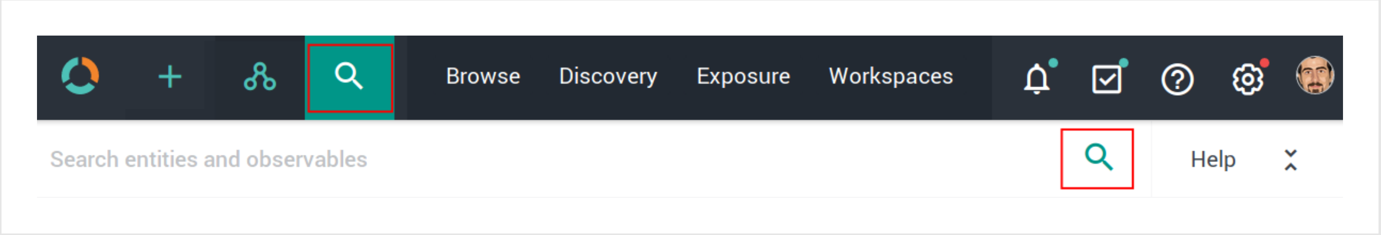
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

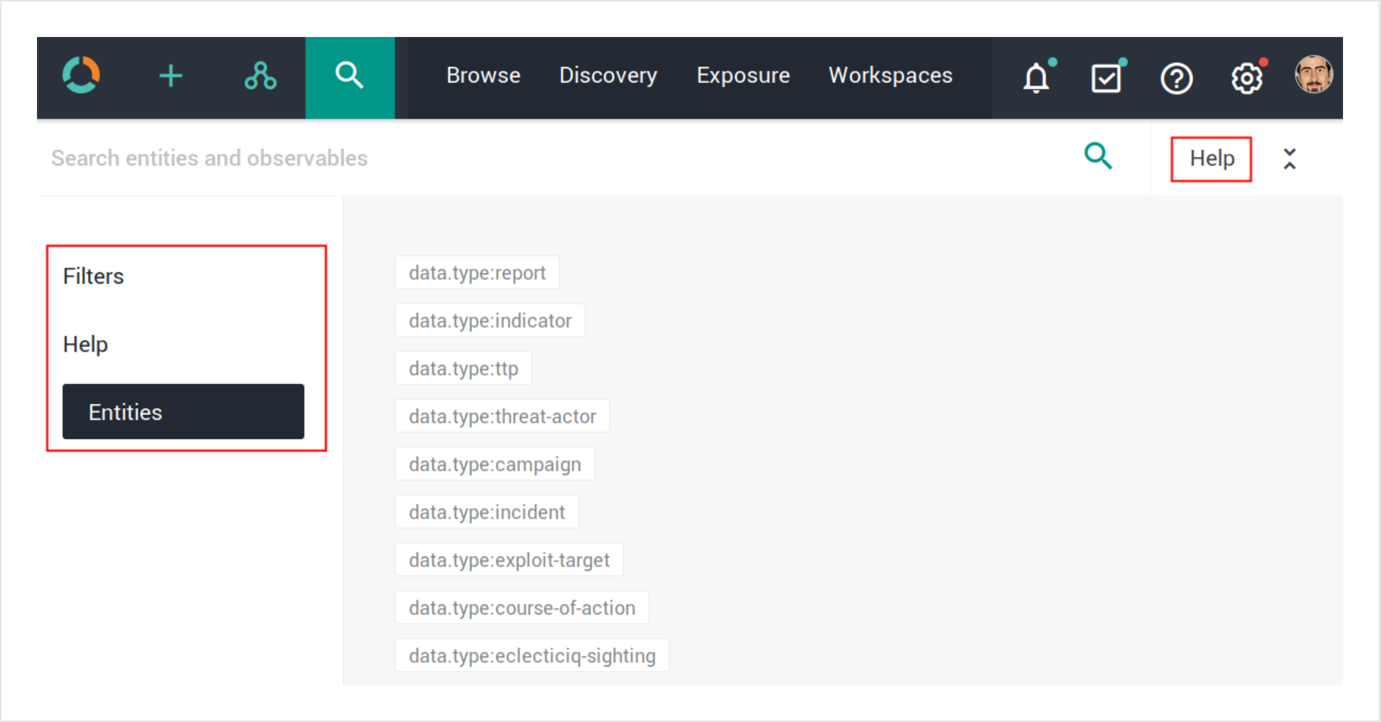


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

The search functionality uses **Elasticsearch query syntax** (`https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html`).

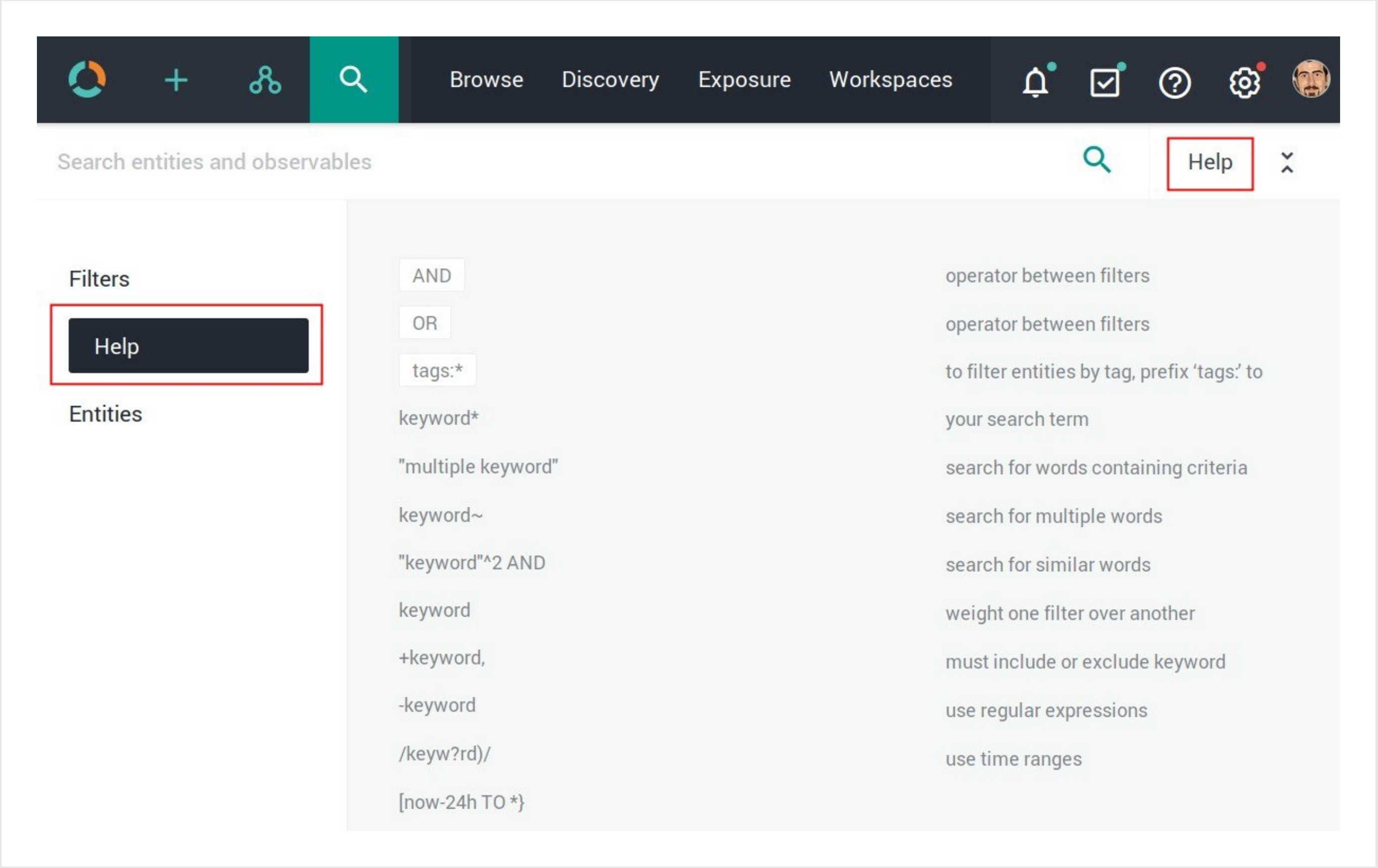
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

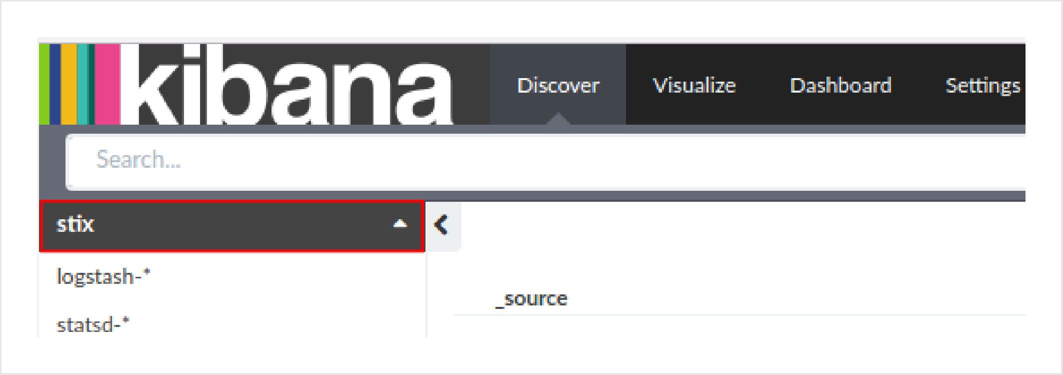
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

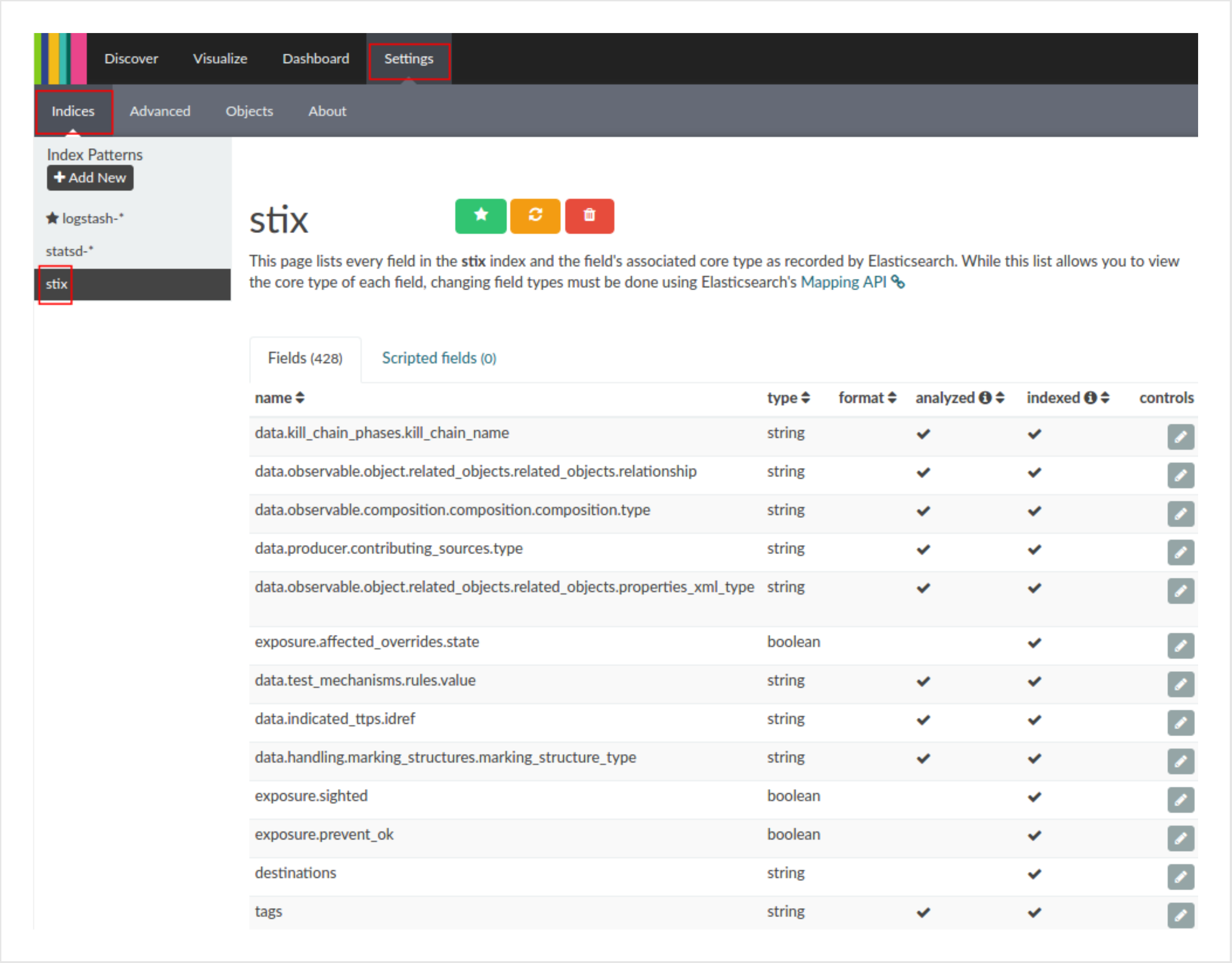
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

Fields (428) Scripted fields (0)

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the PassiveTotal enrichers

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run PassiveTotal whois, passive DNS, IP and domain, and malware enrichers, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the PassiveTotal enrichers

EclecticIQ Platform includes the following PassiveTotal enrichers:

- PassiveTotal Whois
- PassiveTotal Passive DNS
- PassiveTotal IP/Domain
- PassiveTotal Malware

Configure the enrichers

The PassiveTotal enrichers included in the platform share the same configuration options.

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ **> Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment.**
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: the name used to identify the enricher. It should be descriptive and easy to remember.

- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Cache validity (sec)**: defines for how long enrichment data remains stored in the cache. The value is expressed in seconds.
- **Rate limit (per sec)** : sets the maximum allowed number of requests/executions per second.
- **Monthly execution cap (executions)**: sets a maximum allowed number of requests/executions per month.
  Together with rate limiting, execution cap helps control data traffic for the enricher; for example, when the API or the service you are connecting to enforces usage limits.
- **Source reliability**: from the drop-down menu select an option to flag the content of the outgoing feed with a predefined reliability value to help other users assess how trustworthy the feed source is.
  Values in this menu have the same meaning as the first character in the **two-character Admiralty System code** `(https://en.wikipedia.org/wiki/admiralty_code).`
  Example: *B - Usually reliable*
- **Enabled**: checkbox. Select the **Enabled** checkbox to enable the enricher task immediately after editing and saving it. If you select the checkbox, the rule is executed automatically. If you deselect it, you need to run the rule manually.
- Under **Parameters**, define the specific configuration options for the selected enricher, where applicable.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

> ✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **✚ Add** or **✚ More** to add a filtering option.

- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **✚ Add** or **✚ More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

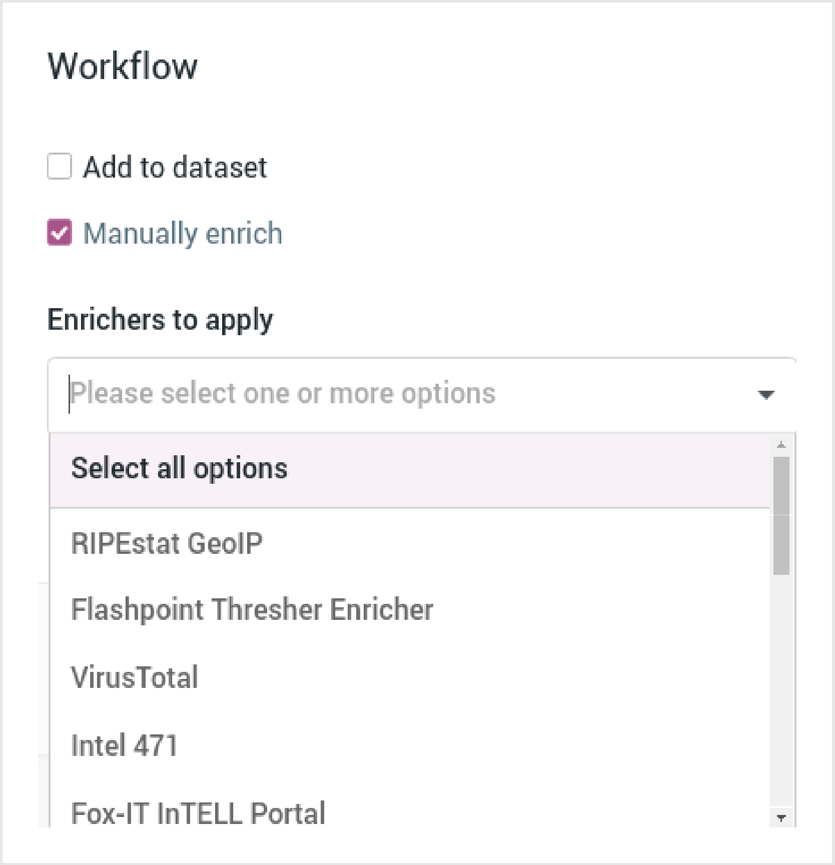
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

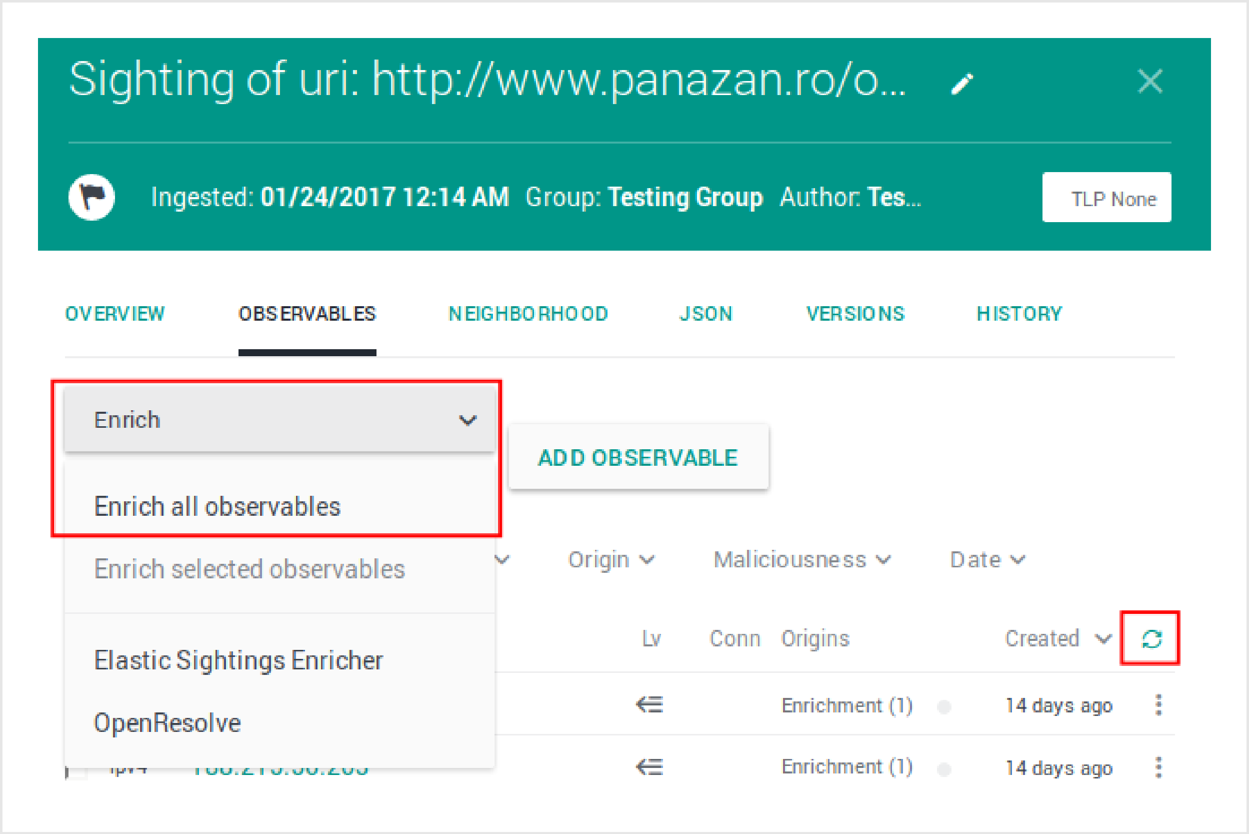
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the 🗘 refresh icon to trigger a task run that polls all the enrichers configured for the entity.

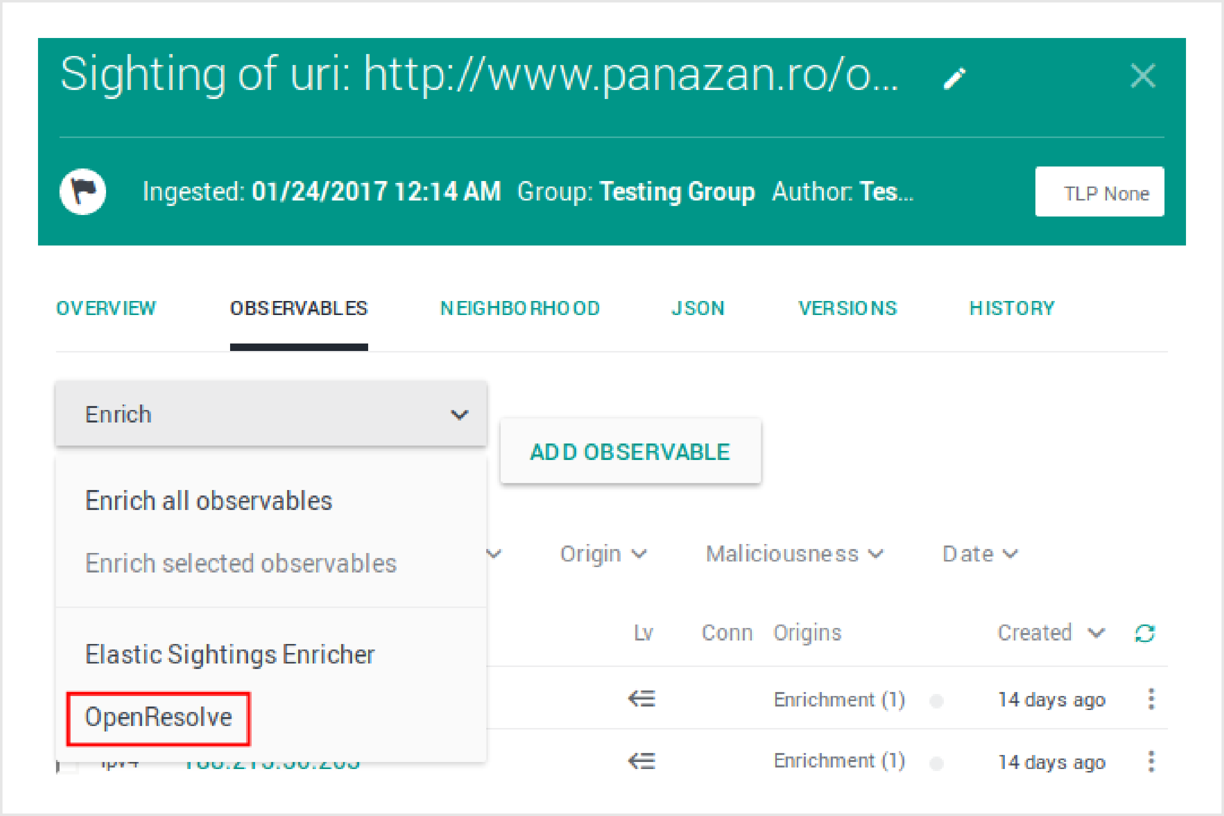
Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.



To poll a specific enricher:

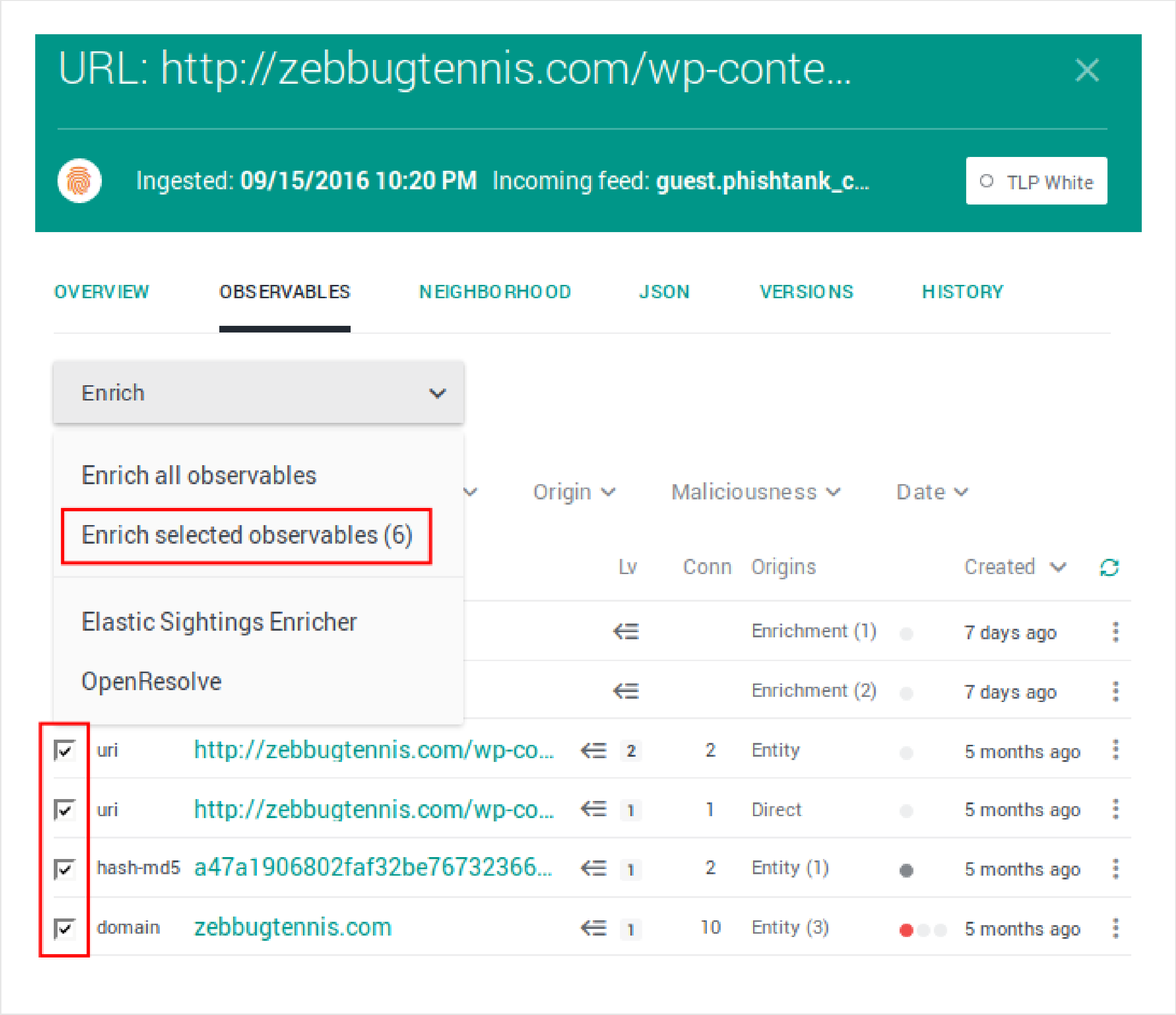
- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.

- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.



URL: http://zebbugtennis.com/wp-conte...

Ingested: **09/15/2016 10:20 PM** Incoming feed: **guest.phishtank_c...**

			Lv	Conn	Origins		Created
			⇚		Enrichment (1)	○	7 days ago
			⇚		Enrichment (2)	○	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	⇚ 2	2	Entity	○	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	⇚ 1	1	Direct	○	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	⇚ 1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	⇚ 1	10	Entity (3)	●○○	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher's content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

PassiveTotal enrichers can take the following observable types as input:

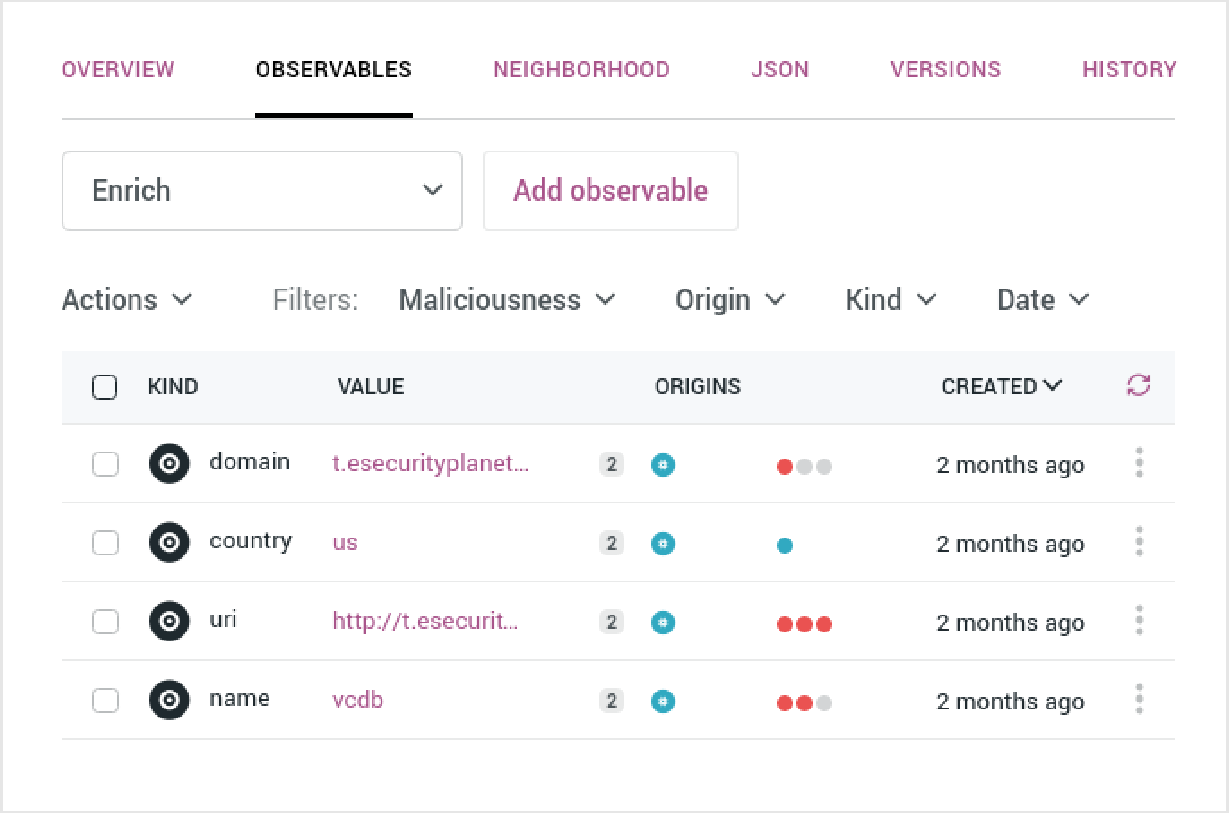
- *ipv4, ipv6, domain, host*

PassiveTotal enrichers use these data types to look for additional information on observables. Any entity types supporting these observable types can be enriched with PassiveTotal enrichers.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.

- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.



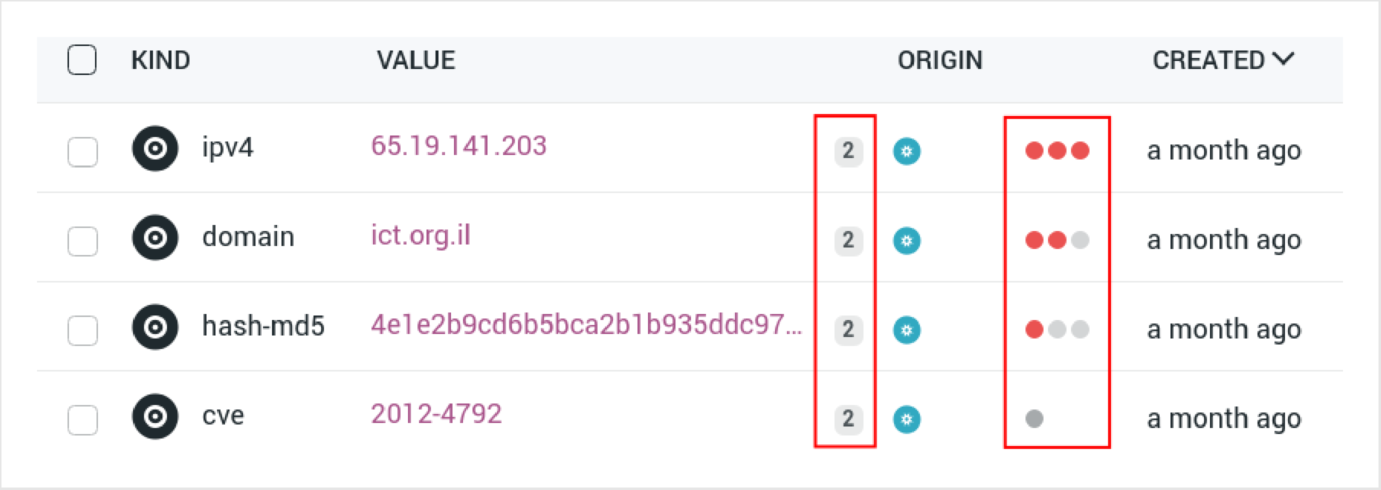
☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Kind	Value	Origin	Created
The data type of the retrieved enrichment that can be associated to the entity. For example, an IP address, a hash, an actor's name, and so on.	The value of the retrieved enrichment data. For example, *192.0.1.168*, *E61B746K5GB85OI7K99IPOIU89B...*, ***Mr. Smith*** *`(images/mr-smith.png)`*.	The entity the retrieved enrichment data is related to. This piece of information connects the entity with the enrichment data in the observable.	The enrichment data ingestion date.

You can narrow down the displayed results by clicking one or more quick filters above the table view to select and filter by specific:

- **Maliciousness**: select the checkboxes to display only **Malicious**, **Safe**, or **Unknown** observables. You can select multiple choices to view combined results
- **Origin**: select the checkboxes to display only observables ingested through **Enrichment**, or only observables ingested as embedded objects in a containing **Entity**. You can select multiple choices to view combined results
- **Kind**: select the observable types to filter the observables you want to display. You can select multiple choices to view combined results
- **Date**: select a time interval to display only the observables ingested within the specified dates.

When available, a number next to the observable origin indicates a direct or an indirect relationship of the observable with the origin, and colored dots flag the observable maliciousness or safety level. You can adjust or set these values with observable rules.

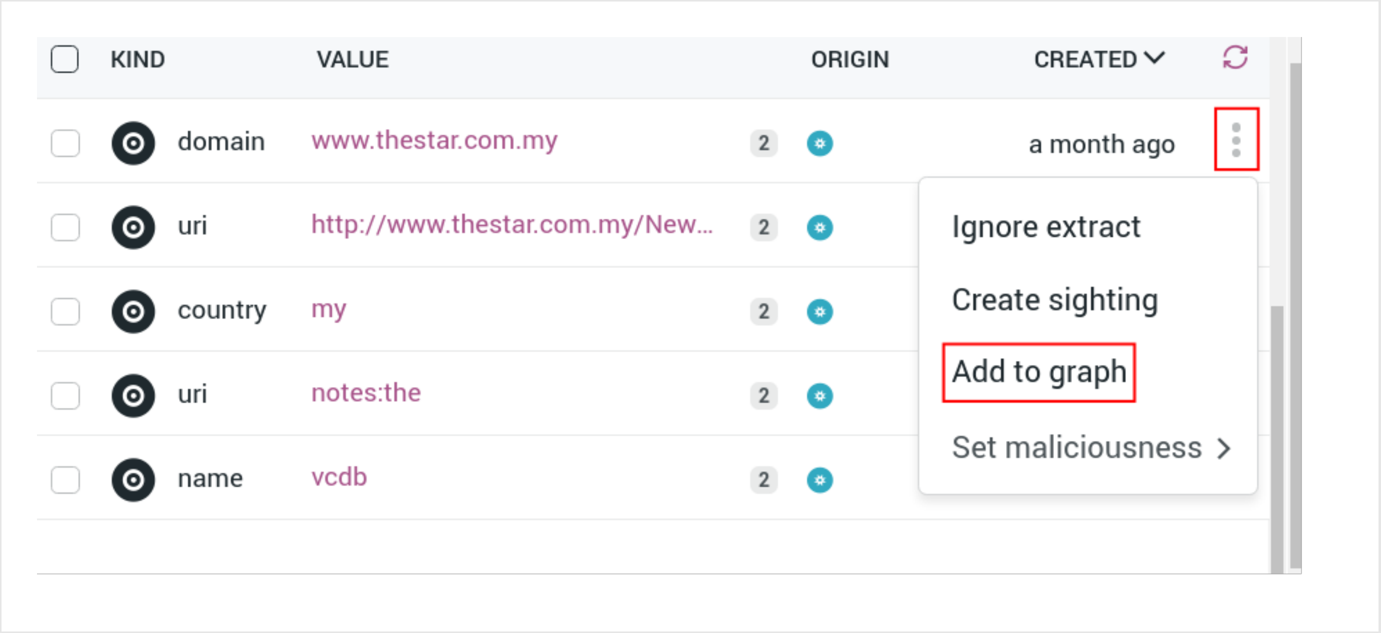


☐	KIND	VALUE		ORIGIN		CREATED ⌄
☐	ipv4	65.19.141.203	2	⚙	●●●	a month ago
☐	domain	ict.org.il	2	⚙	●●○	a month ago
☐	hash-md5	4e1e2b9cd6b5bca2b1b935ddc97...	2	⚙	●○○	a month ago
☐	cve	2012-4792	2	⚙	●	a month ago

Review enrichment observables on the graph

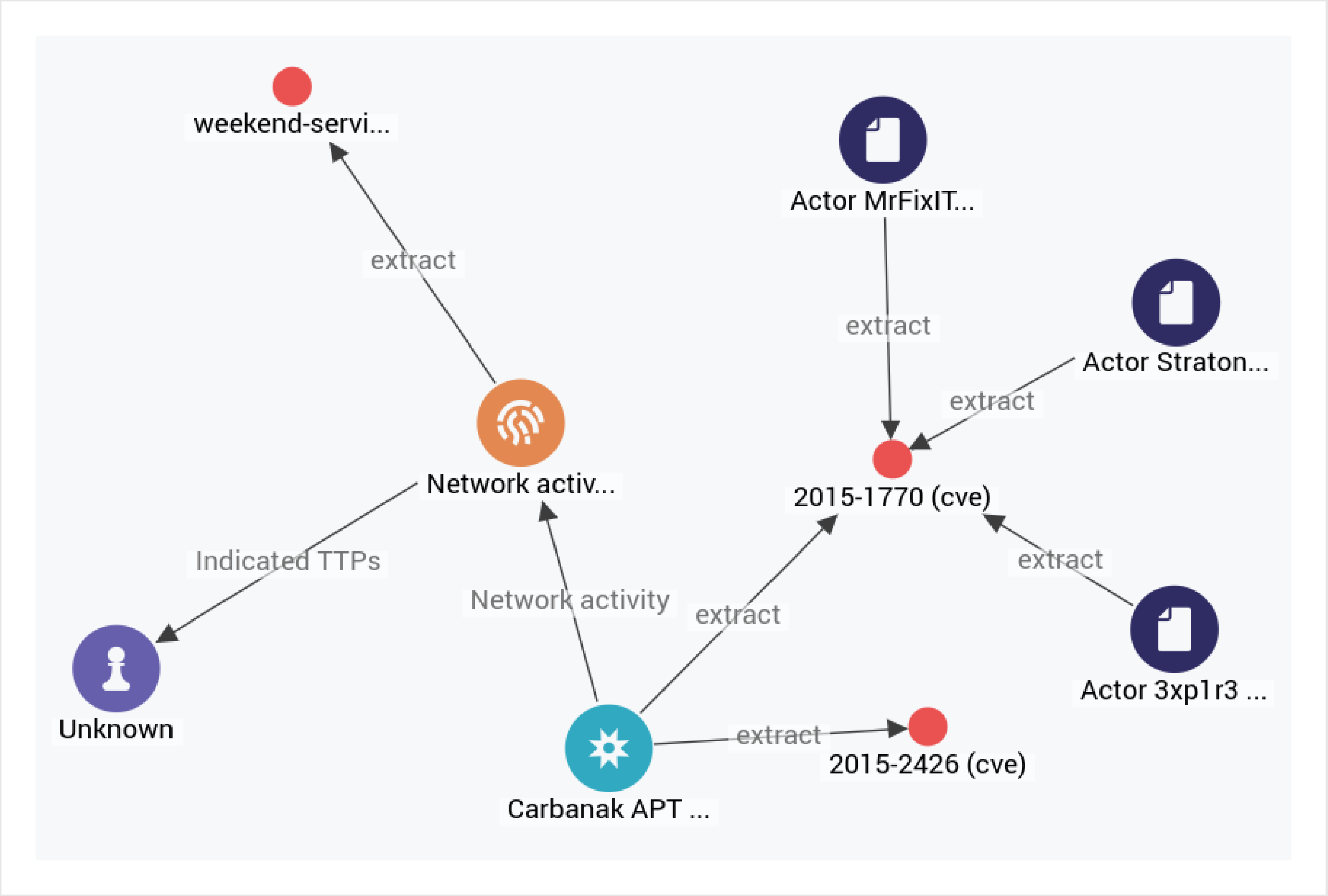
To view enrichment data and their connections with other entities and observables on the graph, do the following:

- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.

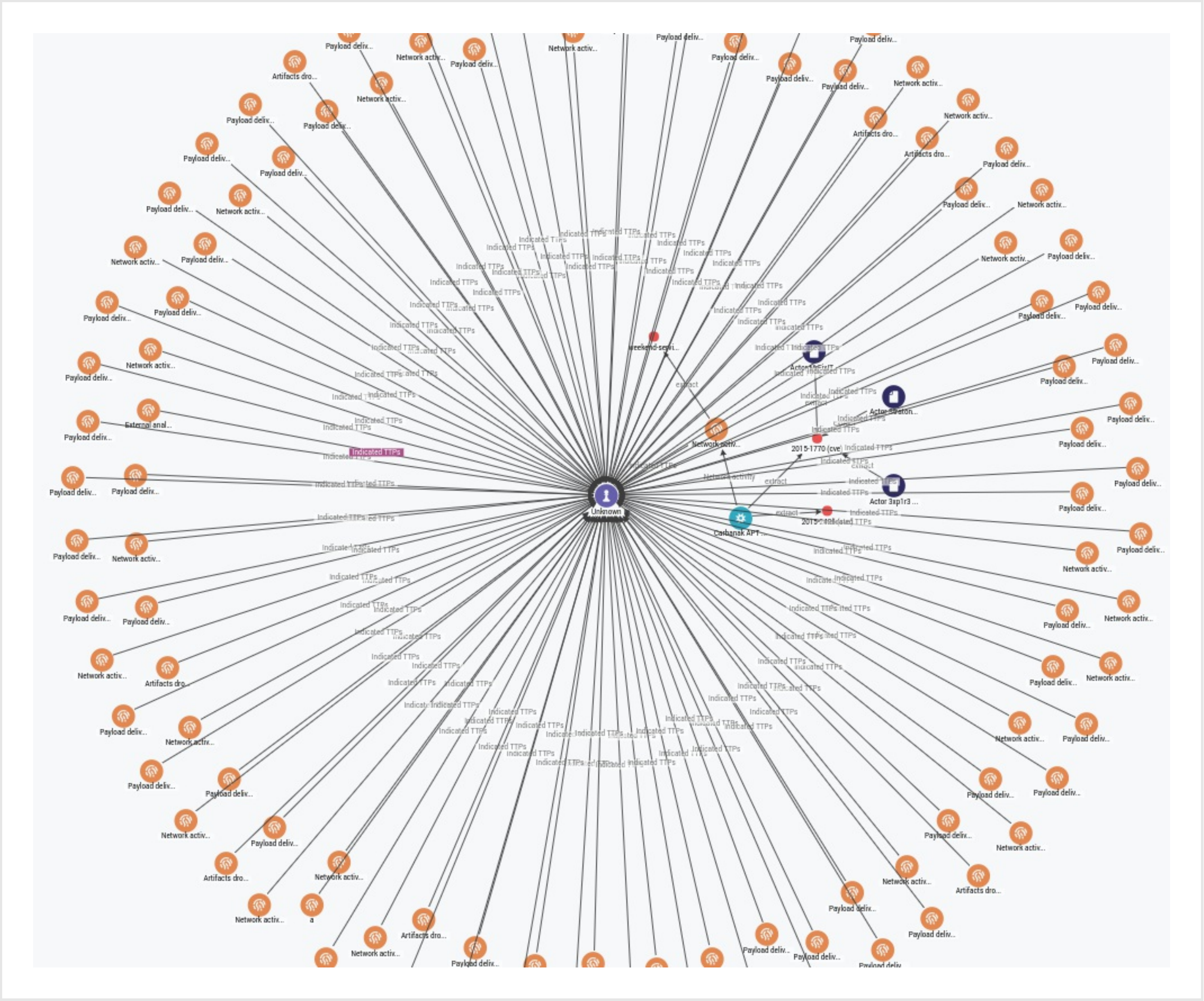


☐	KIND	VALUE		ORIGIN	CREATED ⌄	⟳
☐	domain	www.thestar.com.my	2	⚙	a month ago	⋮
☐	uri	http://www.thestar.com.my/New...	2	⚙		
☐	country	my	2	⚙		
☐	uri	notes:the	2	⚙		
☐	name	vcdb	2	⚙		

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.
- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

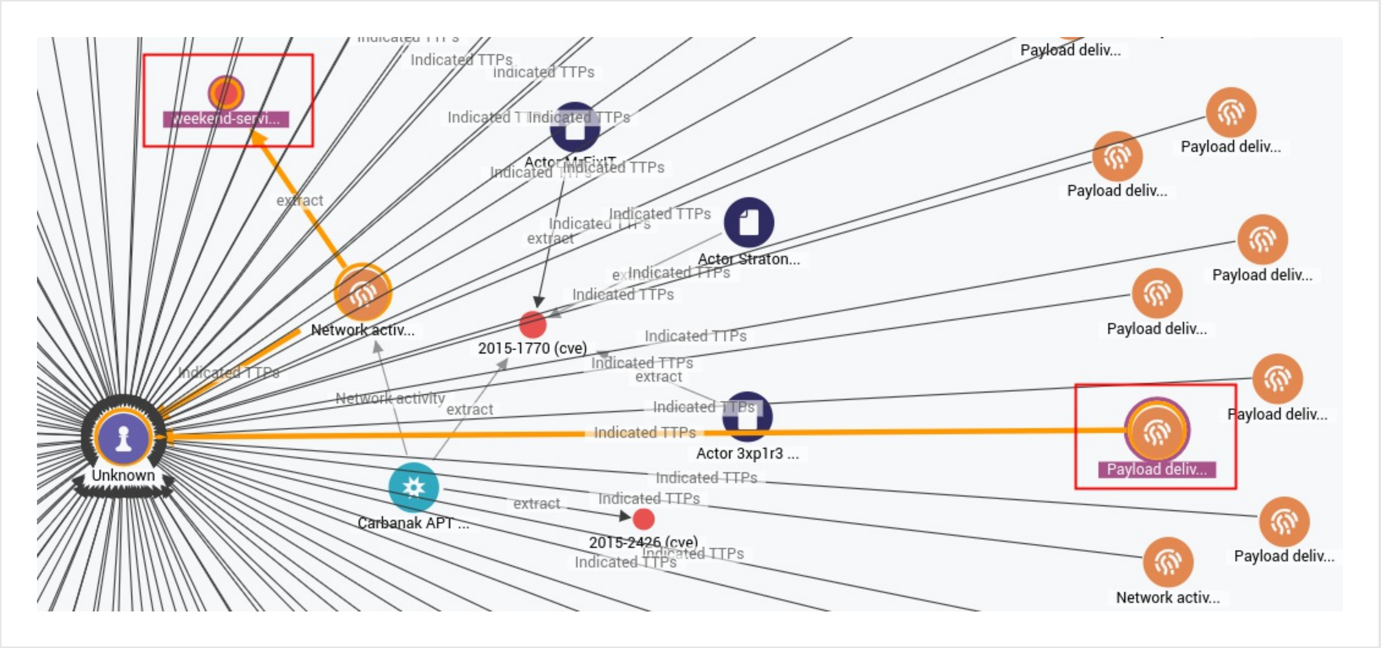


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



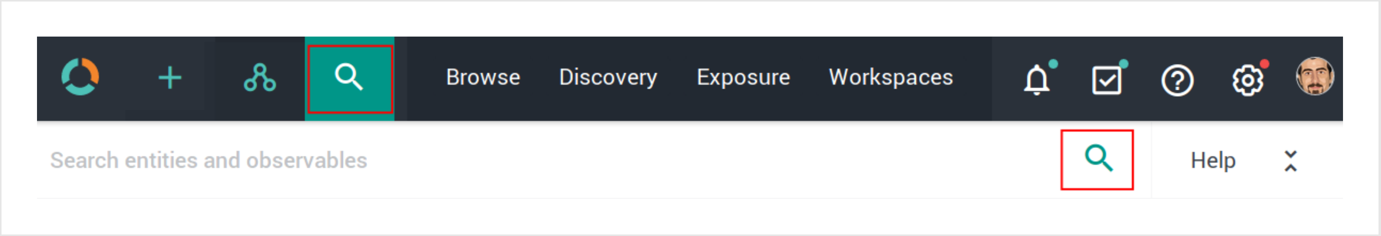
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

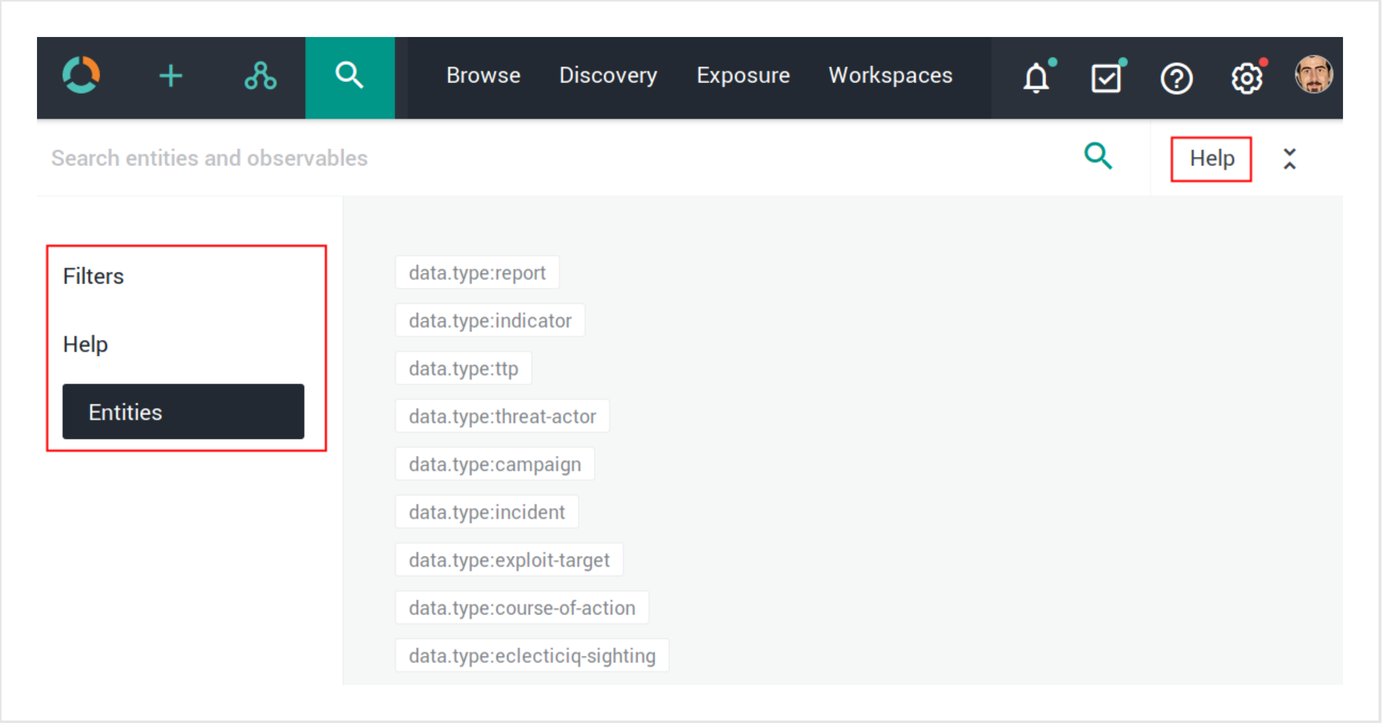


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

The search functionality uses **Elasticsearch query syntax** (https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).

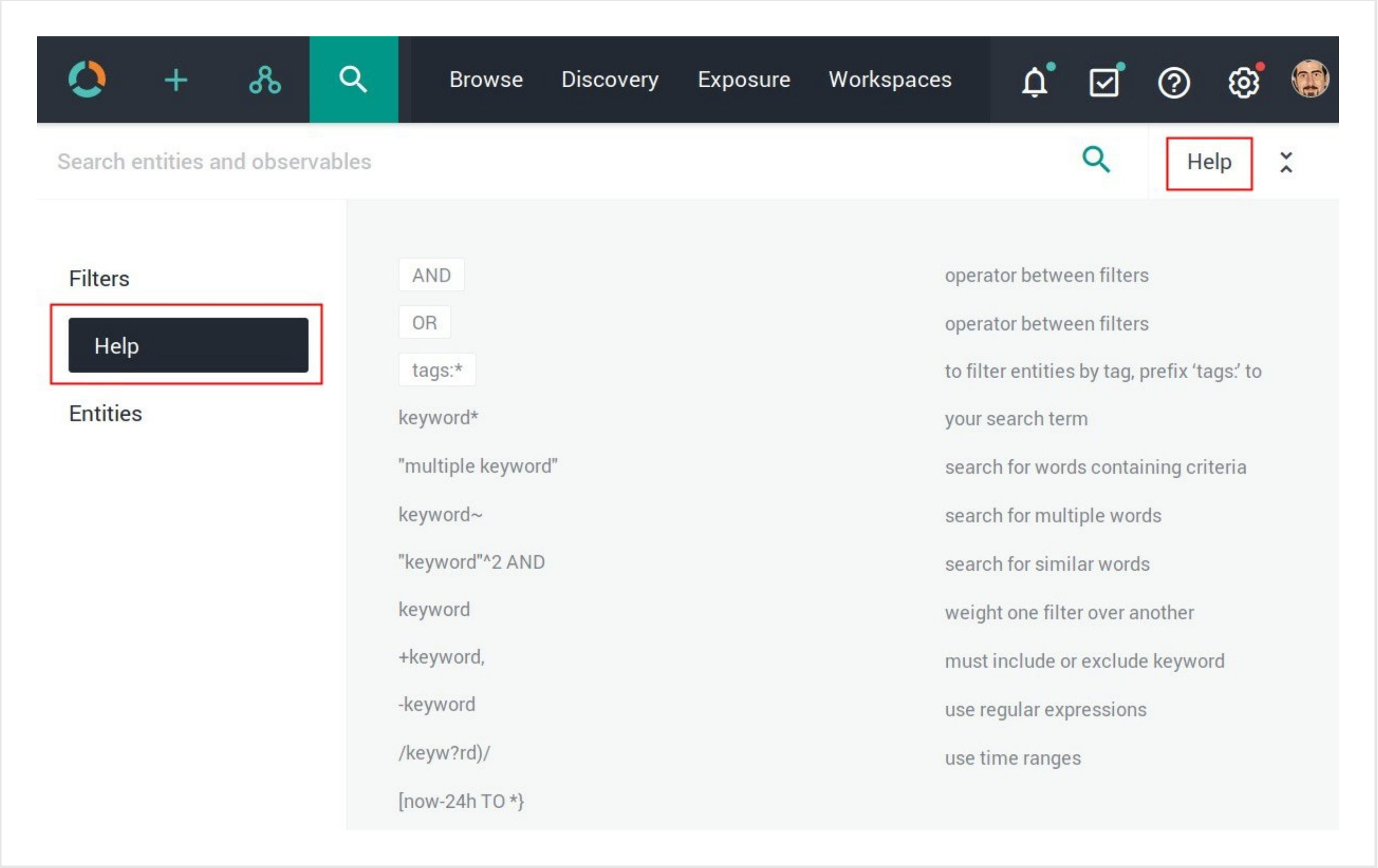
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

The enricher observable-specific query fields are summed up below:

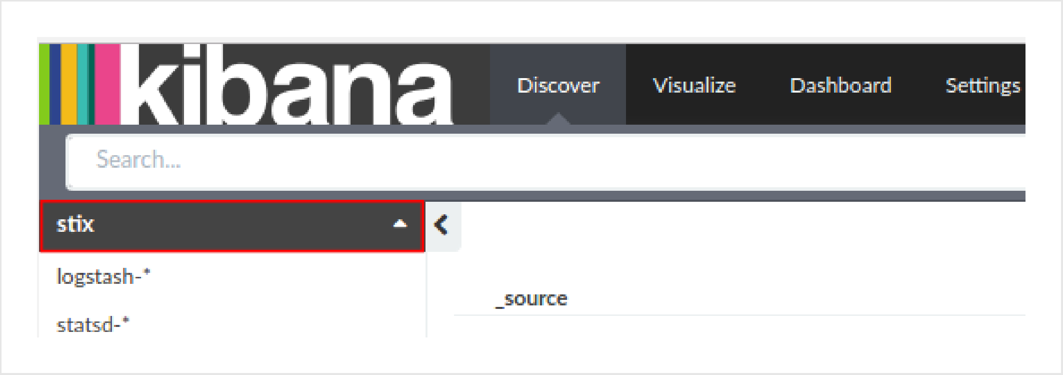
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

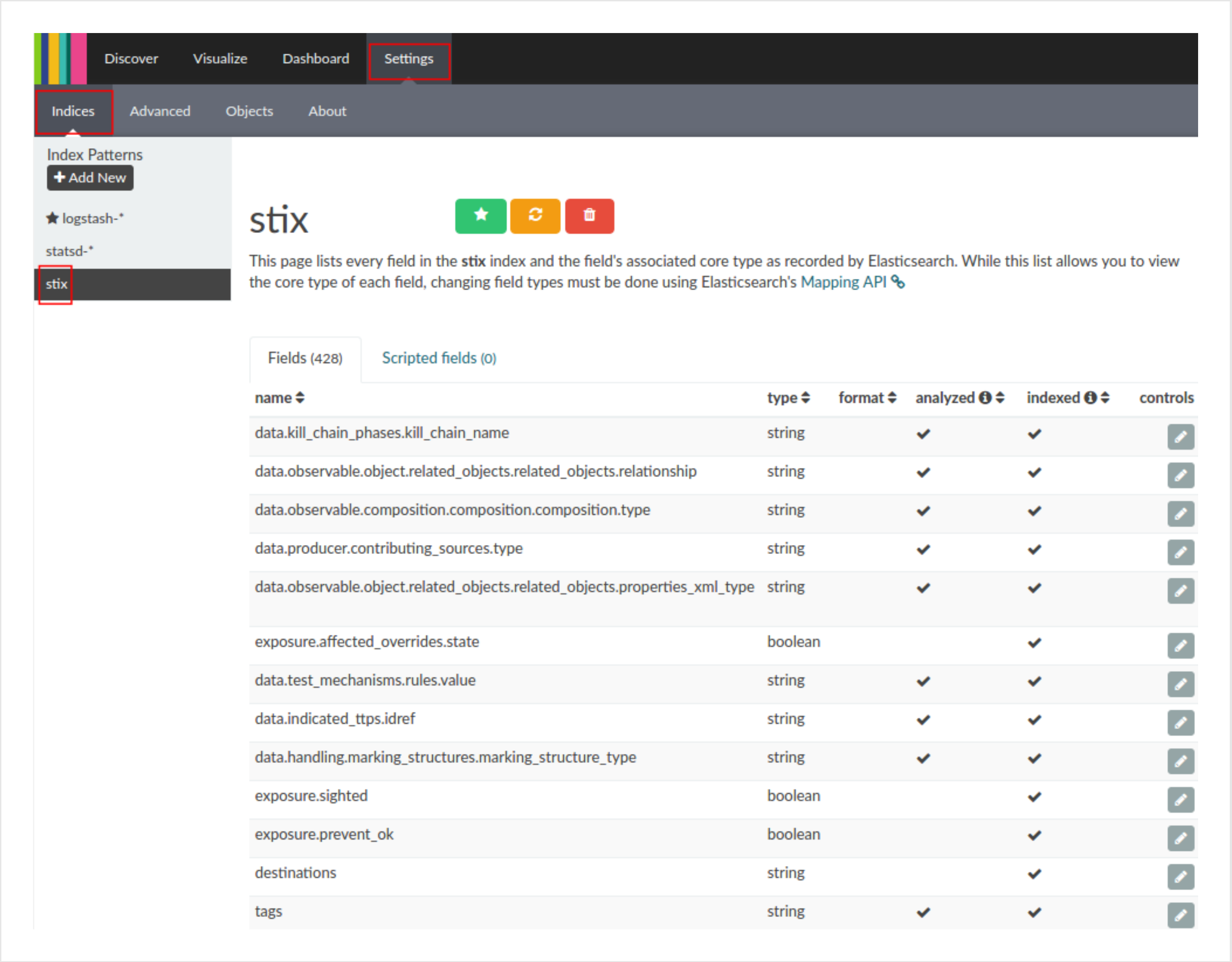
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

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How to work with the PyDat enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the PyDat enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the PyDat enricher

This article describes how to configure the PyDat enricher parameters.
To configure the general options for the PyDat enricher, see Configure enrichers.

PyDat	**enricher**
Enricher name	PyDat
API endpoint	`http://10.0.1.60:8000/ (example)`
Input	ipv4, ipv6, domain
Output	Enriches the supported observable types with whois data, current IP resolution and passive DNS information.
Description	**PyDat** `(https://github.com/mitrecnd/whodat#pydat)` is installed locally, and it can work together with an **Elasticsearch instance** `(https://github.com/mitrecnd/whodat/tree/master/pydat#pydat-with-elasticsearch)` to provide whois, including historical whois, and passive DNS lookup information. Analysts can retrieve name, organization, country, city, street, ZIP code, telephone, and email details.

Configure the enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ **> Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.

- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

> ✔ On the forms, input fields marked with an asterisk are required.

Under **Parameters**, define the specific configuration options for the PyDat enricher:

- **API URL**: the URL allowing access to the local **PyDat** `(https://github.com/mitrecnd/whodat#pydat-api)` instance.
  Example: *http://10.0.1.60:8000/ (example)*
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **+ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

> ✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **+ Add** or **+ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.

- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.

- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

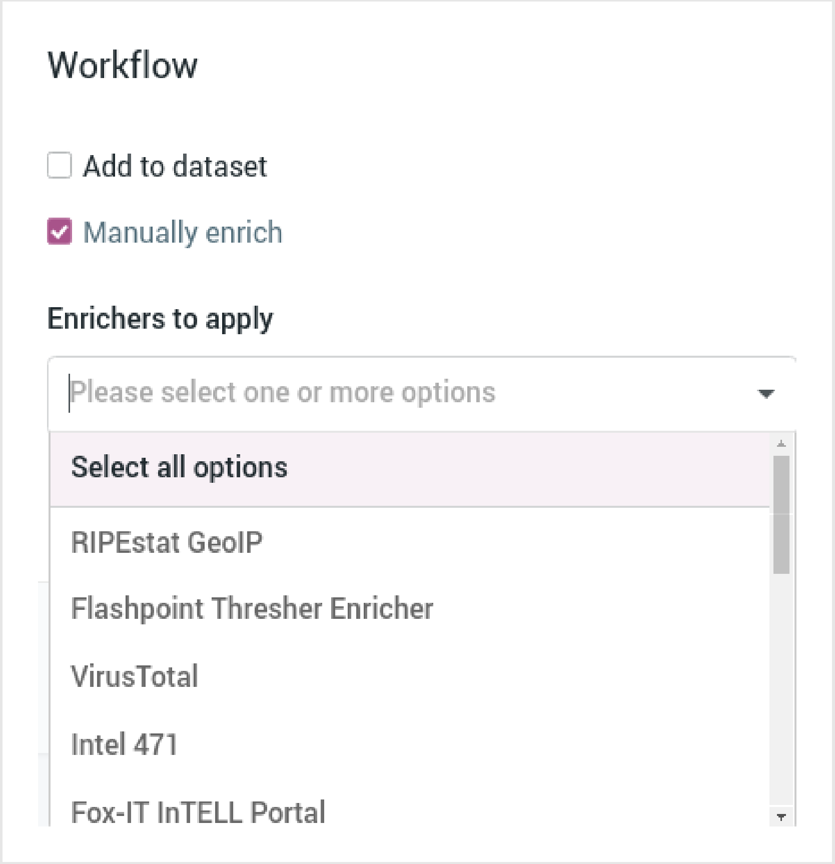
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.


Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

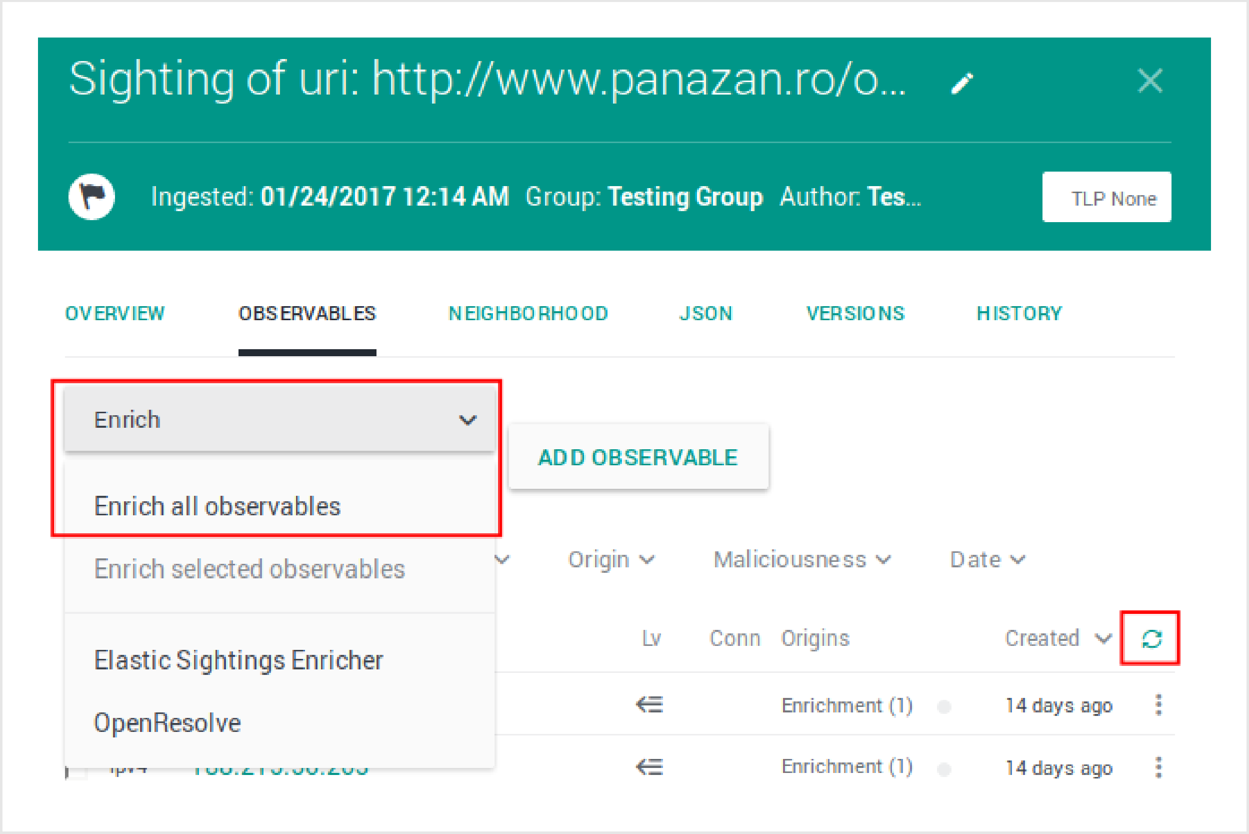
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ⟳ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

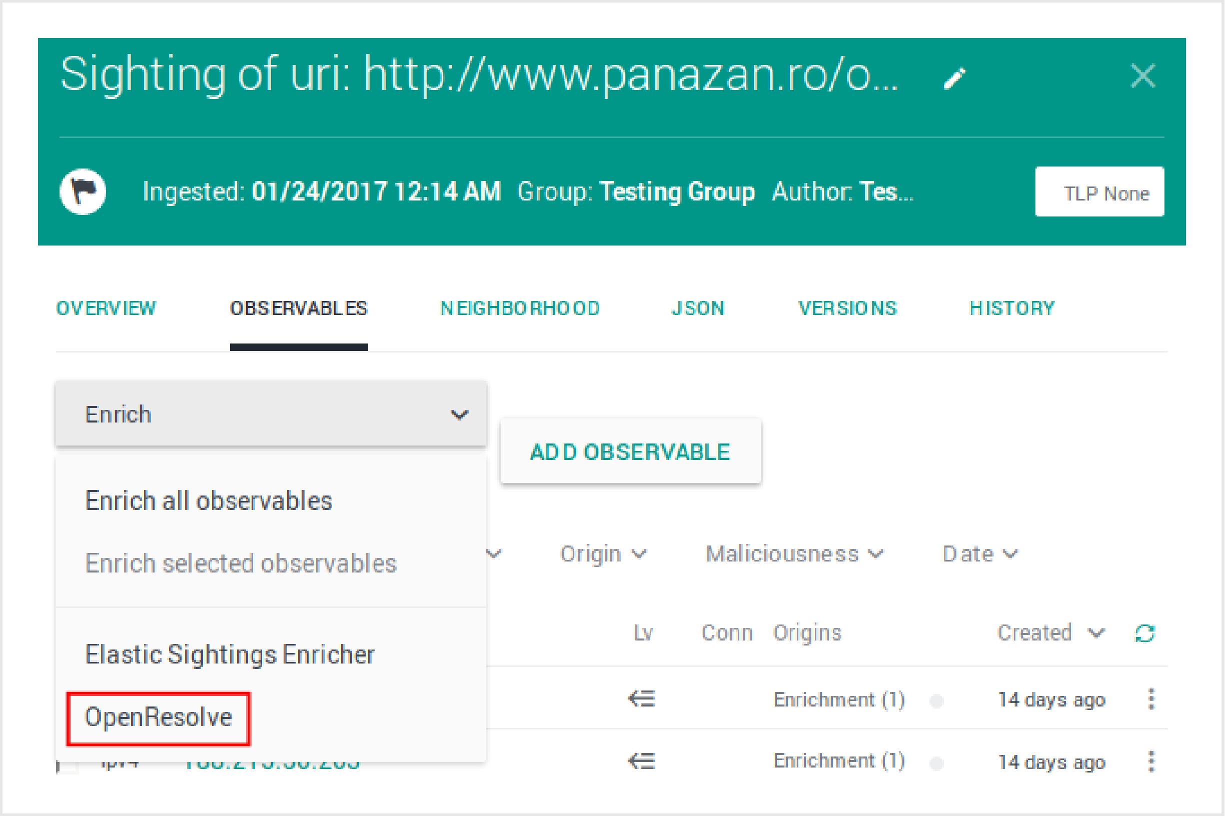


Sighting of uri: http://www.panazan.ro/o...

Ingested: 01/24/2017 12:14 AM Group: Testing Group Author: Tes...

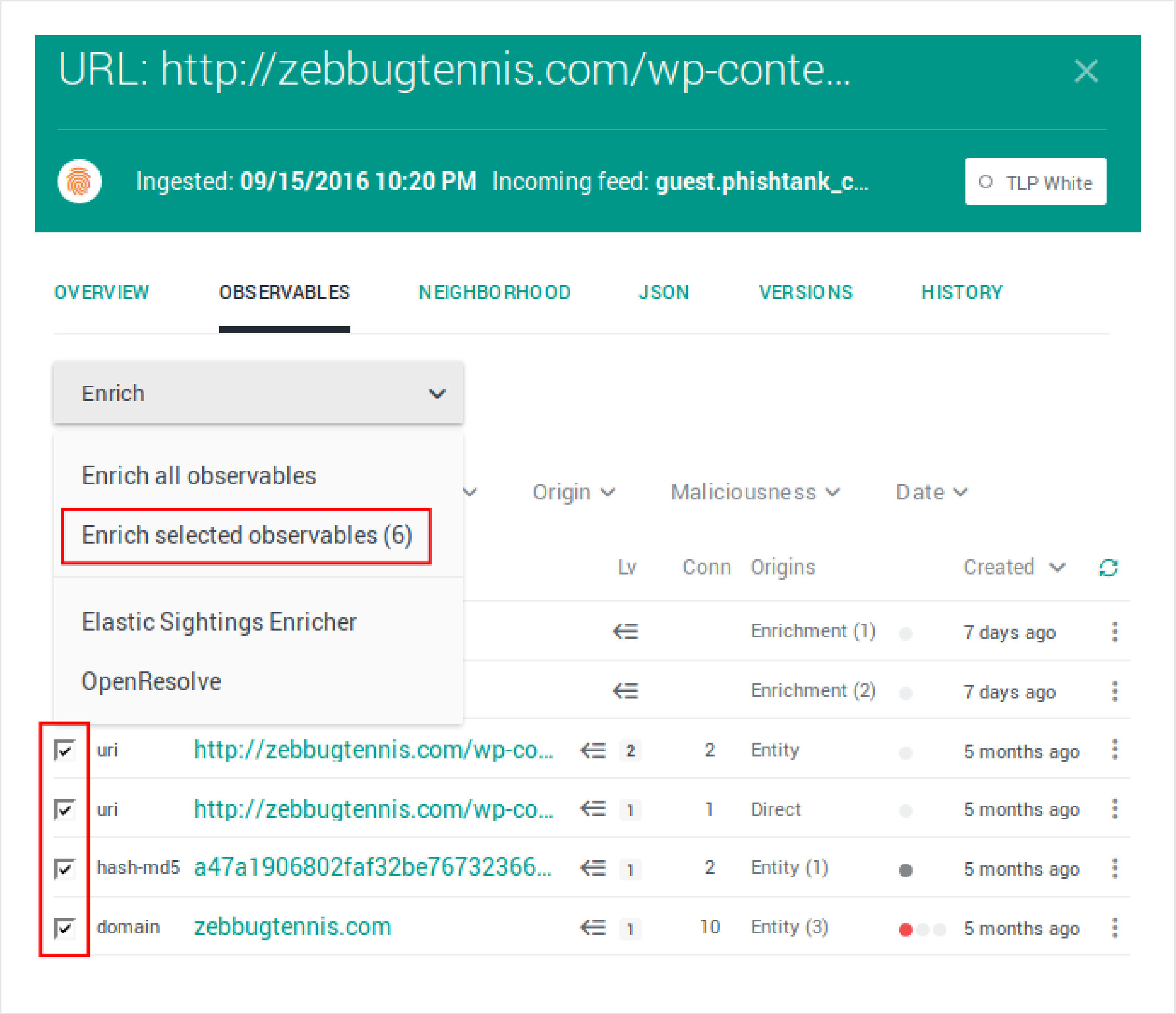
To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...
Ingested: 09/15/2016 10:20 PM Incoming feed: guest.phishtank_c...
TLP White
OVERVIEW
OBSERVABLES
NEIGHBORHOOD
JSON
VERSIONS
HISTORY
Enrich
Enrich all observables
Enrich selected observables (6)
Elastic Sightings Enricher
OpenResolve
Origin
Maliciousness
Date

			Lv	Conn	Origins		Created
					Enrichment (1)		7 days ago
					Enrichment (2)		7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	2	2	Entity		5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	1	1	Direct		5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	1	10	Entity (3)	●	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

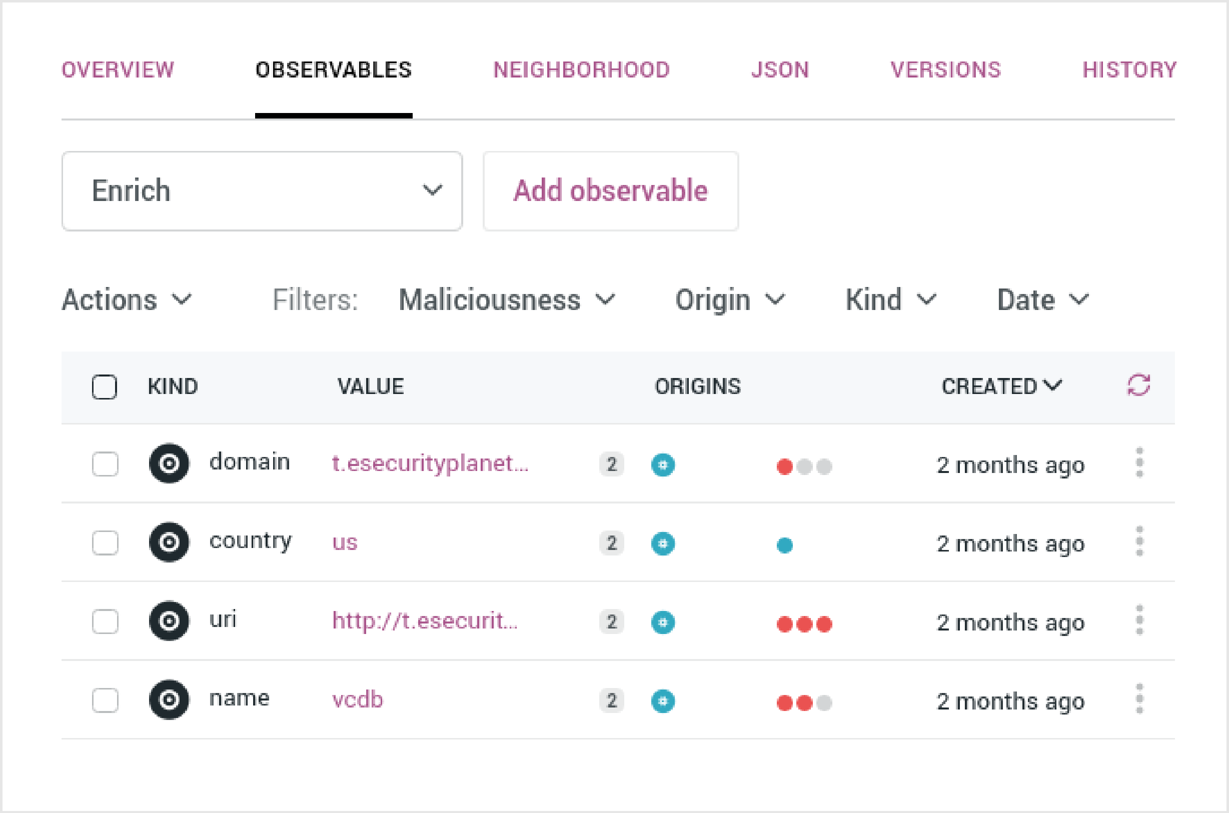
The PyDat enricher can take the following observable types as input:

- *ipv4, ipv6, domain*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with PyDat.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

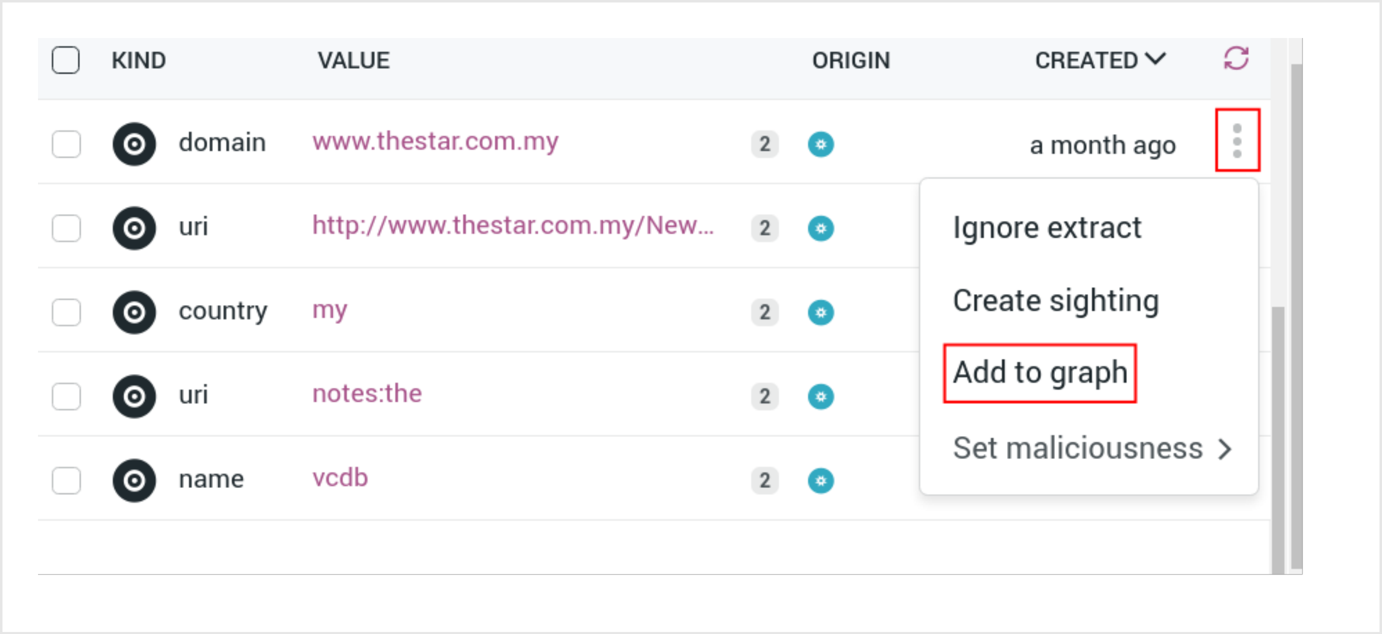


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

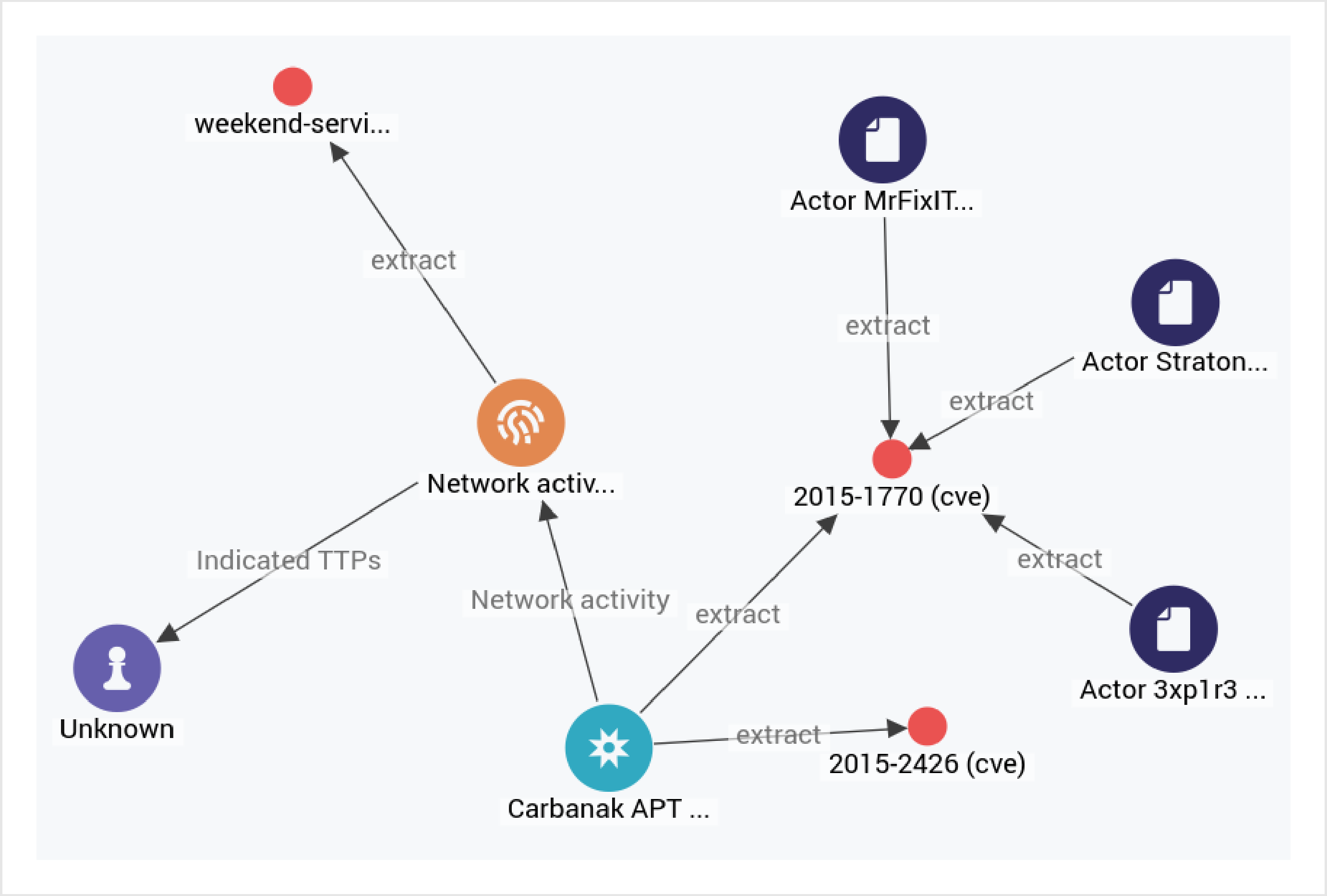
- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.



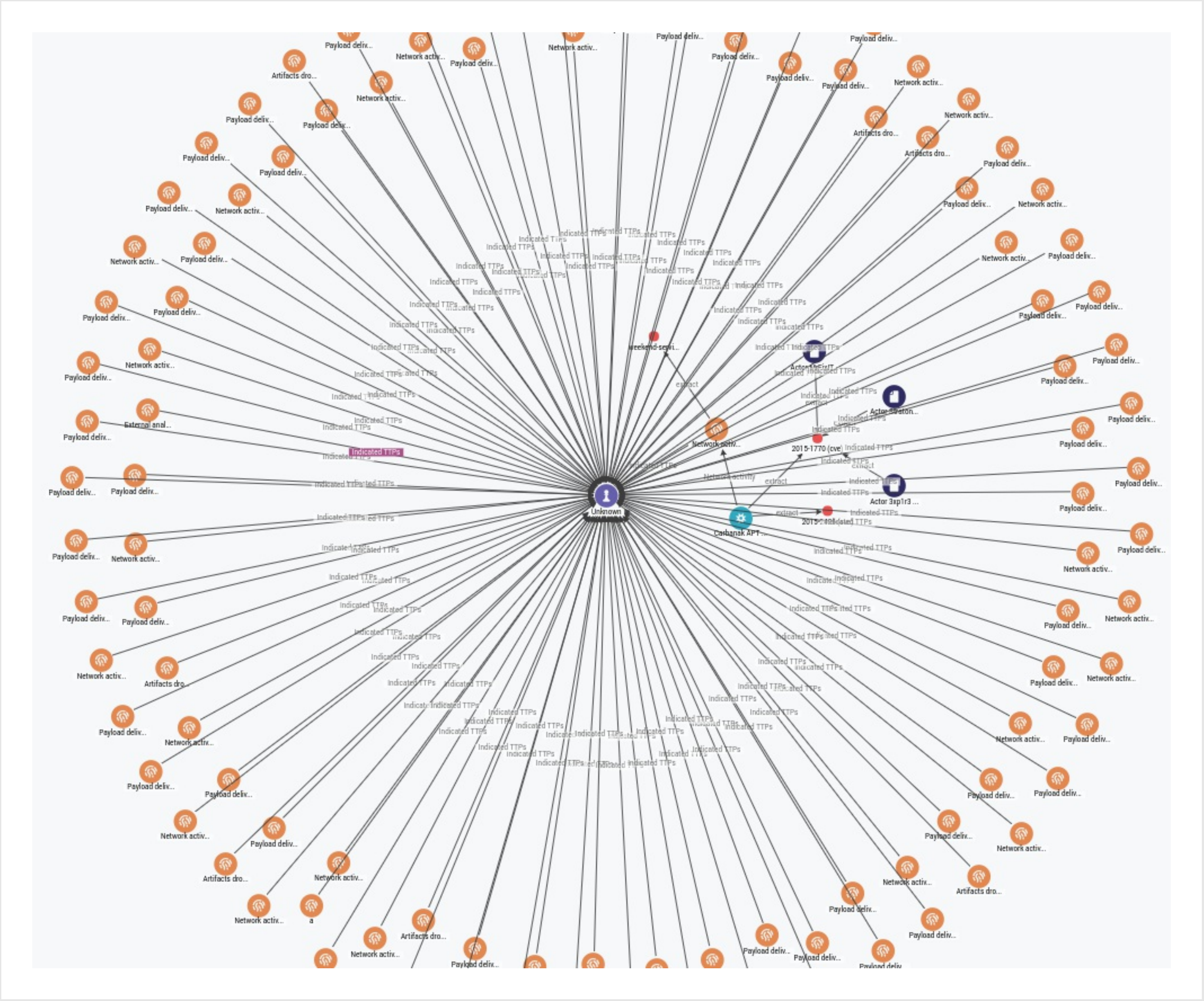
☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	a month ago
☐	uri	http://www.thestar.com.my/New...	2	
☐	country	my	2	
☐	uri	notes:the	2	
☐	name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

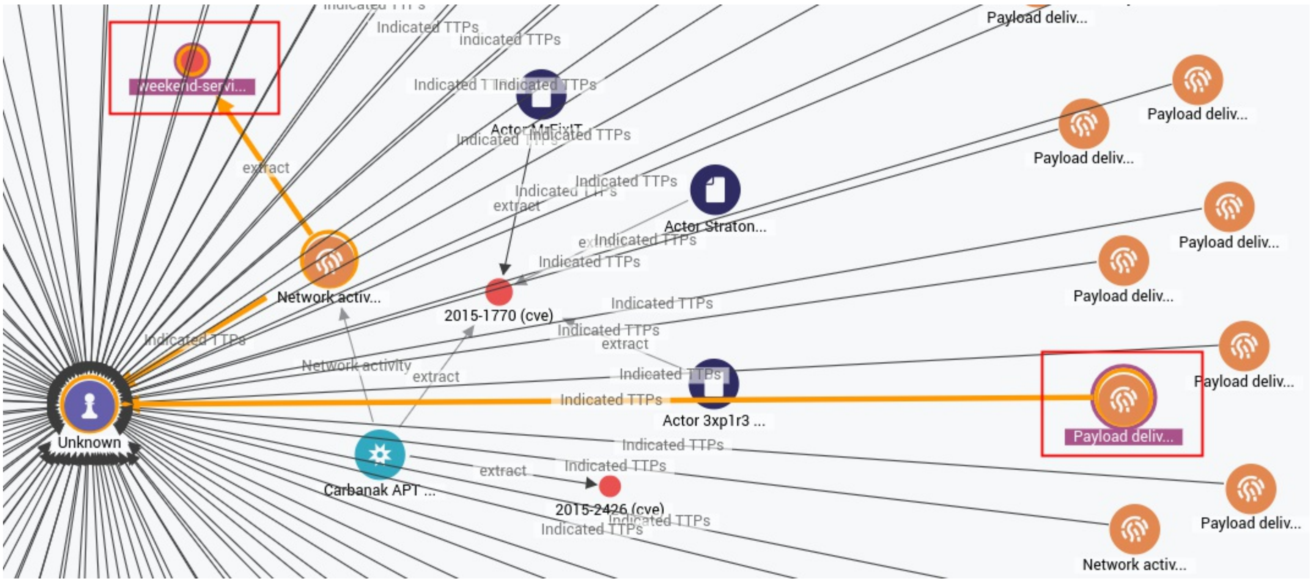


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



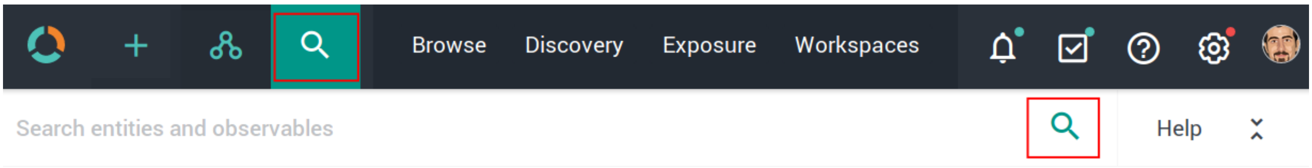
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

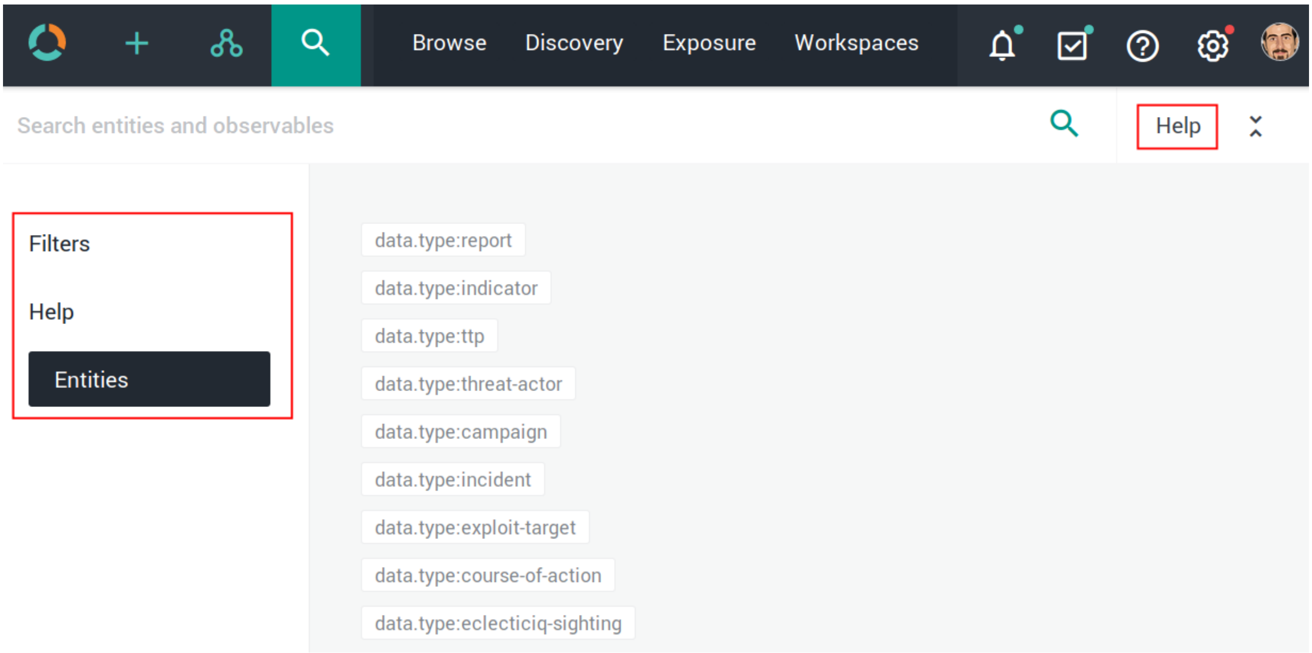


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

ℹ The search functionality uses **Elasticsearch query syntax** (https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).

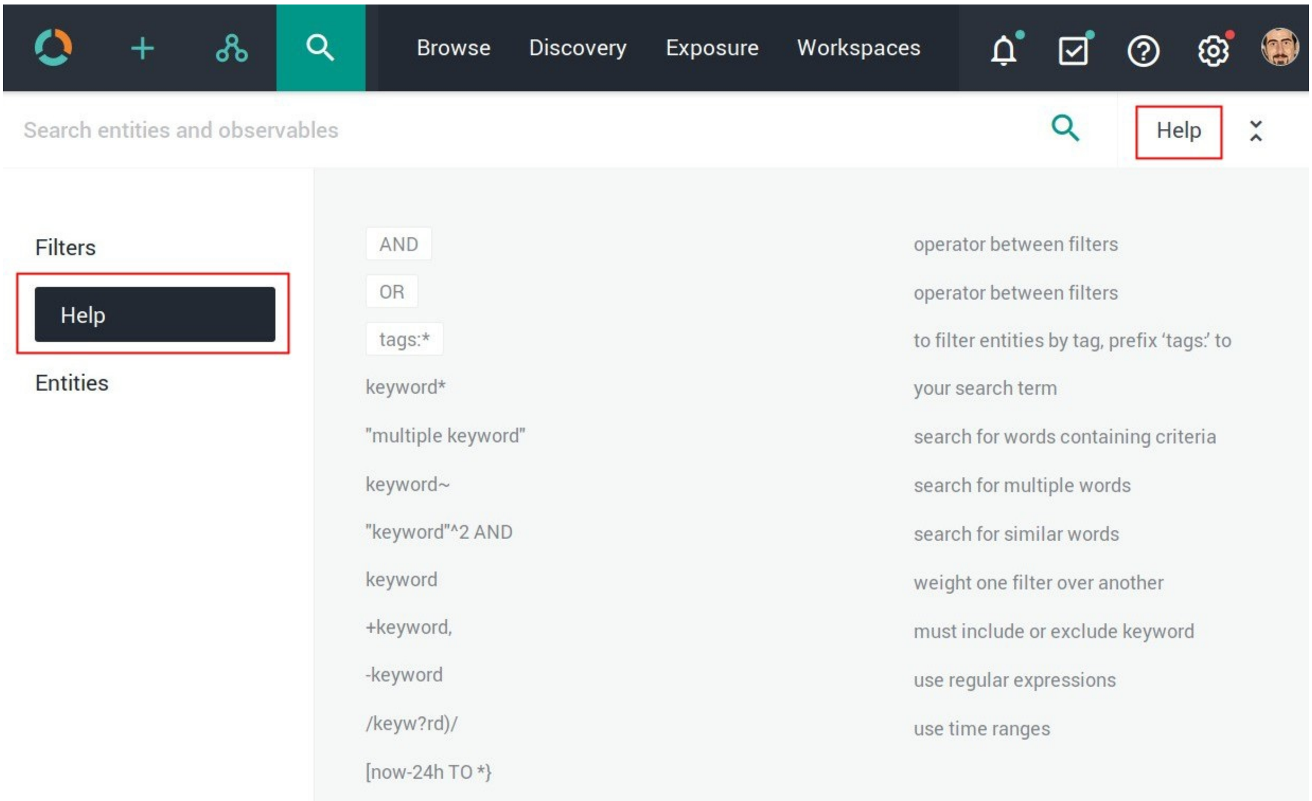
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

```
enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high
```

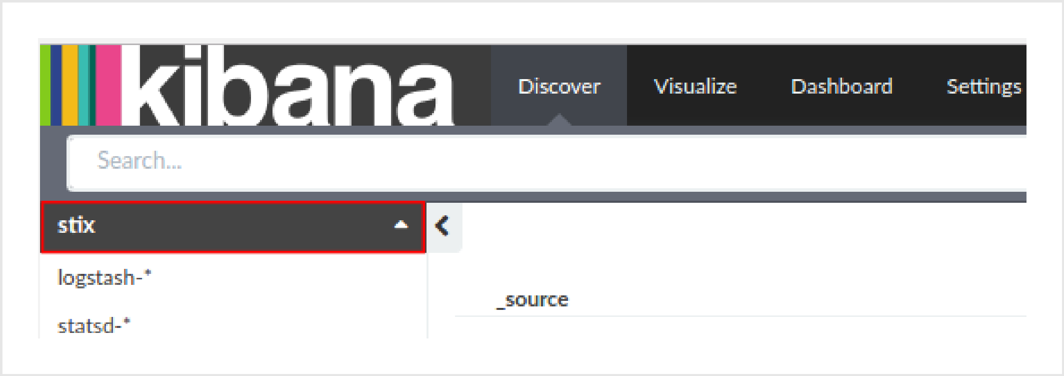
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

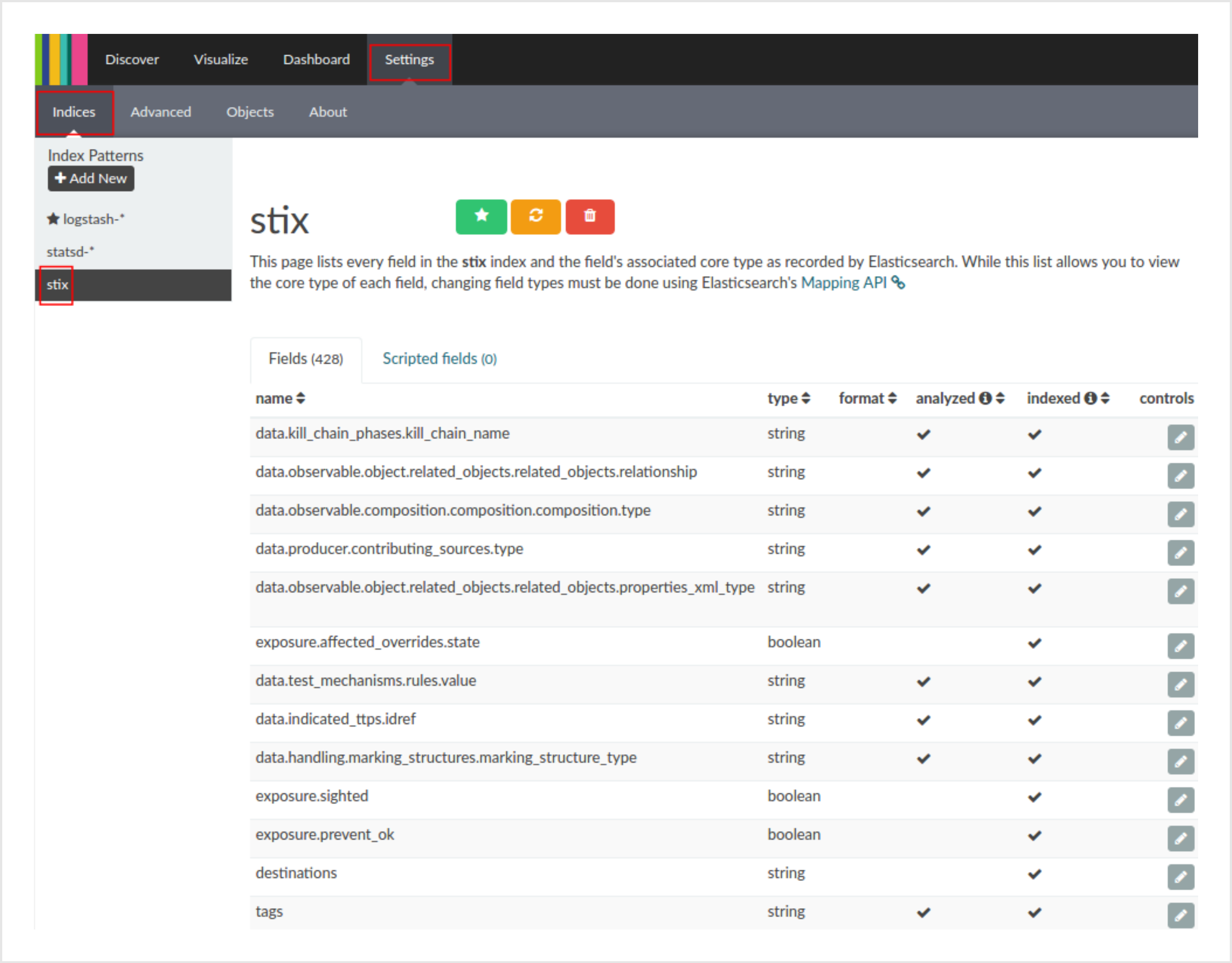
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format: `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	
data.observable.composition.composition.composition.type	string		✓	✓	
data.producer.contributing_sources.type	string		✓	✓	
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	
exposure.affected_overrides.state	boolean			✓	
data.test_mechanisms.rules.value	string		✓	✓	
data.indicated_ttps.idref	string		✓	✓	
data.handling.marking_structures.marking_structure_type	string		✓	✓	
exposure.sighted	boolean			✓	
exposure.prevent_ok	boolean			✓	
destinations	string			✓	
tags	string		✓	✓	

How to work with the Recorded Future enricher

The Recorded Future enricher enables you to tap into the data stream generated by the Recorded Future Temporal Analytics Engine to retrieve search results potentially malicious IPs, domains, email addresses, and hashes related to the input observable types, along with their risk scores to automatically flag domains with an appropriate maliciousness confidence level.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the Recorded Future enricher

This article describes how to configure the Recorded Future enricher parameters.
To configure the general options for the Recorded Future enricher, see Configure enrichers.

Recorded Future	**enricher**
Enricher name	Recorded Future
API endpoint	`https://app.recordedfuture.com/live/sc/entity/{}`
Input	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Output	Enriches the supported observable types with pattern matching search results produced by the Recorded Future Temporal Analytics Engine.
Description	The enricher returns additional data such as IPs, domains, email addresses, and hashes related to the submitted observables in the specified types, as well as maliciousness confidence levels based on the retrieved risk scores.

Configure the Recorded Future enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management** > **Dataset** > **Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

> ✔ On the forms, input fields marked with an asterisk are required.

- **Observable types**: select one or more observable types you want to enrich with data retrieved through the enricher. Supported observable types:
  - *domain*
  - *hash-md5*
  - *hash-sha1*
  - *hash-sha256*
  - *hash-sha256*
  - *ipv4*
  - *ipv6*

Under **Parameters**, define the specific configuration options for the Recorded Future enricher:

- **API user name**: sign up and subscribe to the service to obtain the required API user name and API key credentials to access the API endpoint exposing the service.
- Click **Save** to store your changes, or **Cancel** to discard them.

Maliciousness confidence rating is based on the Recorded Future risk scoring, where *0* means *no current evidence of risk*, whereas *99* means *very malicious*:

- If the returned Recorded Future risk score is equal to or higher than *65*, enriched observables are flagged with **Malicious - High confidence**.
- If the returned Recorded Future risk score is lower than *65*, enriched observables are flagged with **Malicious - Medium confidence**.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click ✚ **Add** or ✚ **More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data. **TLP** `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **✚ Add** or **✚ More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.

- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

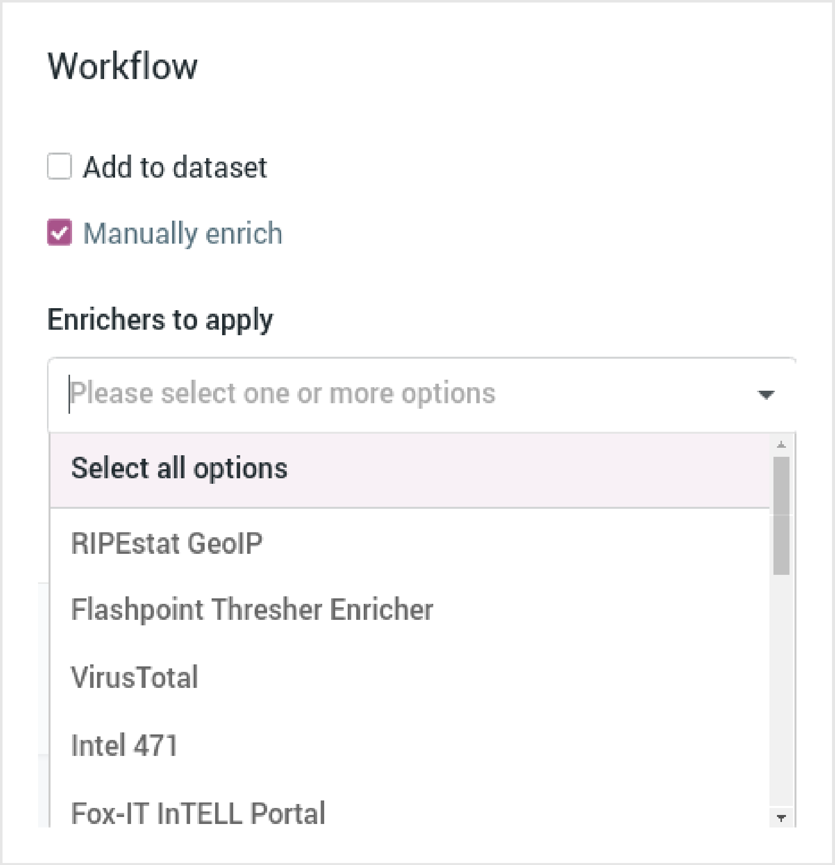
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

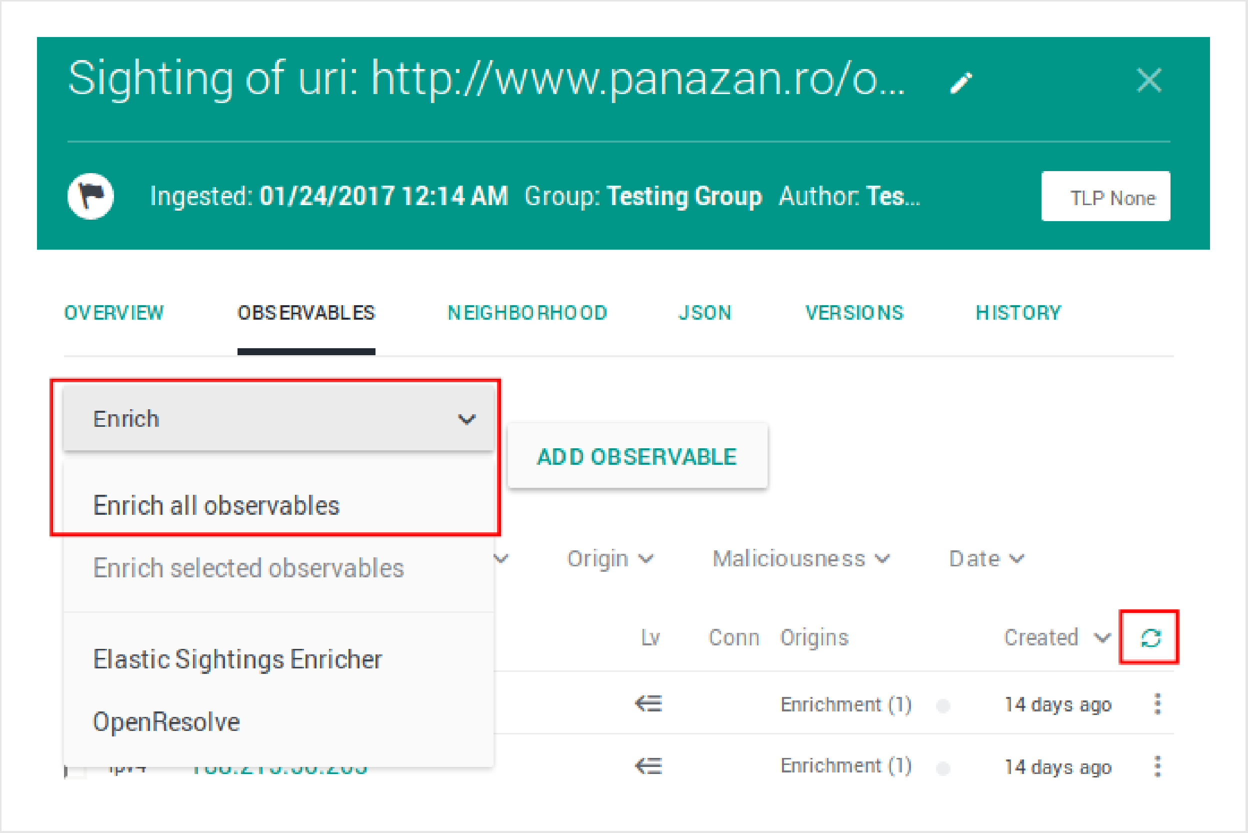
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the 🔄 refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

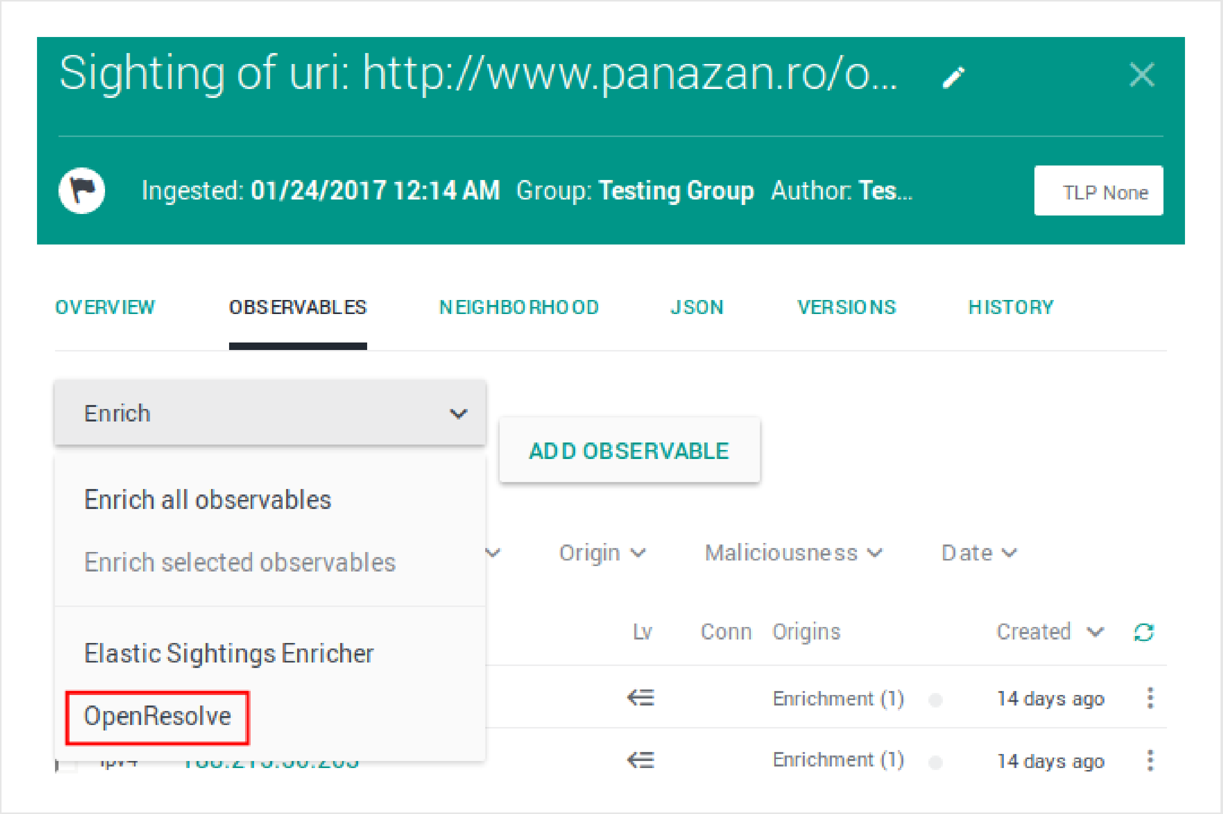


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



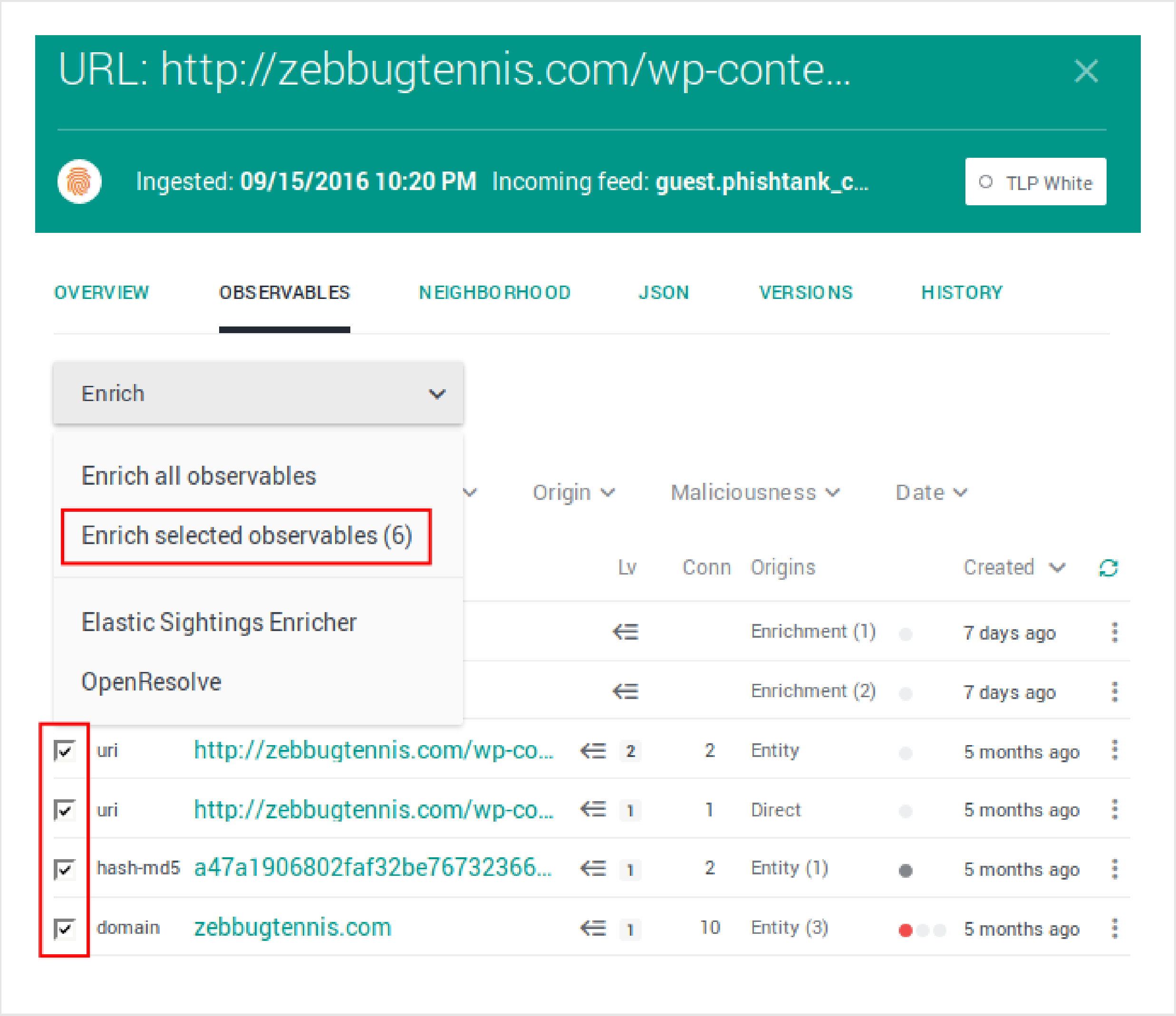
Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.

- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.



URL: http://zebbugtennis.com/wp-conte...

Ingested: **09/15/2016 10:20 PM** Incoming feed: **guest.phishtank_c...**

TLP White

			Lv	Conn	Origins	Created
					Enrichment (1)	7 days ago
					Enrichment (2)	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	2	2	Entity	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	1	1	Direct	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	1	2	Entity (1)	5 months ago
☑	domain	zebbugtennis.com	1	10	Entity (3)	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

The Recorded Future enricher can take the following observable types as input:

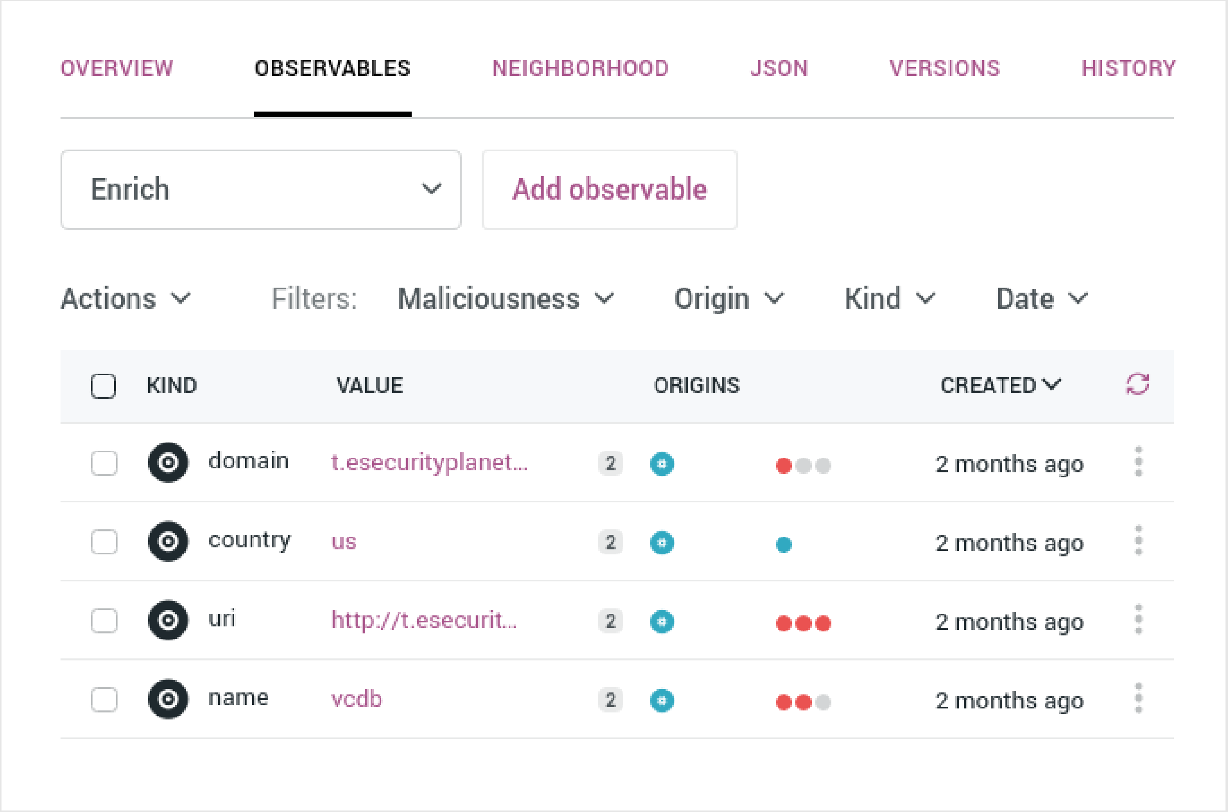
- *domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with Recorded Future.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.

- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

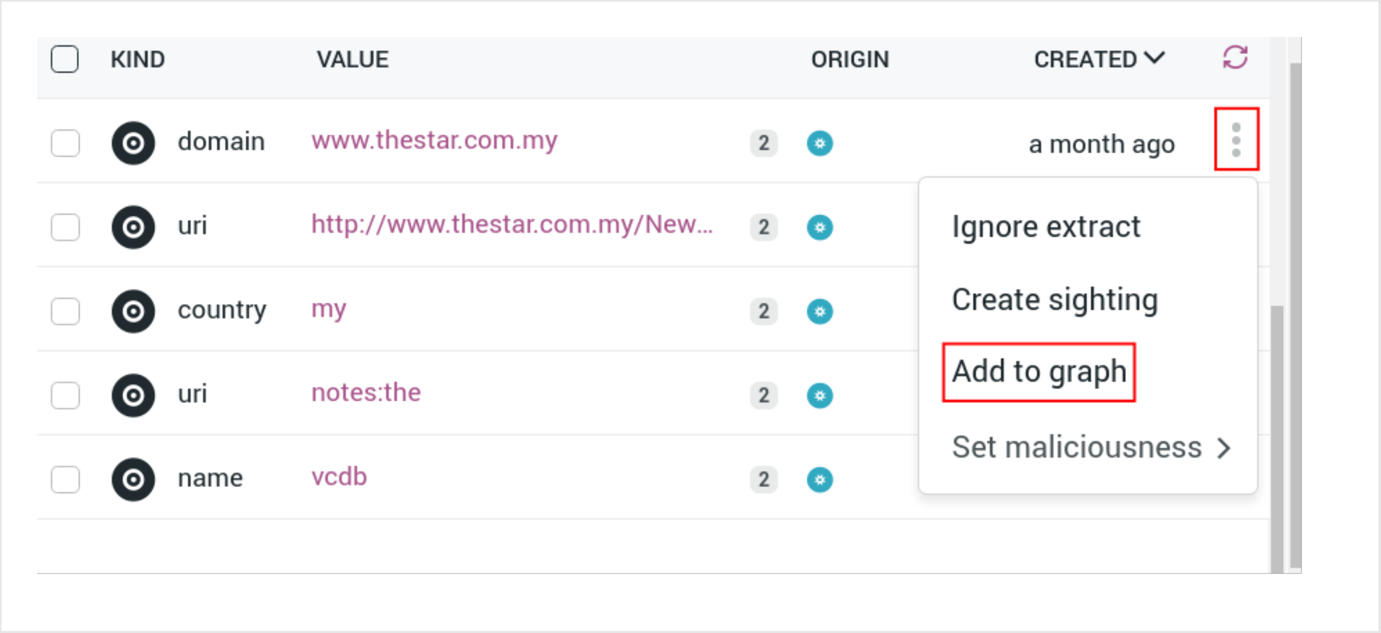


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Review enrichment observables on the graph

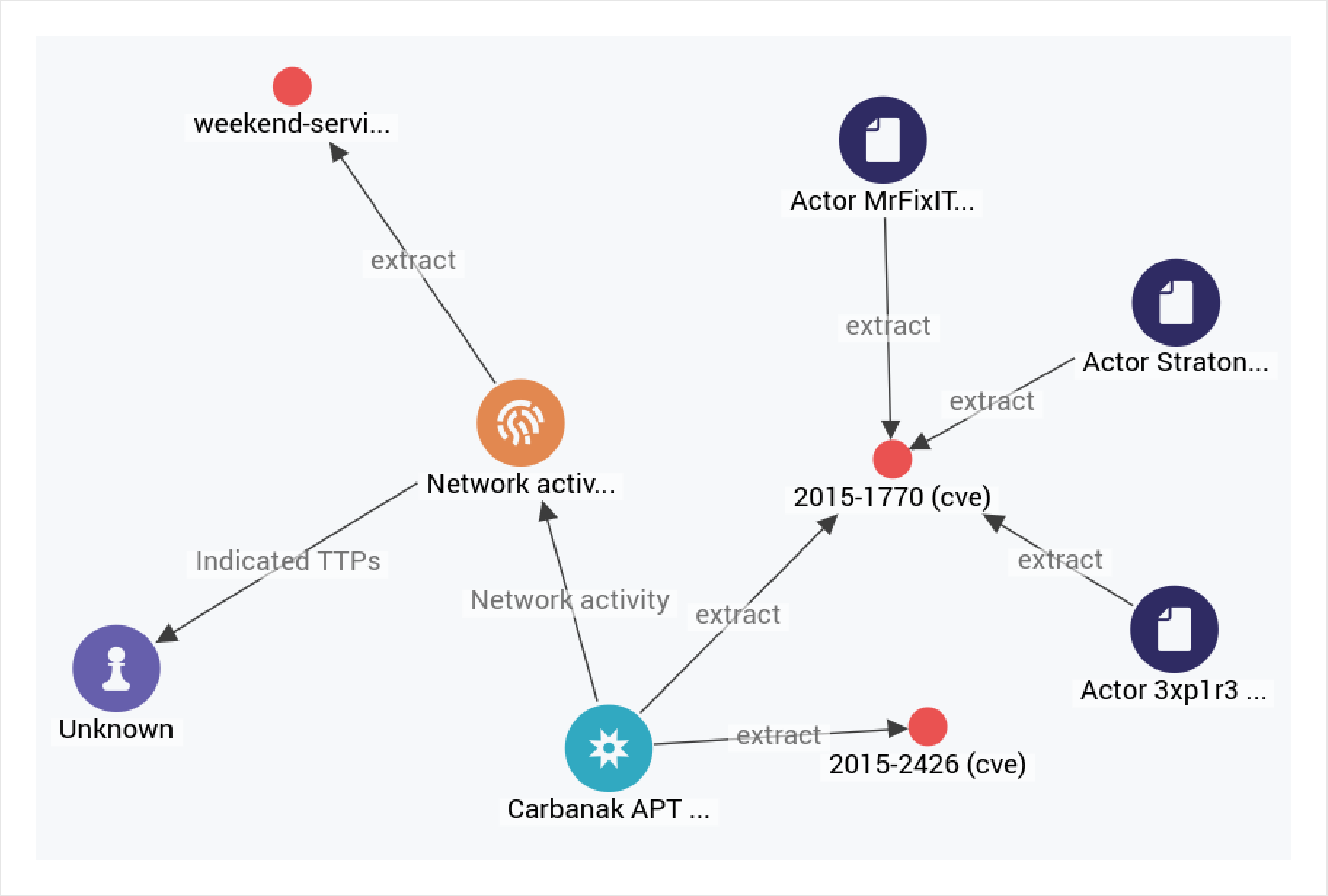
To view enrichment data and their connections with other entities and observables on the graph, do the following:

- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.

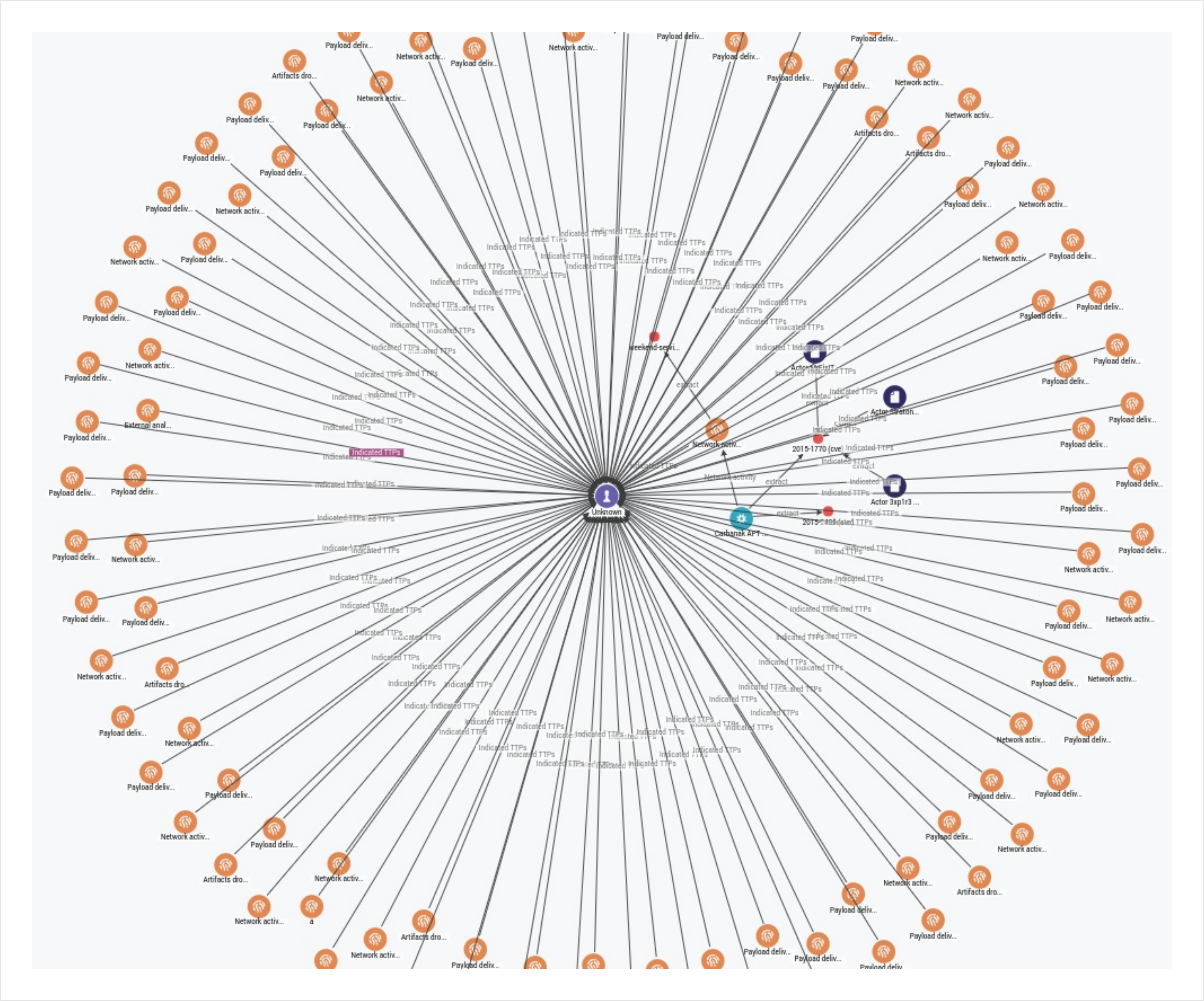


☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	a month ago
☐	uri	http://www.thestar.com.my/New...	2	
☐	country	my	2	
☐	uri	notes:the	2	
☐	name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.
- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

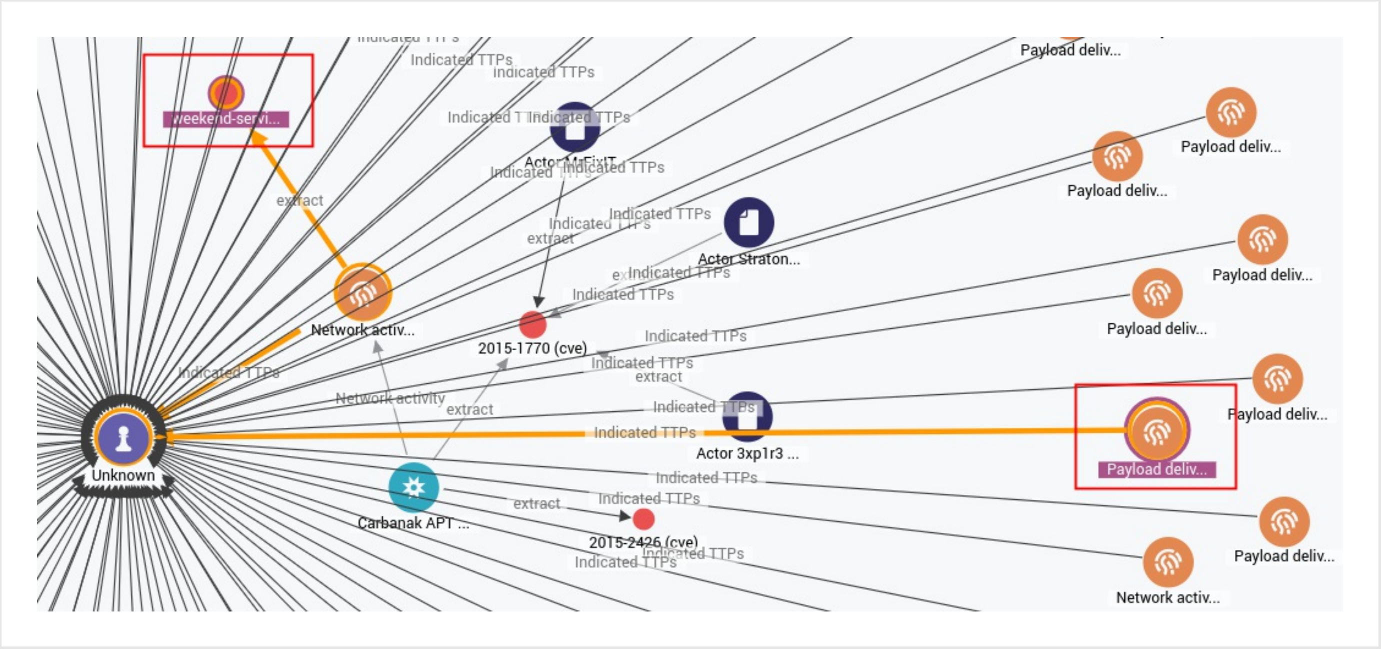


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



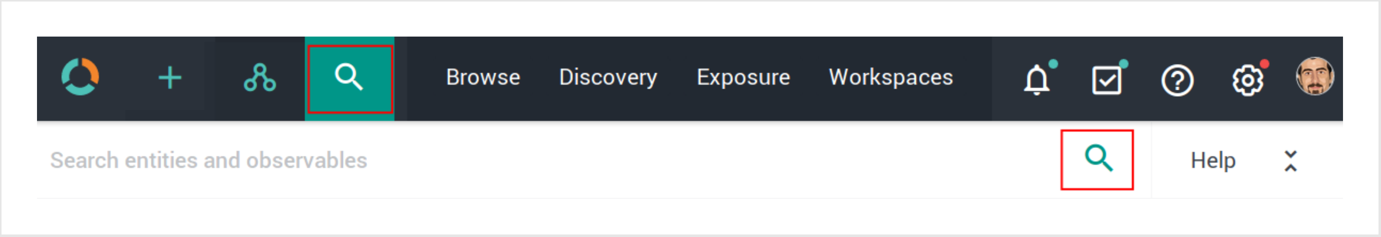
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

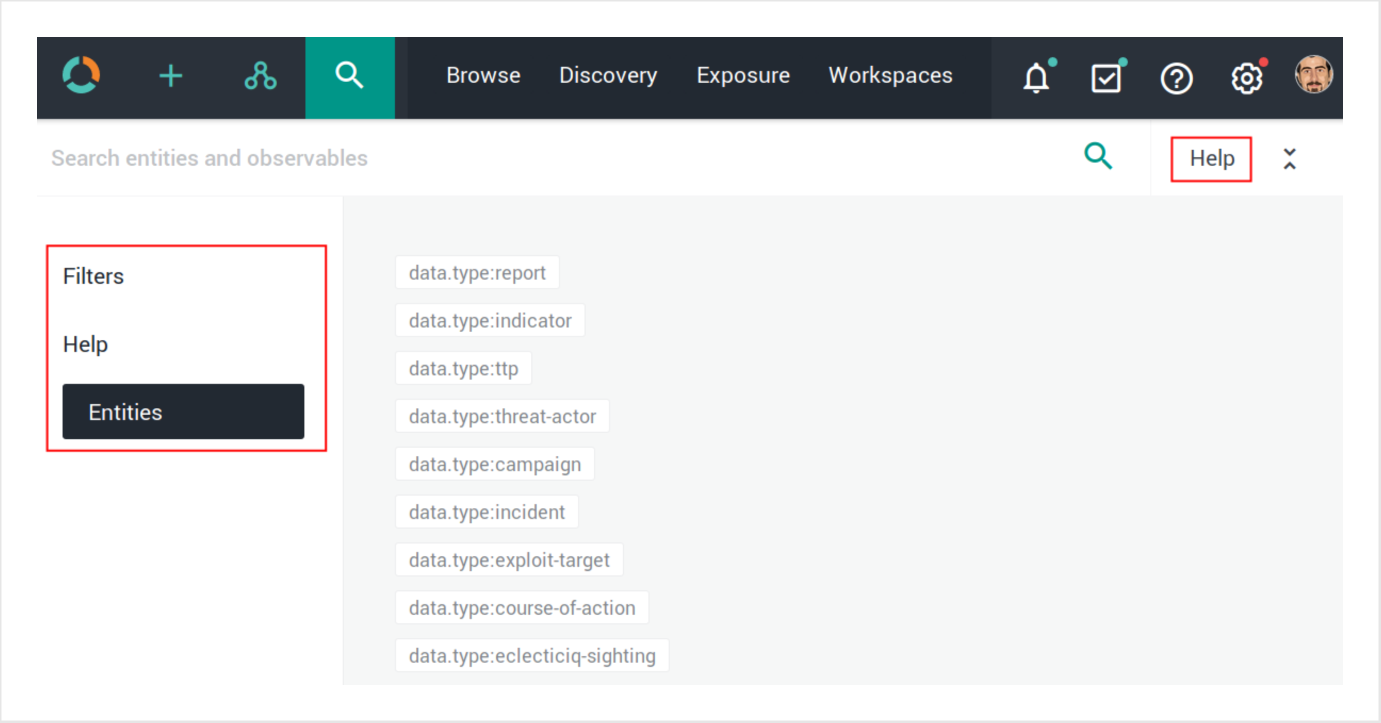


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

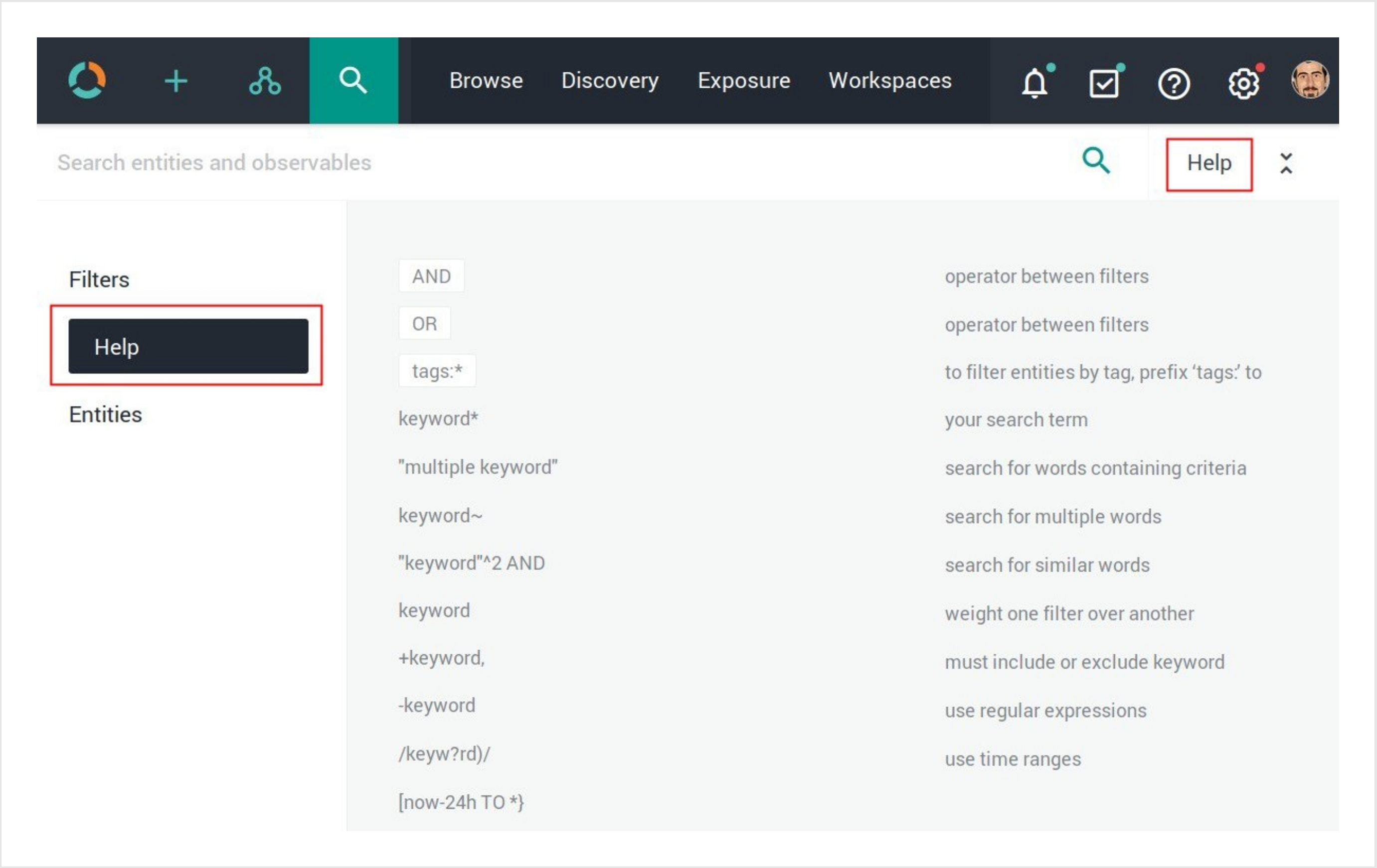
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND
OR
tags:*
keyword*
"multiple keyword"
keyword~
"keyword"^2 AND
keyword
+keyword,
-keyword
/keyw?rd)/
[now-24h TO *}

operator between filters
operator between filters
to filter entities by tag, prefix 'tags:' to
your search term
search for words containing criteria
search for multiple words
search for similar words
weight one filter over another
must include or exclude keyword
use regular expressions
use time ranges

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

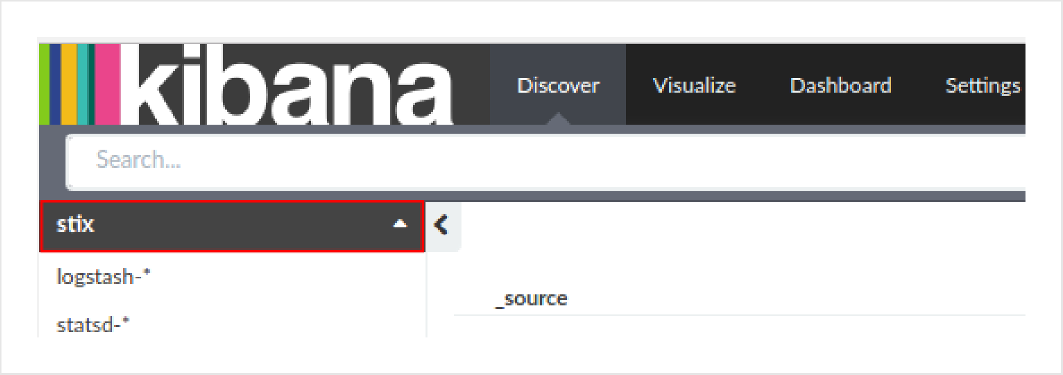
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

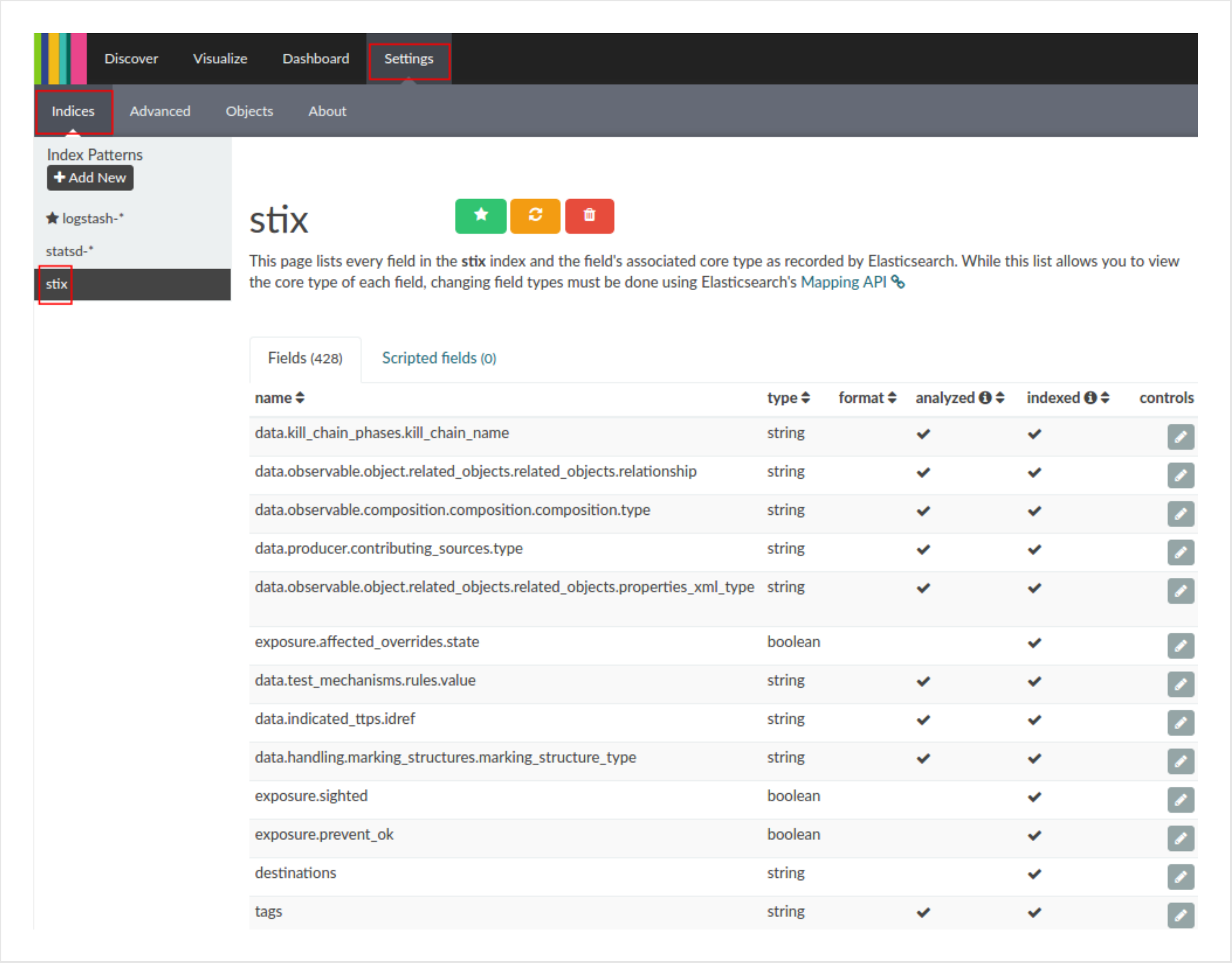
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

Fields (428) Scripted fields (0)

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the RIPEstat GeoIP enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the RIPEstat GeoIP enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the RIPEstat GeoIP enricher

This article describes how to configure the RIPEstat GeoIP enricher parameters.
To configure the general options for the RIPEstat GeoIP enricher, see Configure enrichers.

RIPEstat GeoIP	**enricher**
Enricher name	RIPEstat GeoIP
API endpoint	`https://stat.ripe.net/data/geoloc/data.json?resource={IP_address}` (**Geoloc** `(https://stat.ripe.net/docs/data_api#geoloc)`)
Input	ipv4, ipv6
Output	Enriches the supported observable types with geolocation information related to IP addresses: coordinates, country, and city.
Description	Geolocation IP information from the RIPEstat web-based interface (**Data API** `(https://stat.ripe.net/docs/data_api)`), including latitude, longitude, country, and city.

Configure the RIPEstat GeoIP enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management** > **Dataset** > **Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✓ On the forms, input fields marked with an asterisk are required.

Under **Parameters**, define the specific configuration options for the RIPEstat GeoIP enricher:

- **API URL**: the basic URL allowing access to the **RIPEstat Data API** `(https://stat.ripe.net/docs/data_api)`. The value is: *https://stat.ripe.net/data*.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **+ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

✓ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **+ Add** or **+ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **+ Add** or **+ More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.

- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.

- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

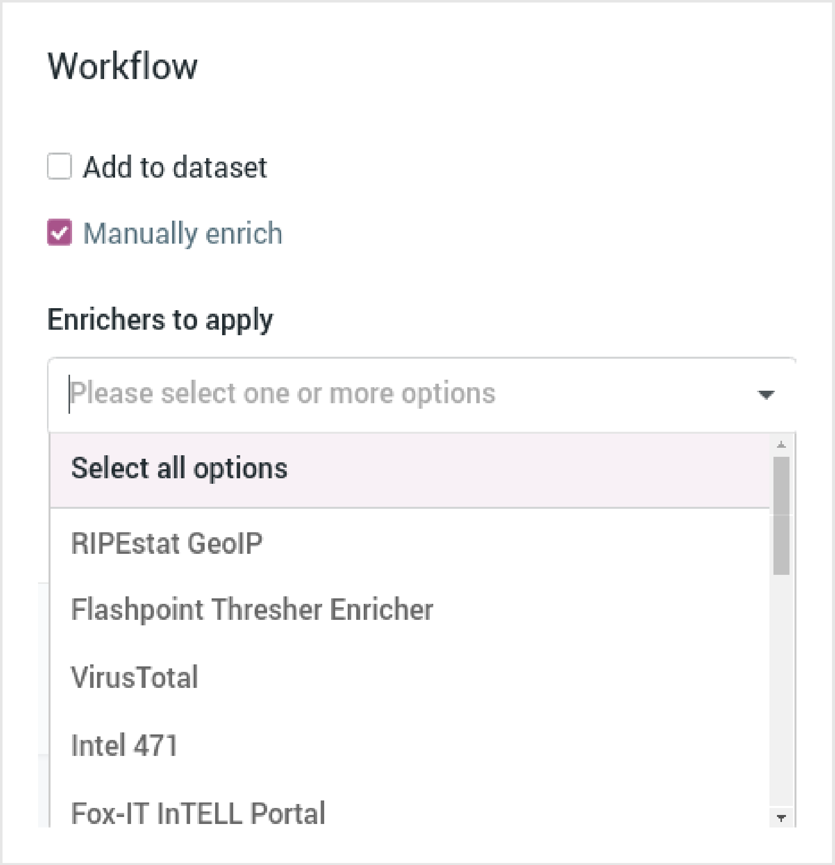
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

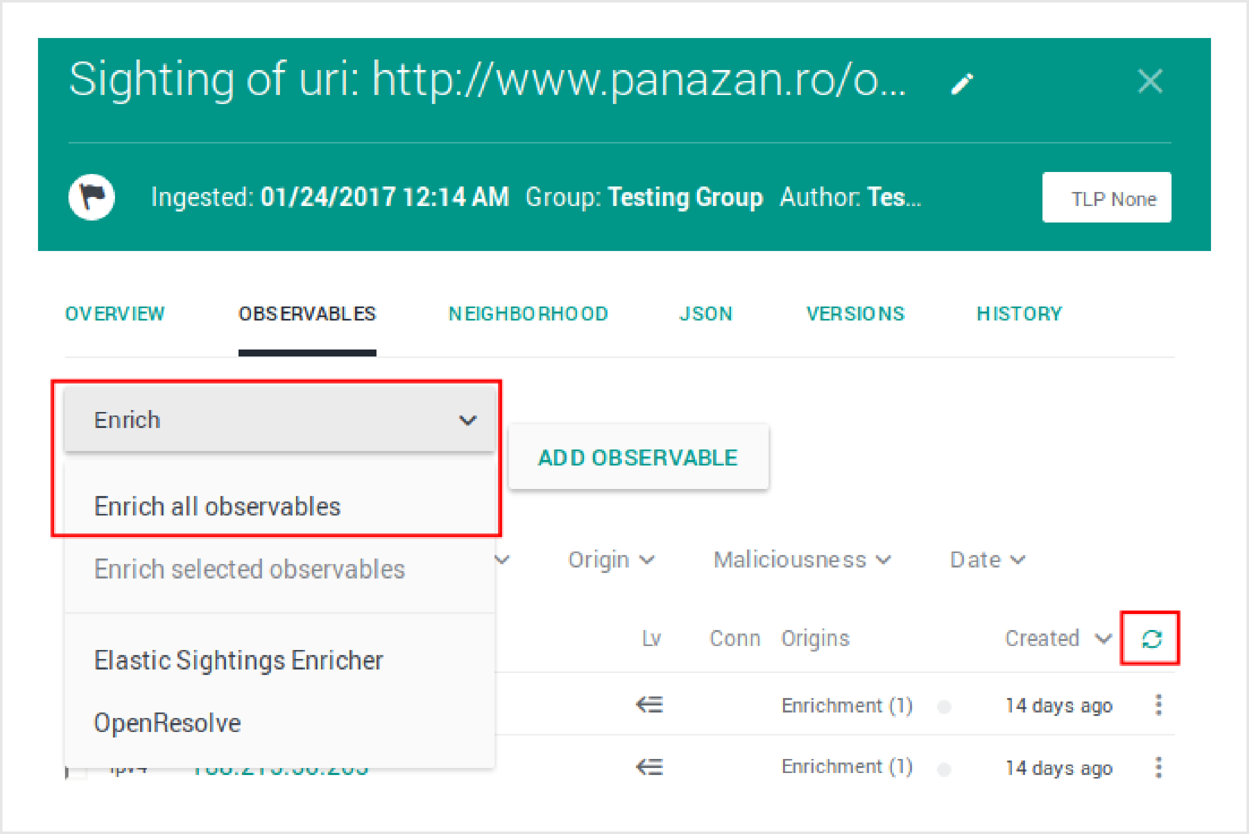
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the 🗘 refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

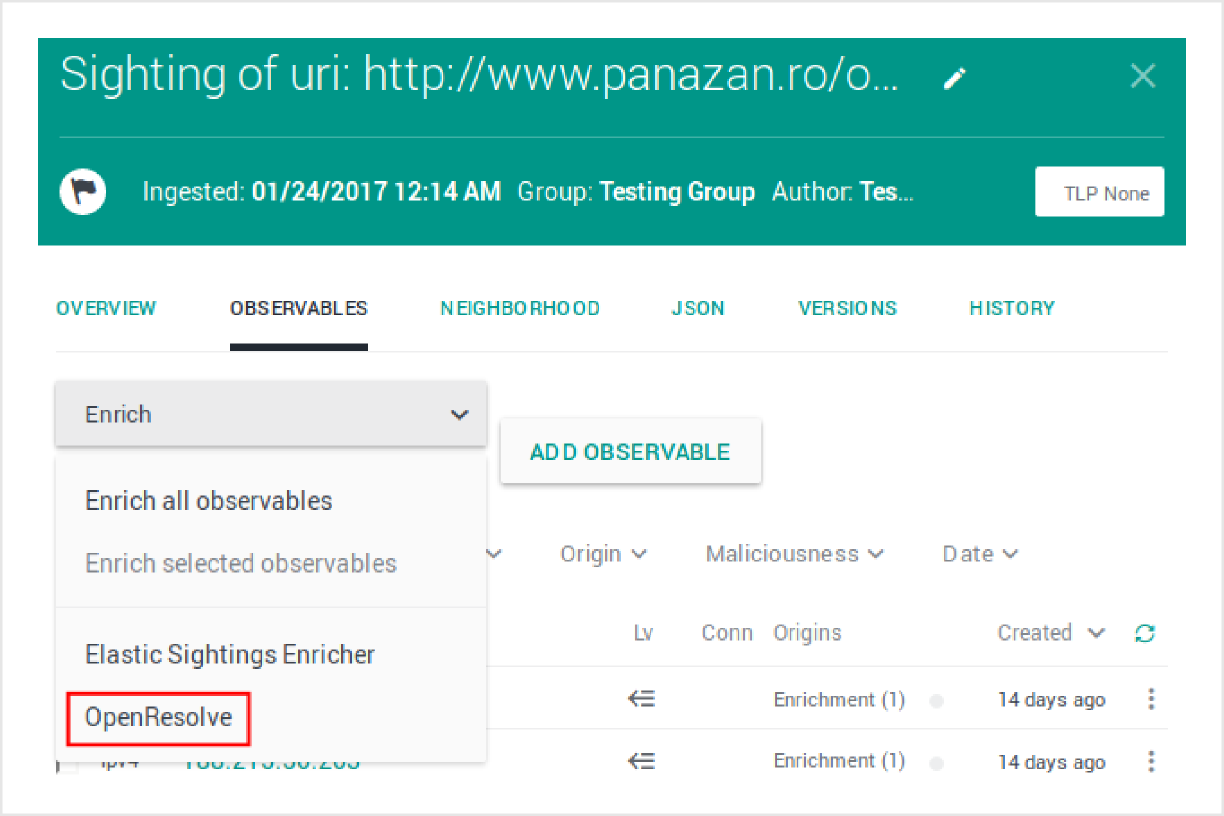


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.

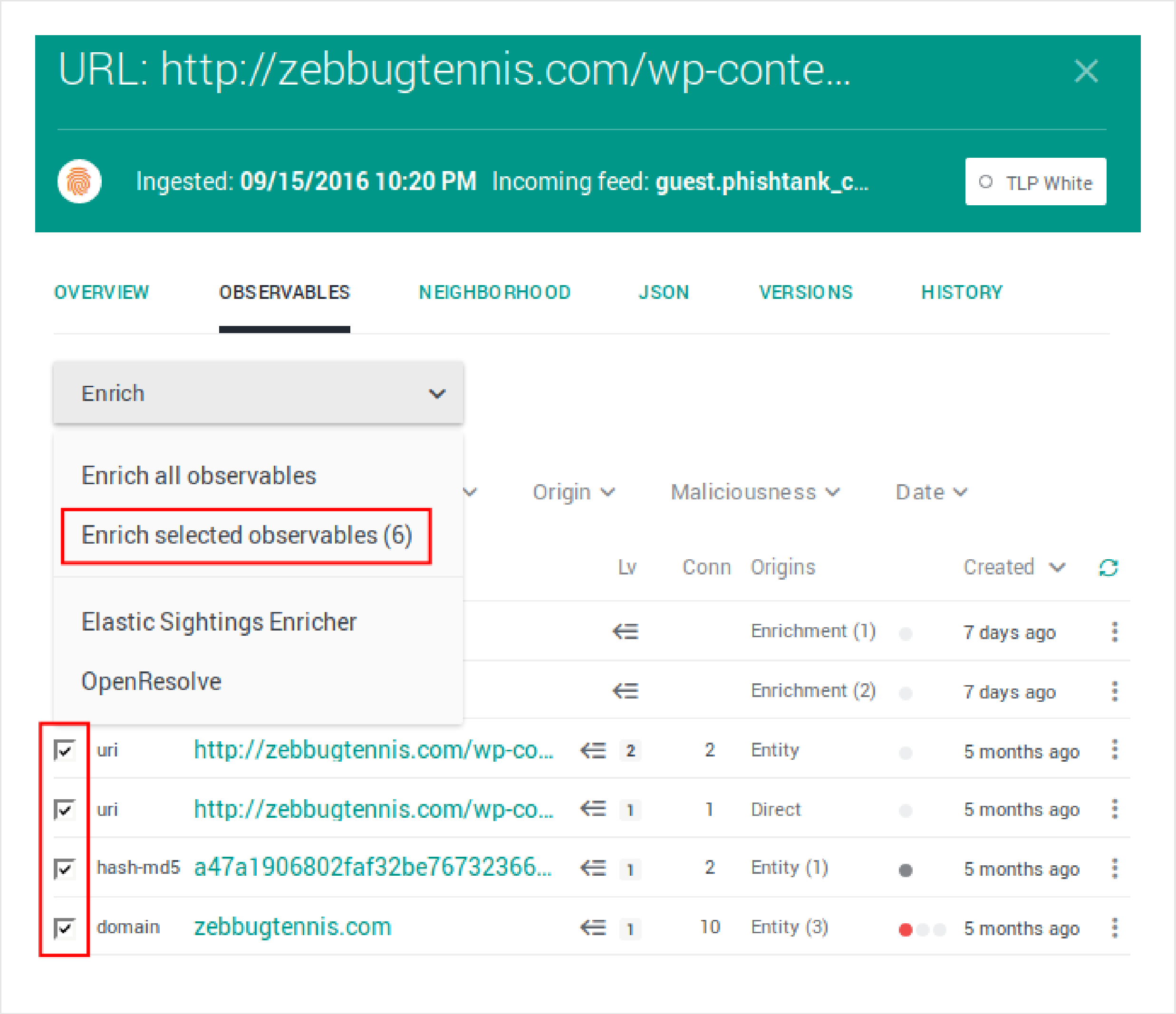


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...
Ingested: 09/15/2016 10:20 PM Incoming feed: guest.phishtank_c...
TLP White
OVERVIEW
OBSERVABLES
NEIGHBORHOOD
JSON
VERSIONS
HISTORY
Enrich
Enrich all observables
Enrich selected observables (6)
Elastic Sightings Enricher
OpenResolve
Origin
Maliciousness
Date

			Lv	Conn	Origins	Created
					Enrichment (1)	7 days ago
					Enrichment (2)	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	2	2	Entity	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	1	1	Direct	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	1	2	Entity (1)	5 months ago
☑	domain	zebbugtennis.com	1	10	Entity (3)	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher's content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

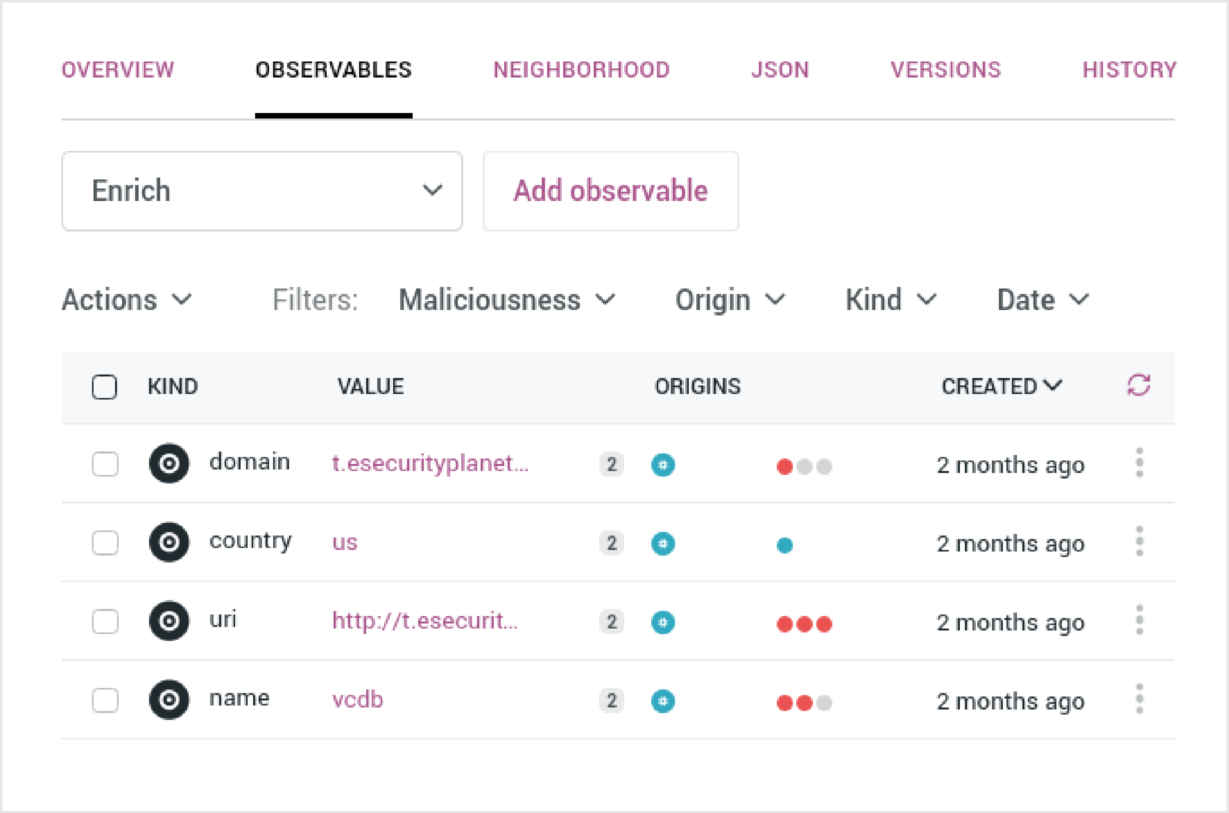
The RIPEstat GeoIP enricher can take the following observable types as input:

- *ipv4, ipv6*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with RIPEstat GeoIP.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

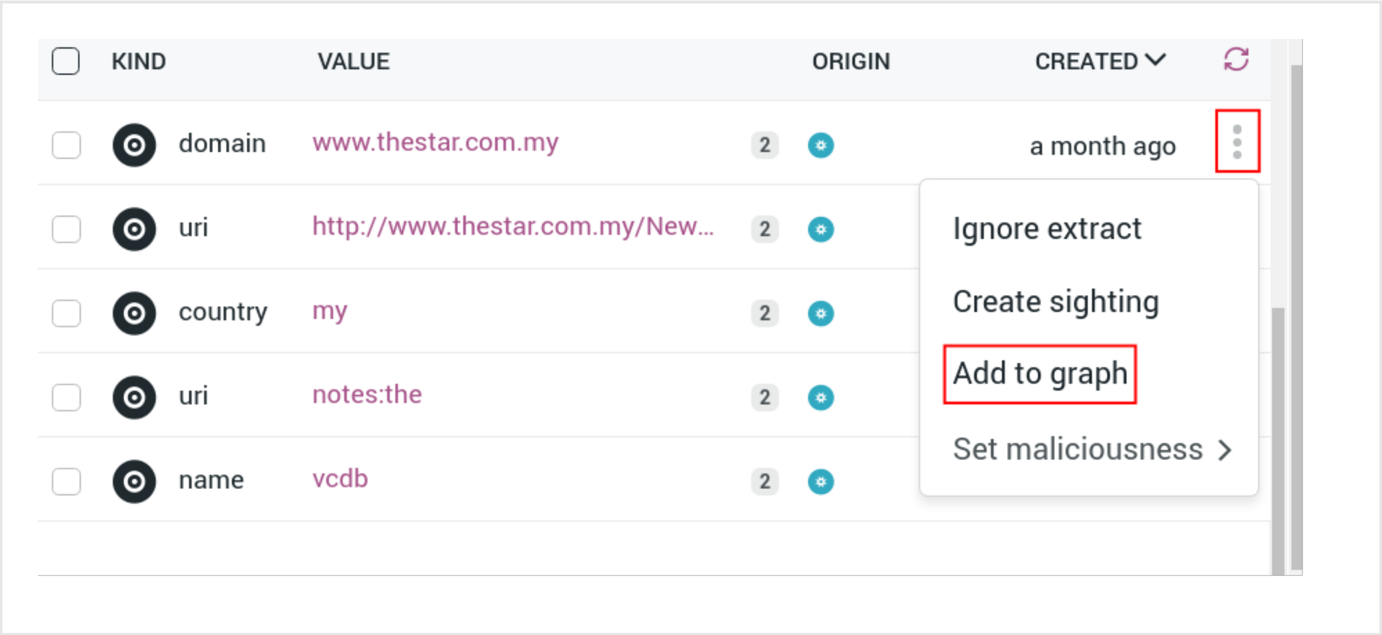


☐	KIND	VALUE		ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●	●●●	2 months ago
☐	country	us	2	●	●	2 months ago
☐	uri	http://t.esecurit...	2	●	●●●	2 months ago
☐	name	vcdb	2	●	●●●	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

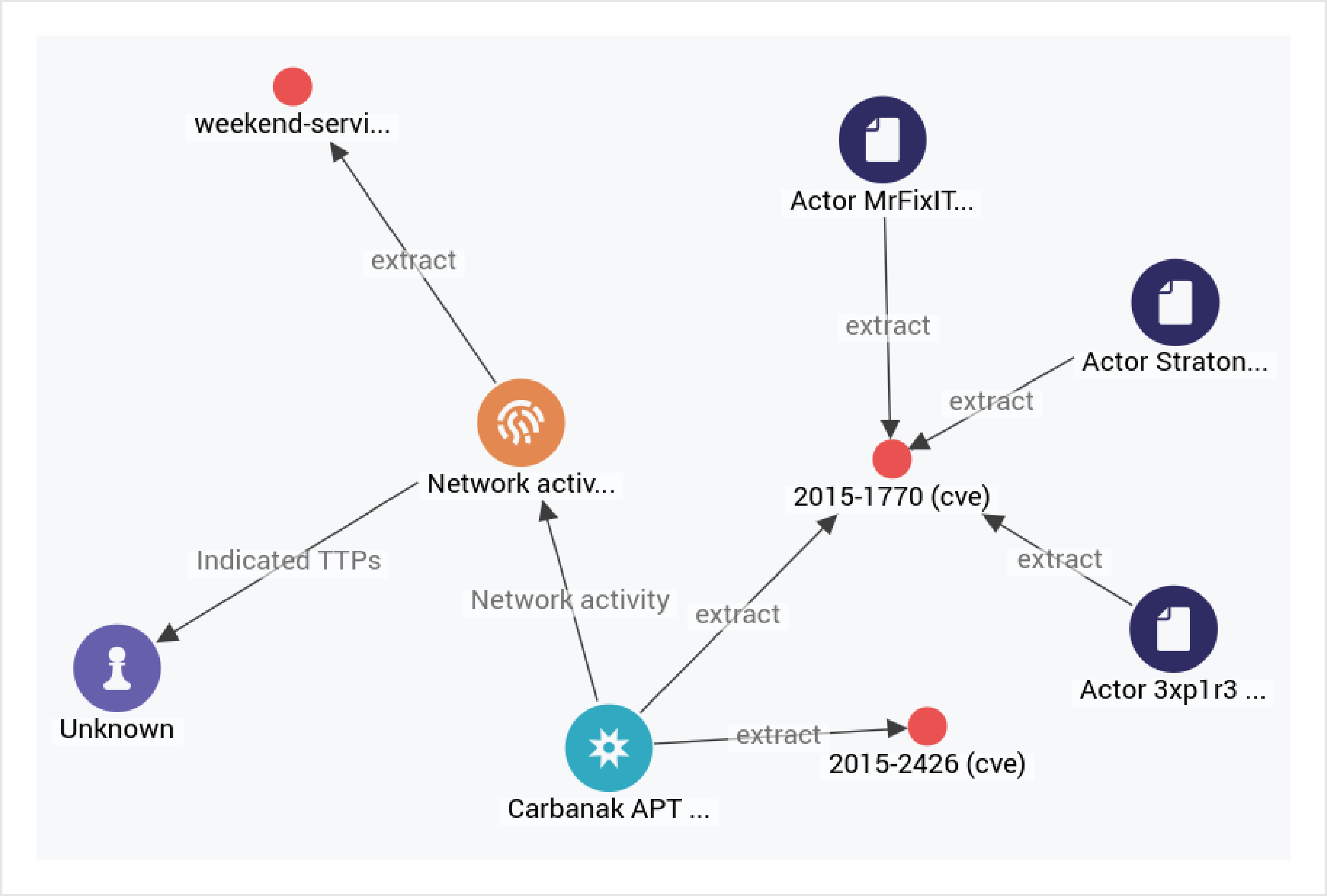
- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.



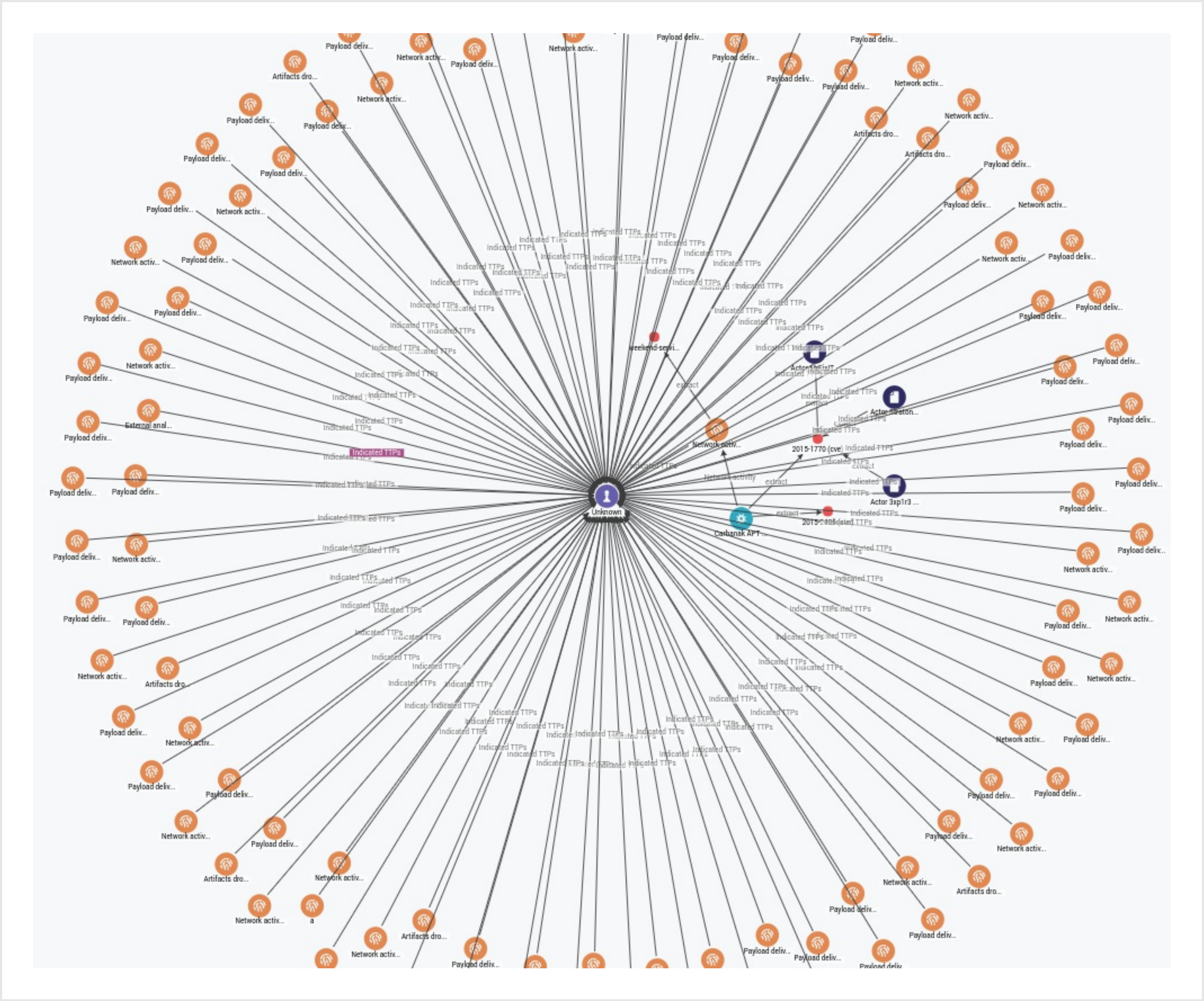
☐	KIND	VALUE		ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	●	a month ago
☐	uri	http://www.thestar.com.my/New...	2	●	
☐	country	my	2	●	
☐	uri	notes:the	2	●	
☐	name	vcdb	2	●	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All**.

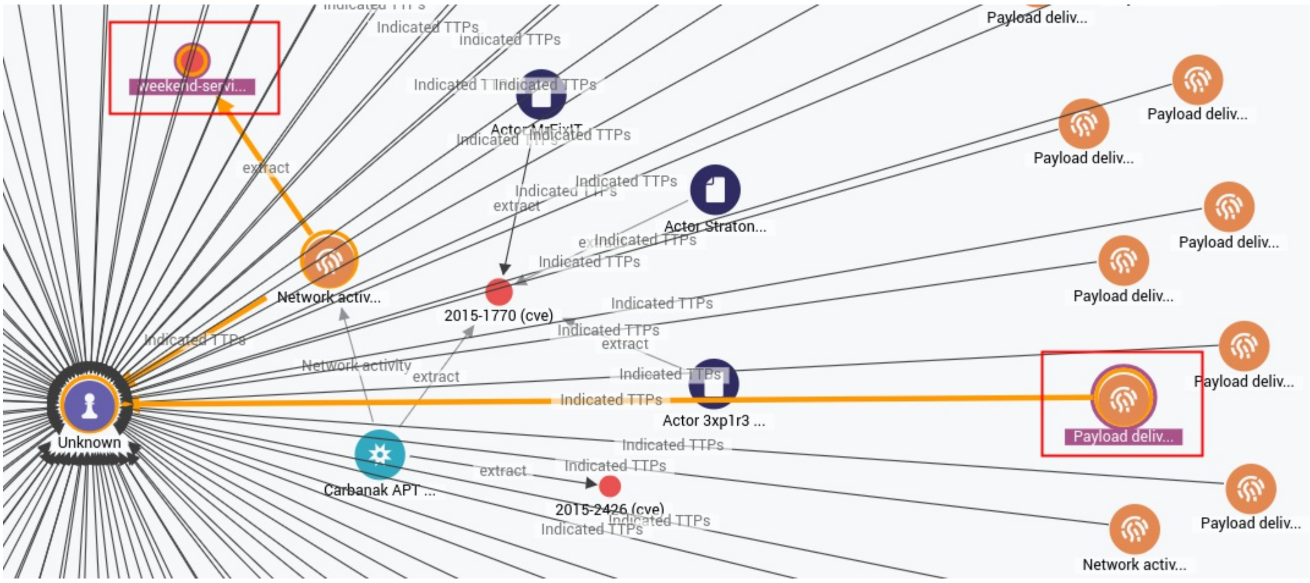


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All**.



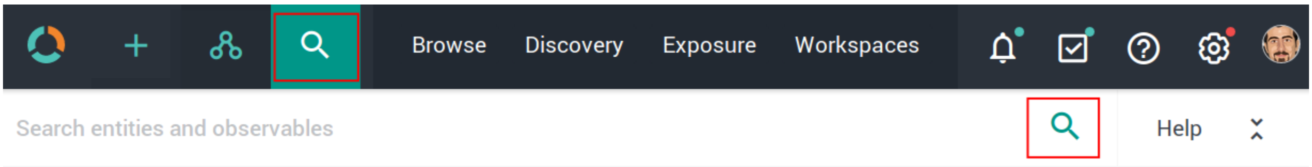
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

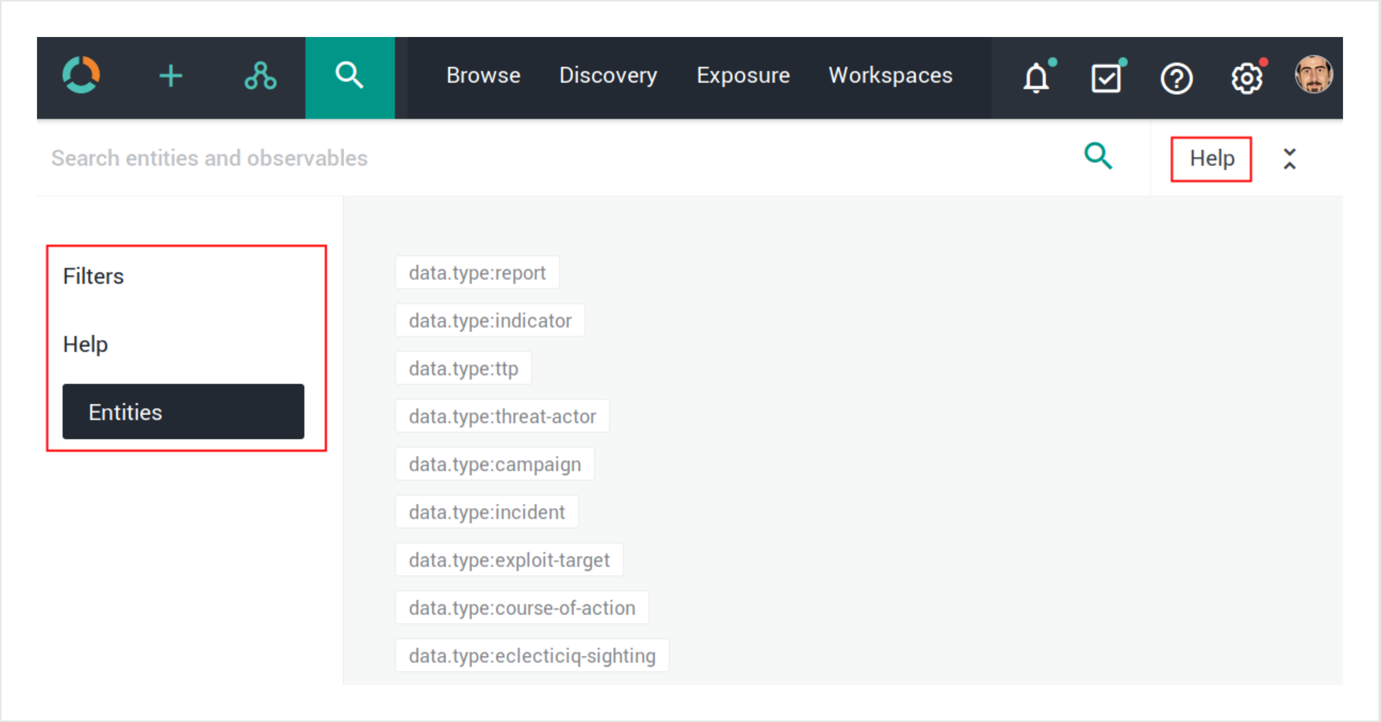


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

> The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

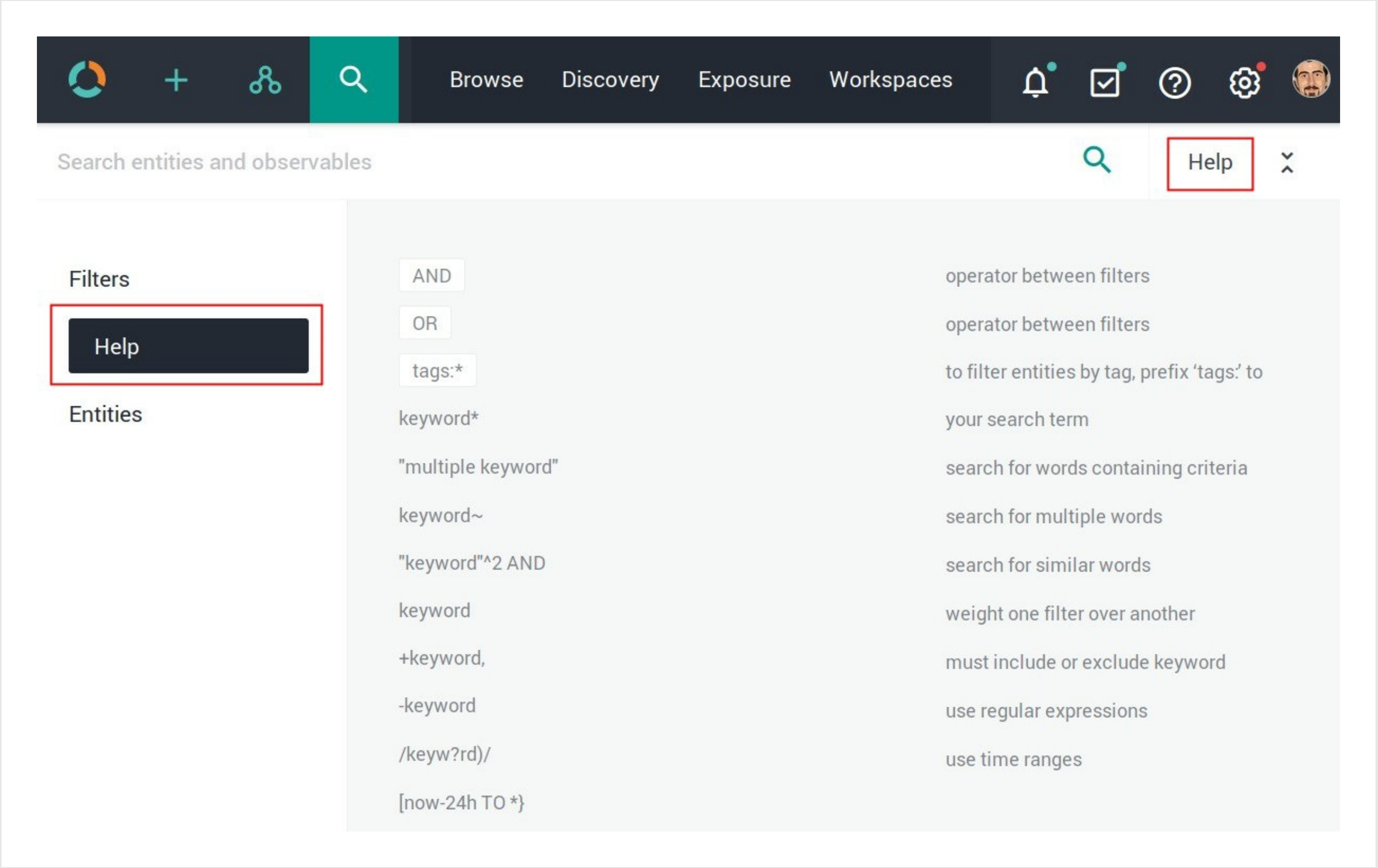
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

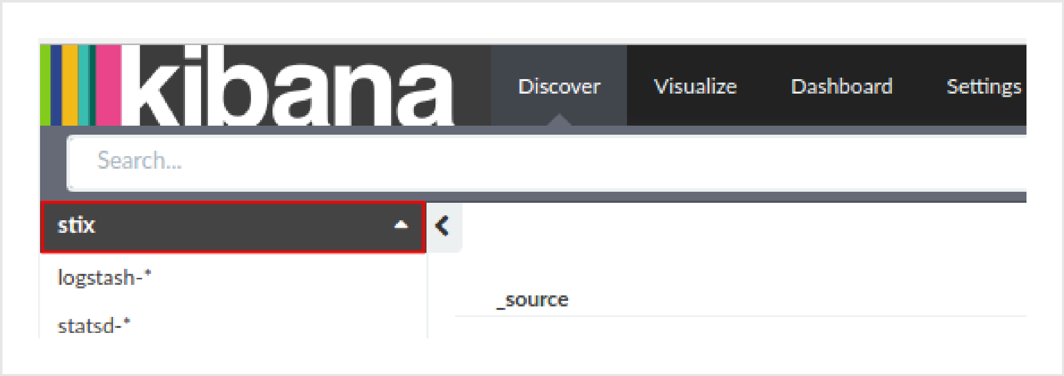
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

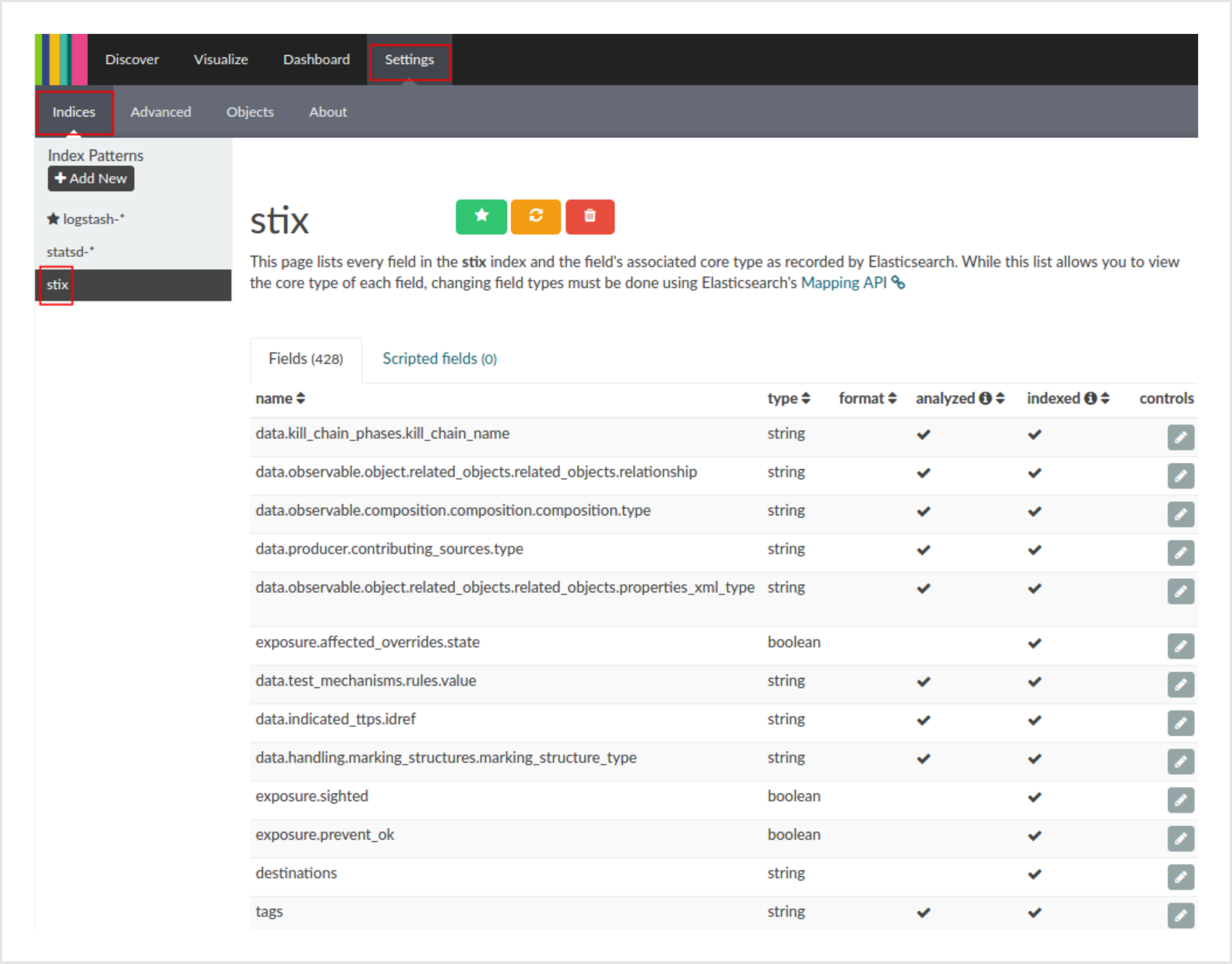
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the RIPEstat Whois enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the RIPEstat Whois enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the RIPEstat Whois enricher

This article describes how to configure the RIPEstat Whois enricher parameters.
To configure the general options for the RIPEstat Whois enricher, see Configure enrichers.

RIPEstat Whois	**enricher**
Enricher name	RIPEstat Whois
API endpoint	`https://stat.ripe.net/data/whois/data.json?resource={IP_address}` (**Whois** `(https://stat.ripe.net/docs/data_api#whois)`)
Input	ipv4, ipv6
Output	Enriches the supported observable types with whois information related to IP addresses.
Description	Whois information from the RIPEstat web-based interface (**Whois REST API** `(https://github.com/ripe-ncc/whois/wiki/whois-rest-api)`), including inet number, name, organization, country, city, street, and telephone.

Configure the RIPEstat Whois enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click **✚ > Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✓ On the forms, input fields marked with an asterisk are required.

Under **Parameters**, define the specific configuration options for the RIPEstat Whois enricher:

- **API URL**: the basic URL allowing access to the **RIPEstat Data API** `(https://stat.ripe.net/docs/data_api)`.
  The value is: *https://stat.ripe.net/data*.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **+ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

✓ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **+ Add** or **+ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **+ Add** or **+ More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.

- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

> ✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.

- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **✚ Add** or **✚ More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

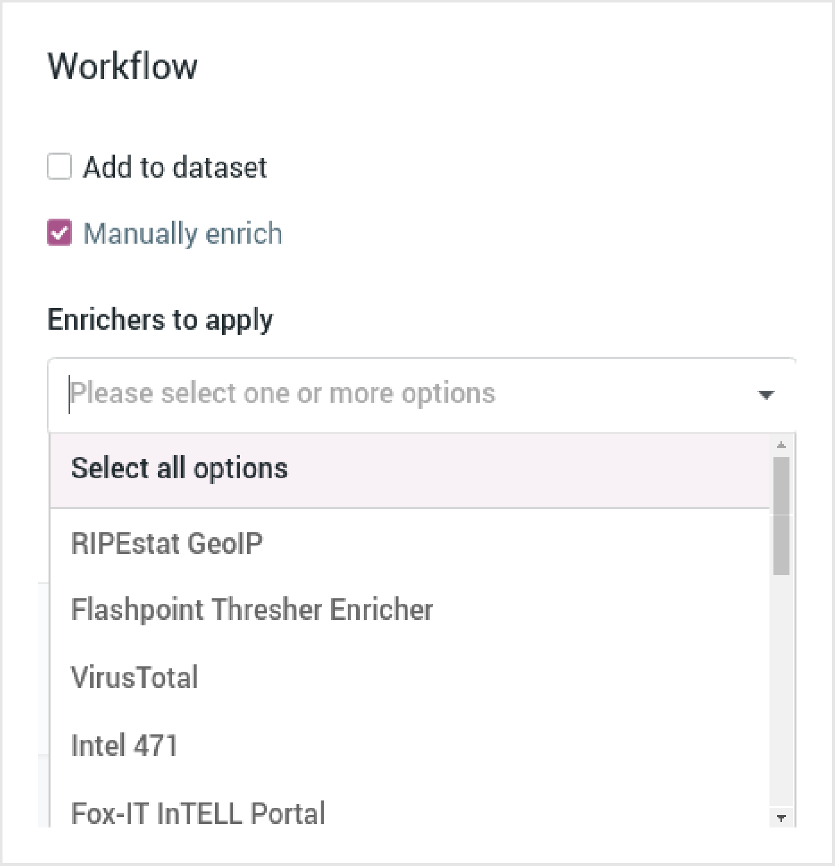
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

Please select one or more options

Select all options

RIPEstat GeoIP

Flashpoint Thresher Enricher

VirusTotal

Intel 471

Fox-IT InTELL Portal

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

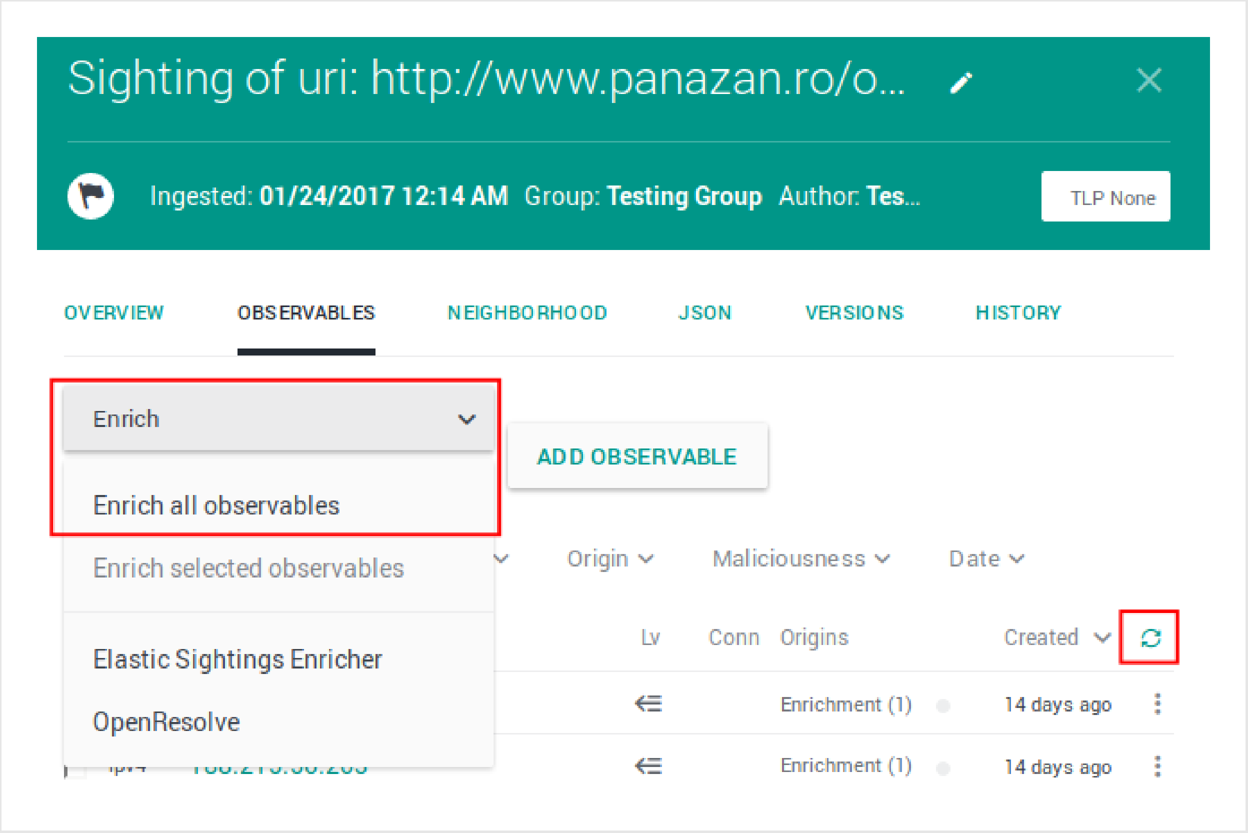
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ⟳ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

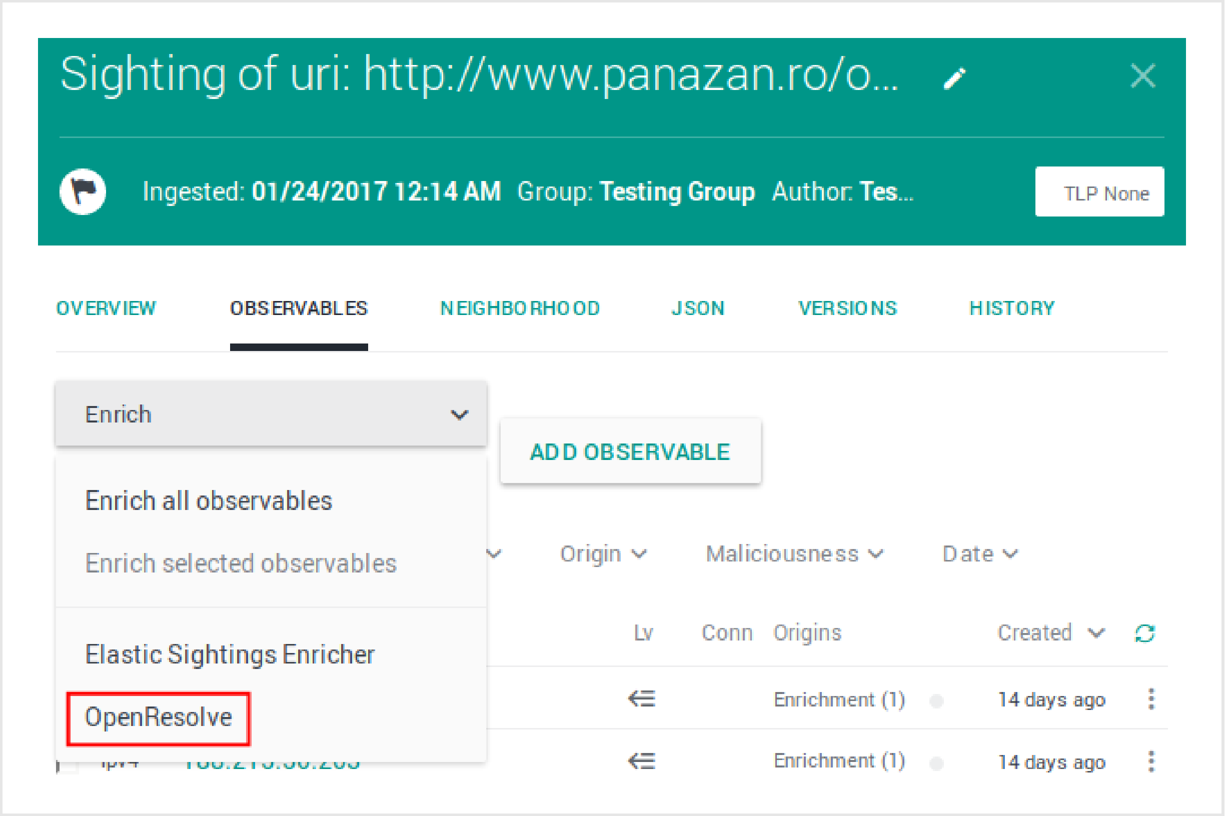


Sighting of uri: http://www.panazan.ro/o...

Ingested: 01/24/2017 12:14 AM Group: Testing Group Author: Tes...

To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.

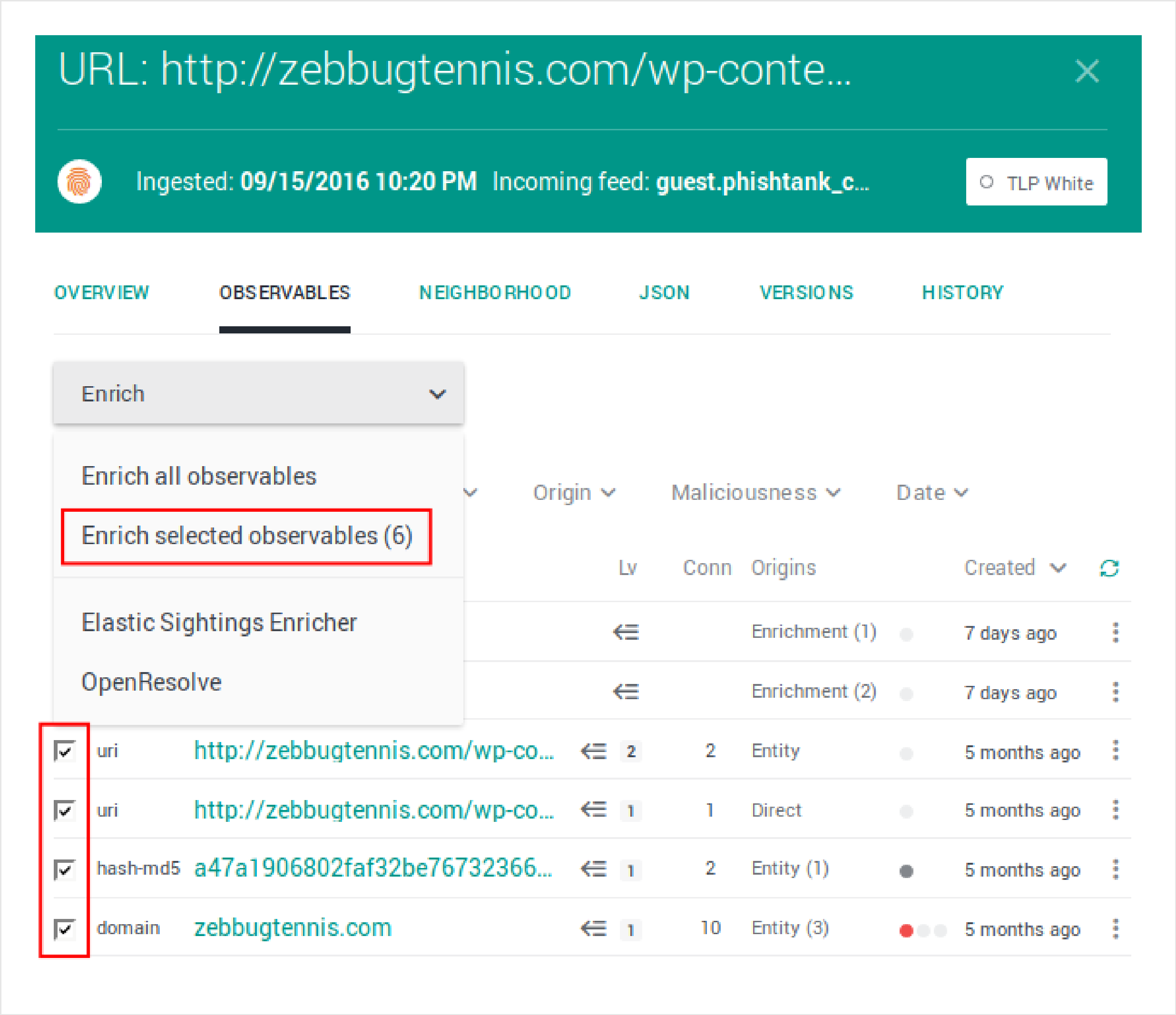


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...
Ingested: 09/15/2016 10:20 PM Incoming feed: guest.phishtank_c...
TLP White
OVERVIEW
OBSERVABLES
NEIGHBORHOOD
JSON
VERSIONS
HISTORY
Enrich
Enrich all observables
Enrich selected observables (6)
Elastic Sightings Enricher
OpenResolve
Origin
Maliciousness
Date

			Lv	Conn	Origins		Created
			⇇		Enrichment (1)	●	7 days ago
			⇇		Enrichment (2)	●	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	⇇ 2	2	Entity	●	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	⇇ 1	1	Direct	●	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	⇇ 1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	⇇ 1	10	Entity (3)	●●●	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

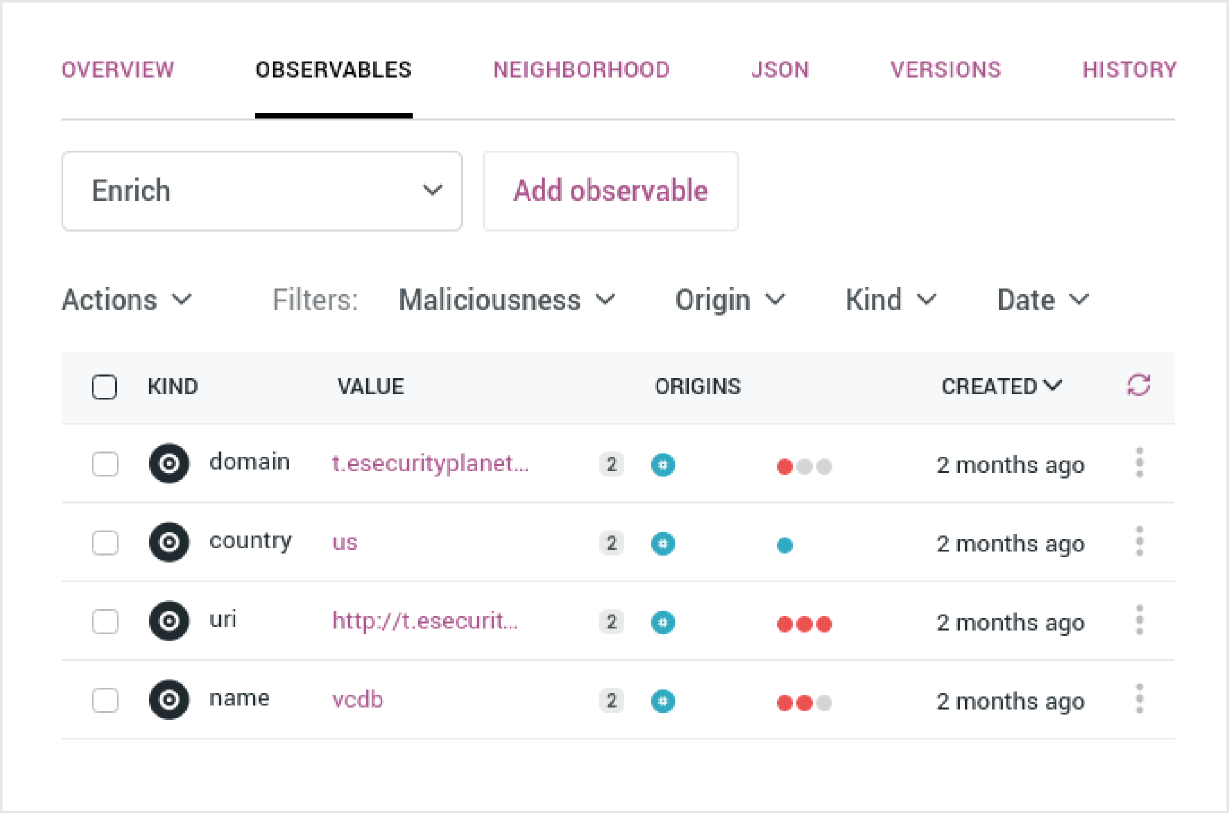
The RIPEstat Whois enricher can take the following observable types as input:

- *ipv4, ipv6*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with RIPEstat Whois.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

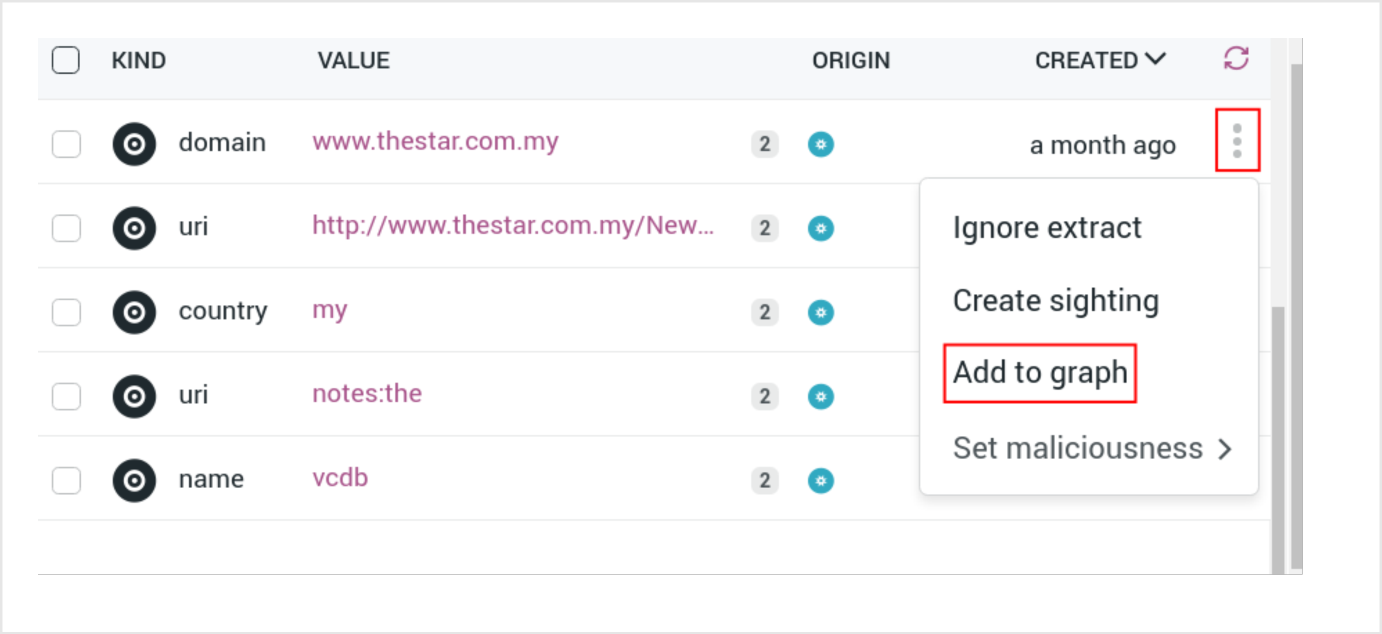


☐	KIND	VALUE	ORIGINS			CREATED
☐	domain	t.esecurityplanet...	2	●	●●●	2 months ago
☐	country	us	2	●	●	2 months ago
☐	uri	http://t.esecurit...	2	●	●●●	2 months ago
☐	name	vcdb	2	●	●●●	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

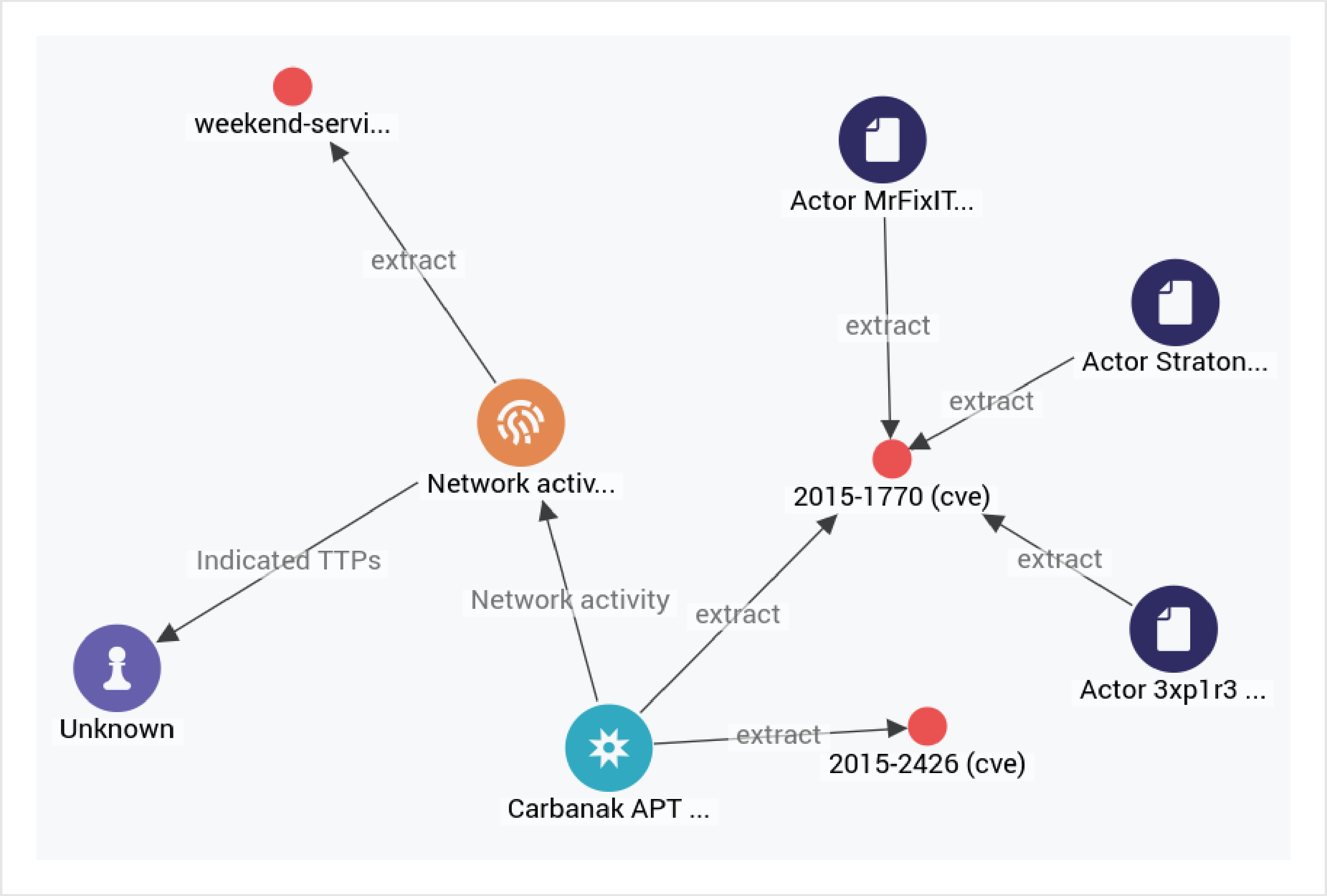
- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.



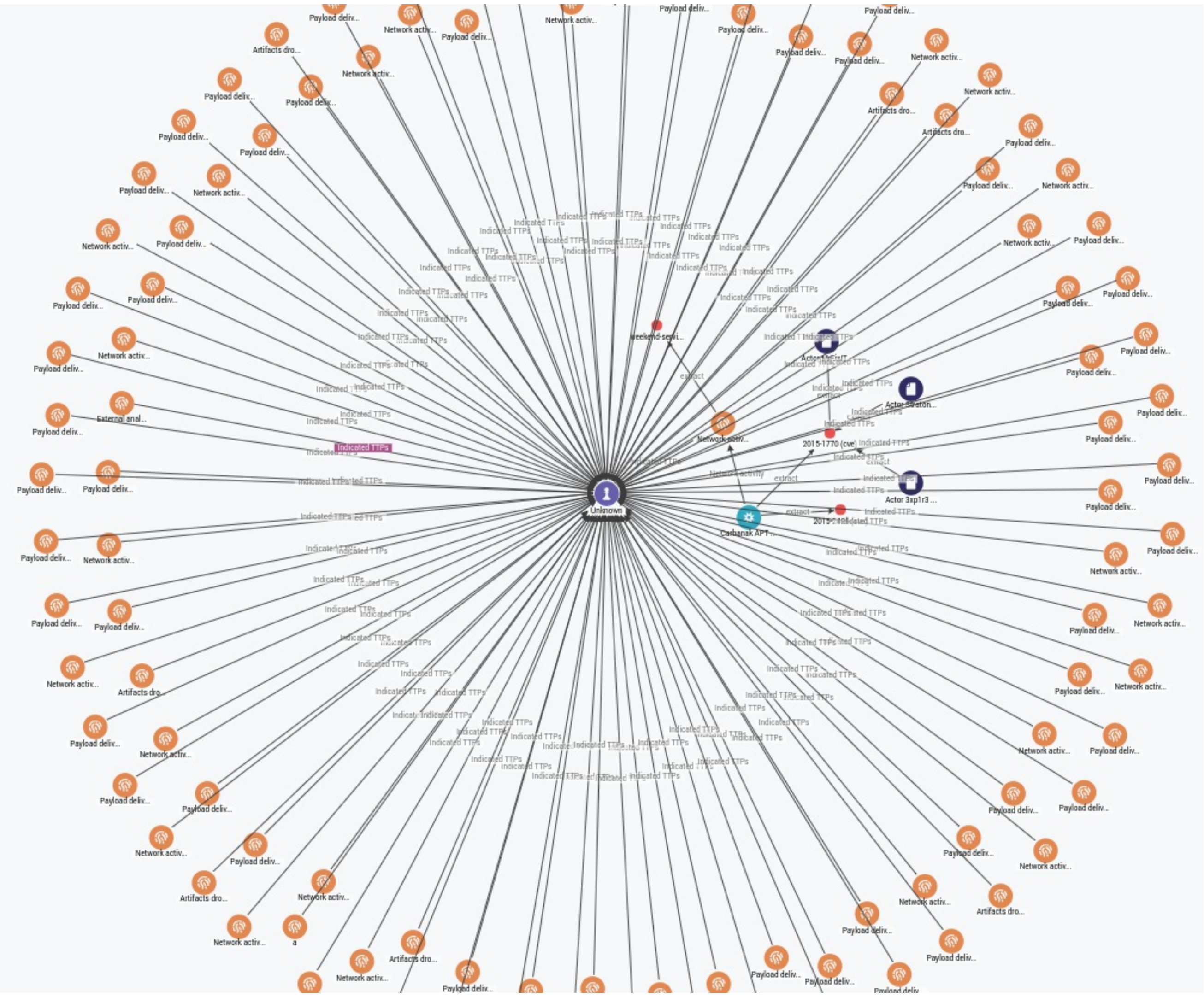
☐	KIND	VALUE	ORIGIN		CREATED
☐	domain	www.thestar.com.my	2	●	a month ago
☐	uri	http://www.thestar.com.my/New...	2	●	
☐	country	my	2	●	
☐	uri	notes:the	2	●	
☐	name	vcdb	2	●	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

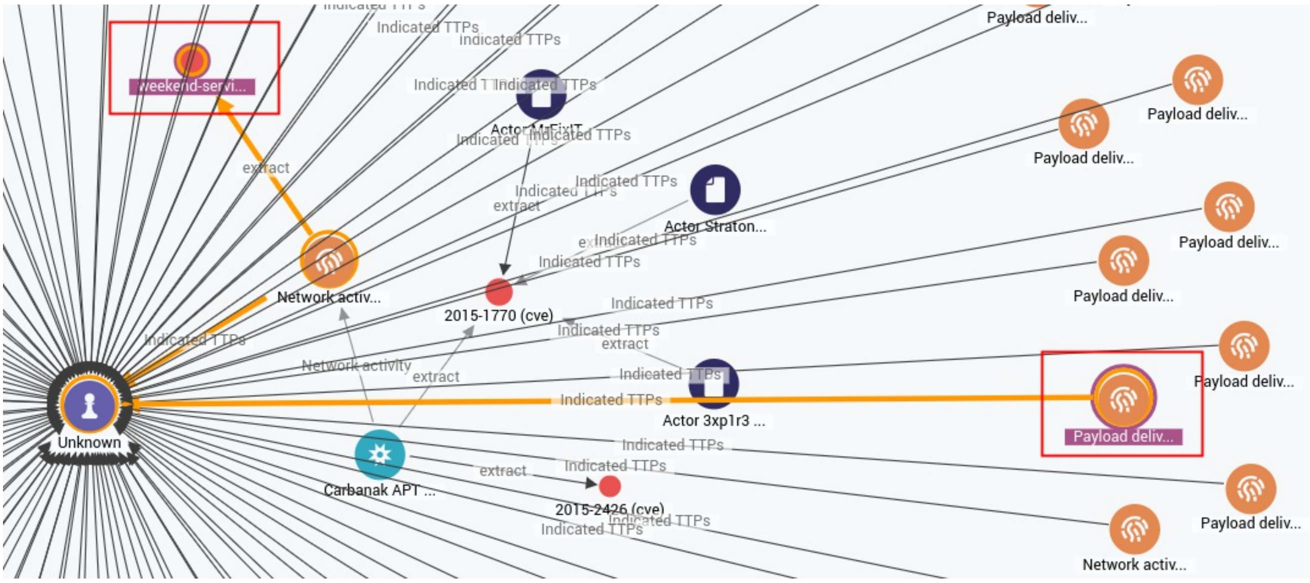


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



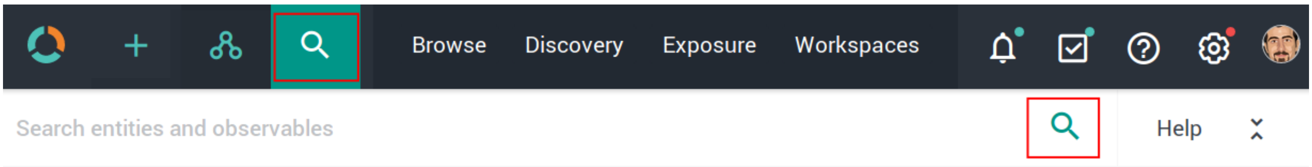
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

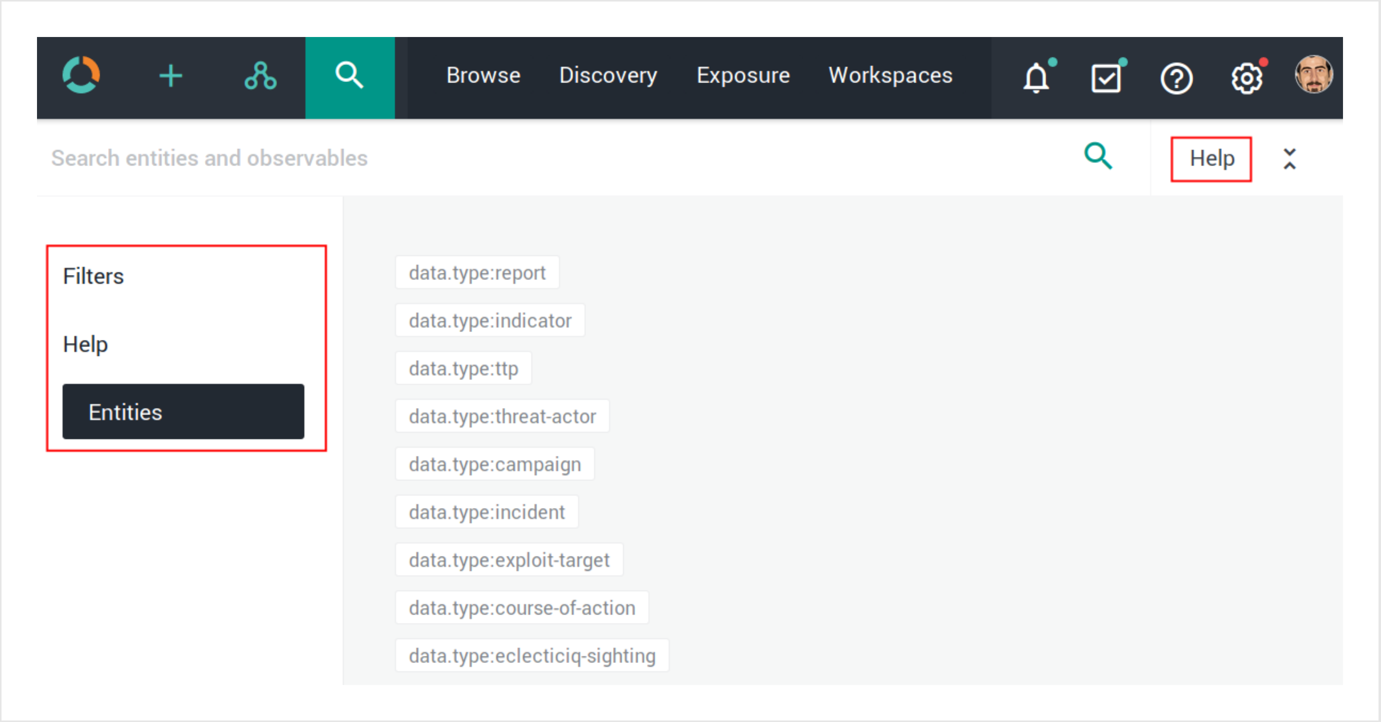


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

> The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

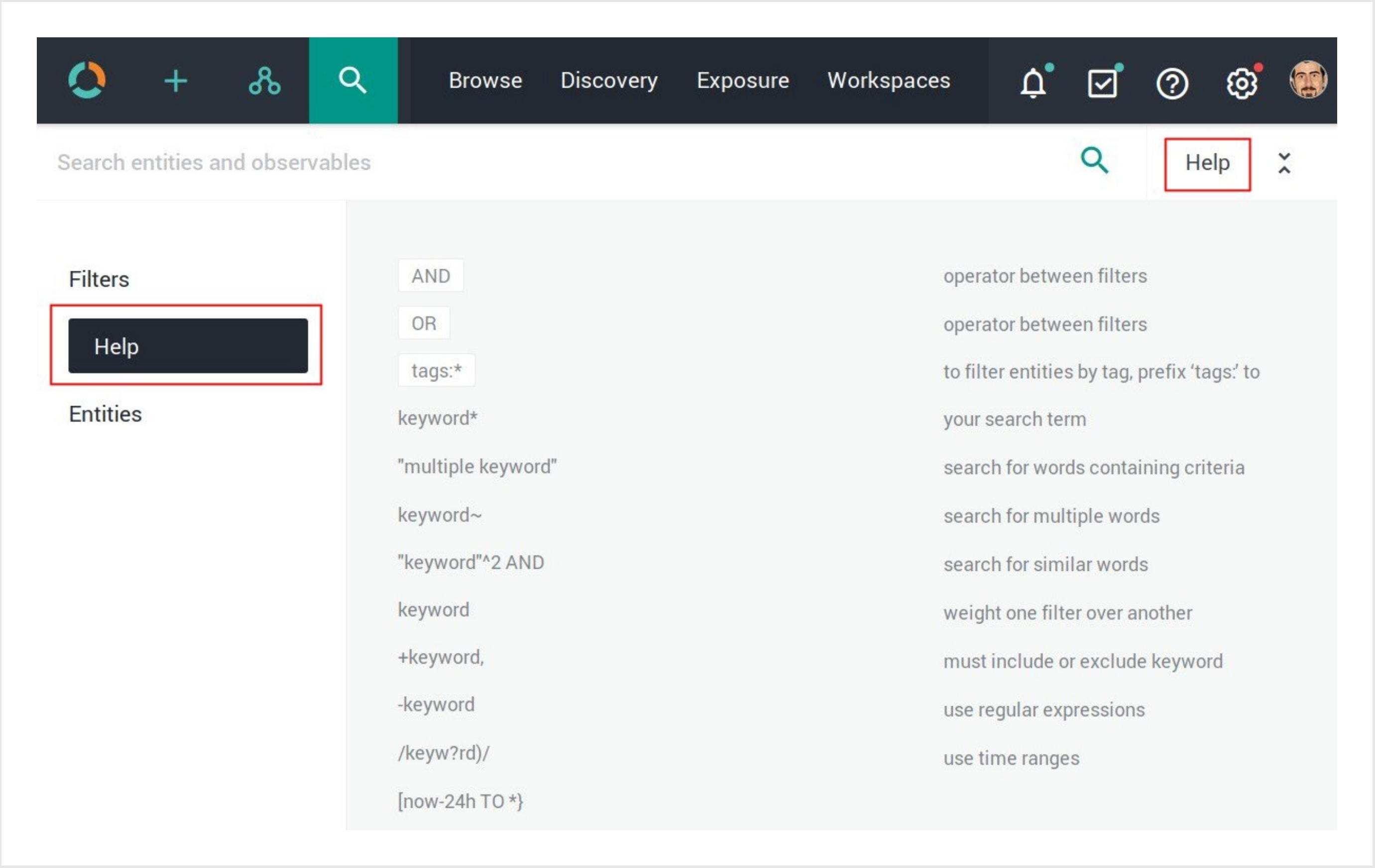
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

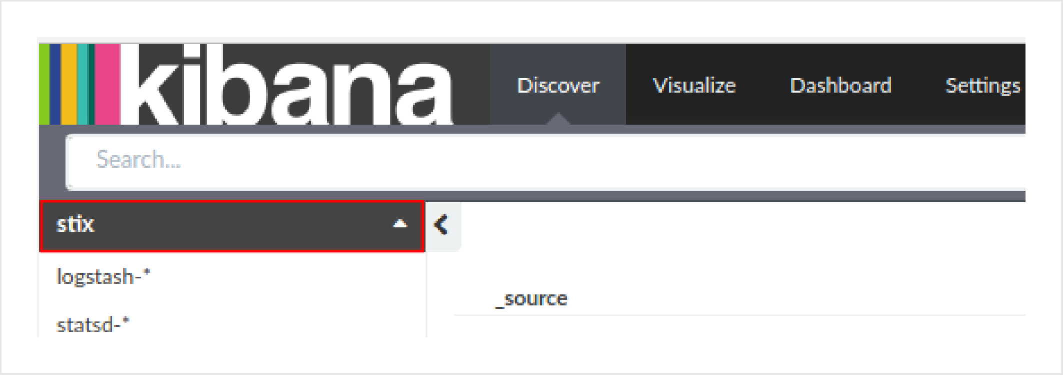
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

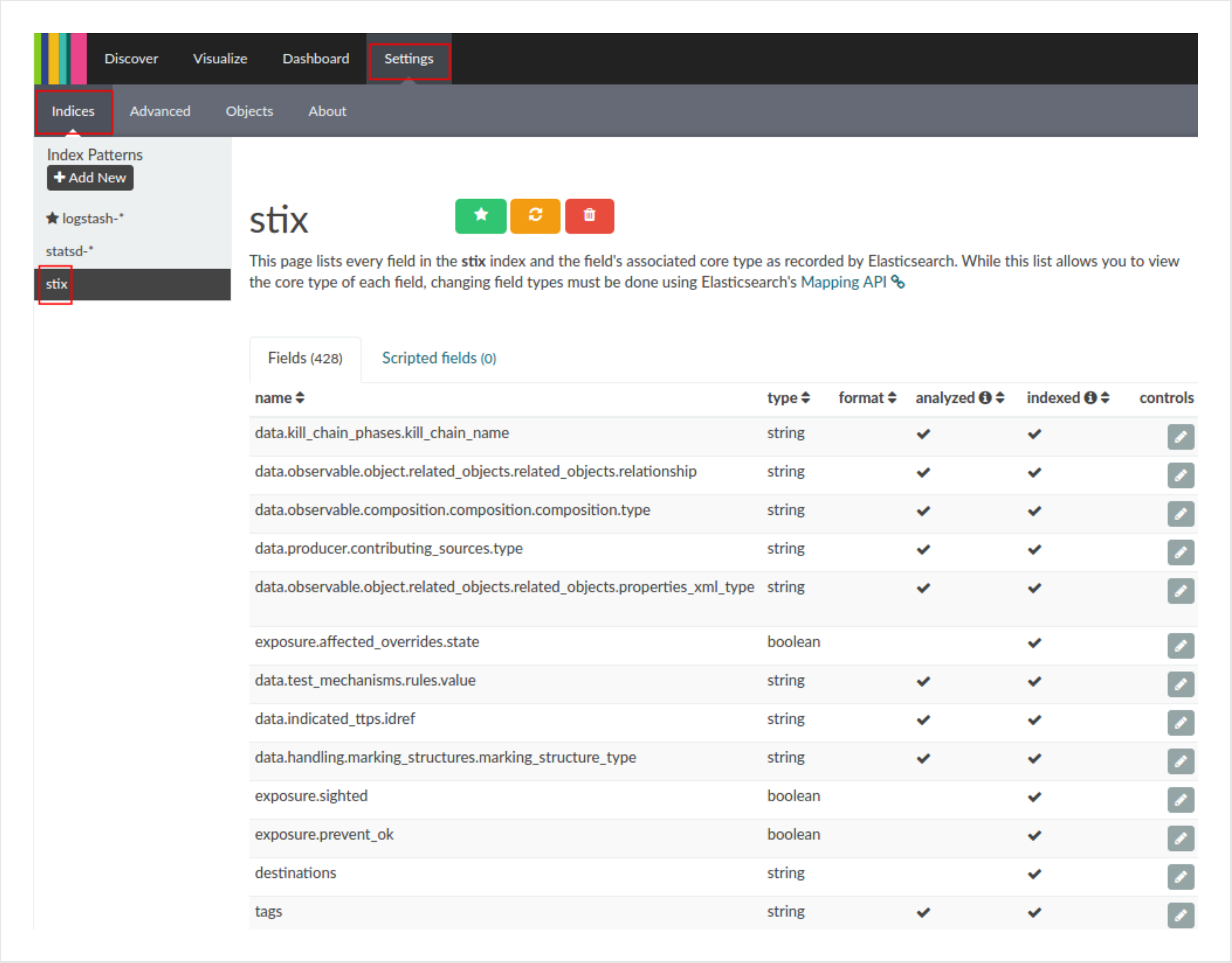
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

Fields (428) Scripted fields (0)

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

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How to work with the ThreatCrowd enricher

The ThreatCrowd enricher returns suspicious and potentially malicious domains, IP addreses, email addresses, file hashes, and antivirus detections, so that you can explore relationships between events, actors, and targets.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the ThreatCrowd enricher

This article describes how to configure the ThreatCrowd enricher parameters.
To configure the general options for the ThreatCrowd enricher, see Configure enrichers.

ThreatCrowd	**enricher**
Enricher name	ThreatCrowd
API endpoint	`https://www.threatcrowd.org/{}`
Input	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Output	Enriches the supported observable types with suspicious and potentially malicious domains, IP addreses, email addresses, file hashes, and antivirus detections.
Description	Returns suspicious and potentially malicious domains, IP addreses, email addresses, file hashes, and antivirus detections, so that you can explore relationships between events, actors, and targets.

Configure the ThreatCrowd enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

> ✔ On the forms, input fields marked with an asterisk are required.

- **Observable types**: select one or more observable types you want to enrich with data retrieved through the enricher. Supported observable types:
  - *domain*
  - *email*
  - *hash-md5*
  - *hash-sha1*
  - *hash-sha256*
  - *hash-sha512*
  - *host*
  - *ipv4*
  - *ipv6*
  - *malware*

Under **Parameters**, define the specific configuration options for the ThreatCrowd enricher:

- **Time last seen**: enter an integer to set a starting point in the past to retrieve matches from. The number indicates the number of days in the past from the current time.
  Default value: *365* (each time the enricher runs, it looks for matches up to one year old)
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

> ✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click ✚ **Add** or ✚ **More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

> ✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

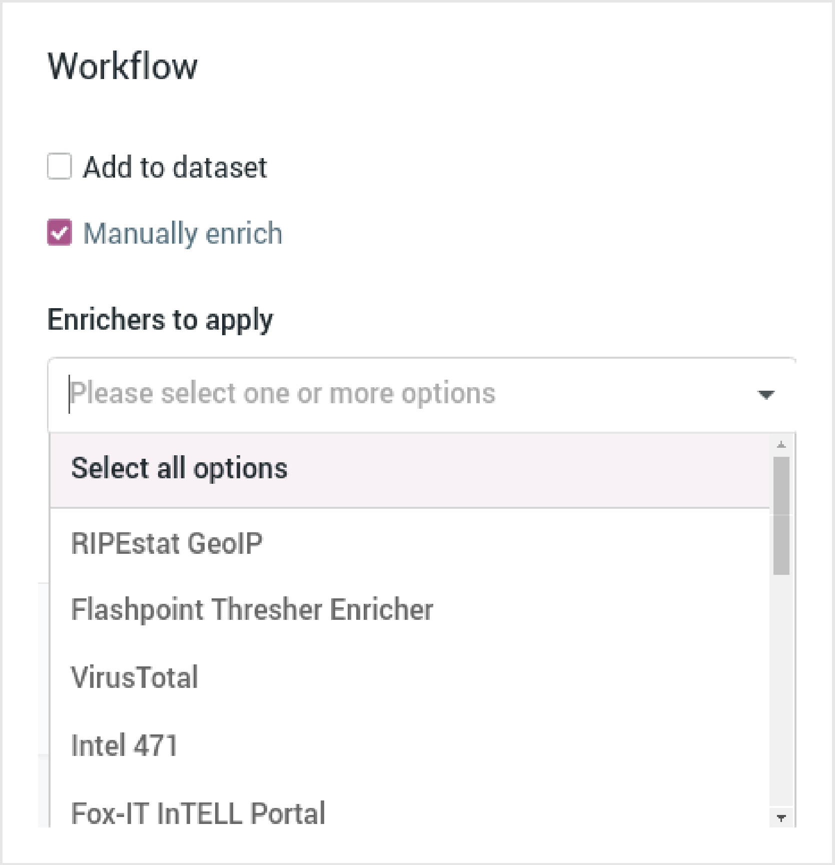
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

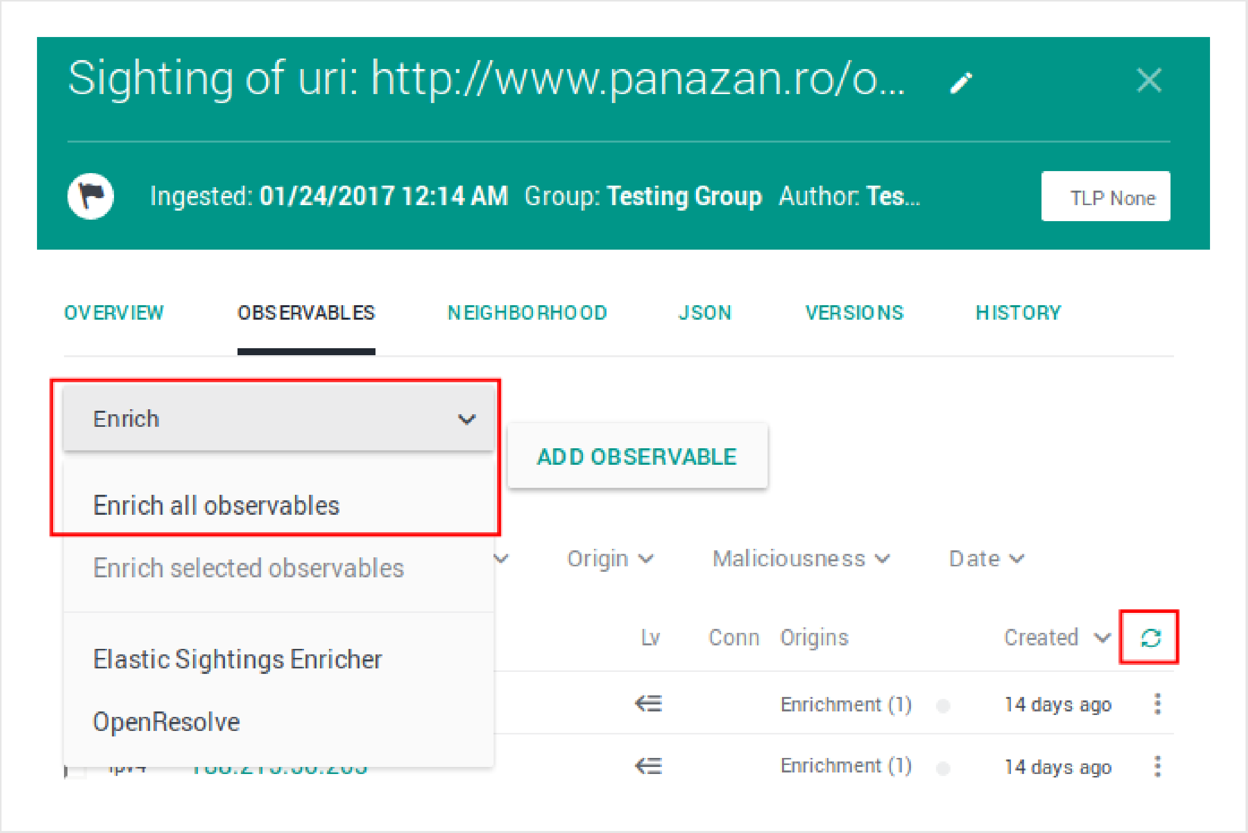
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ⟳ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

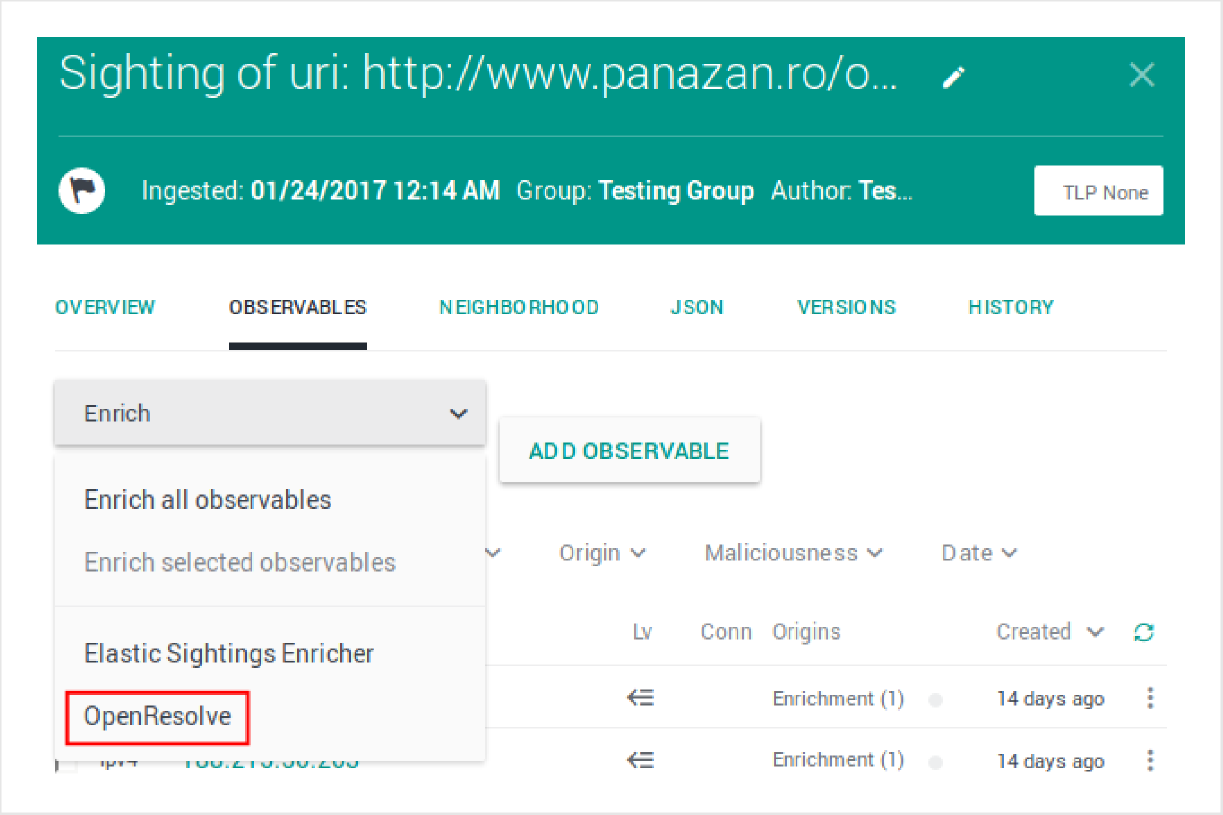
Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.



To poll a specific enricher:

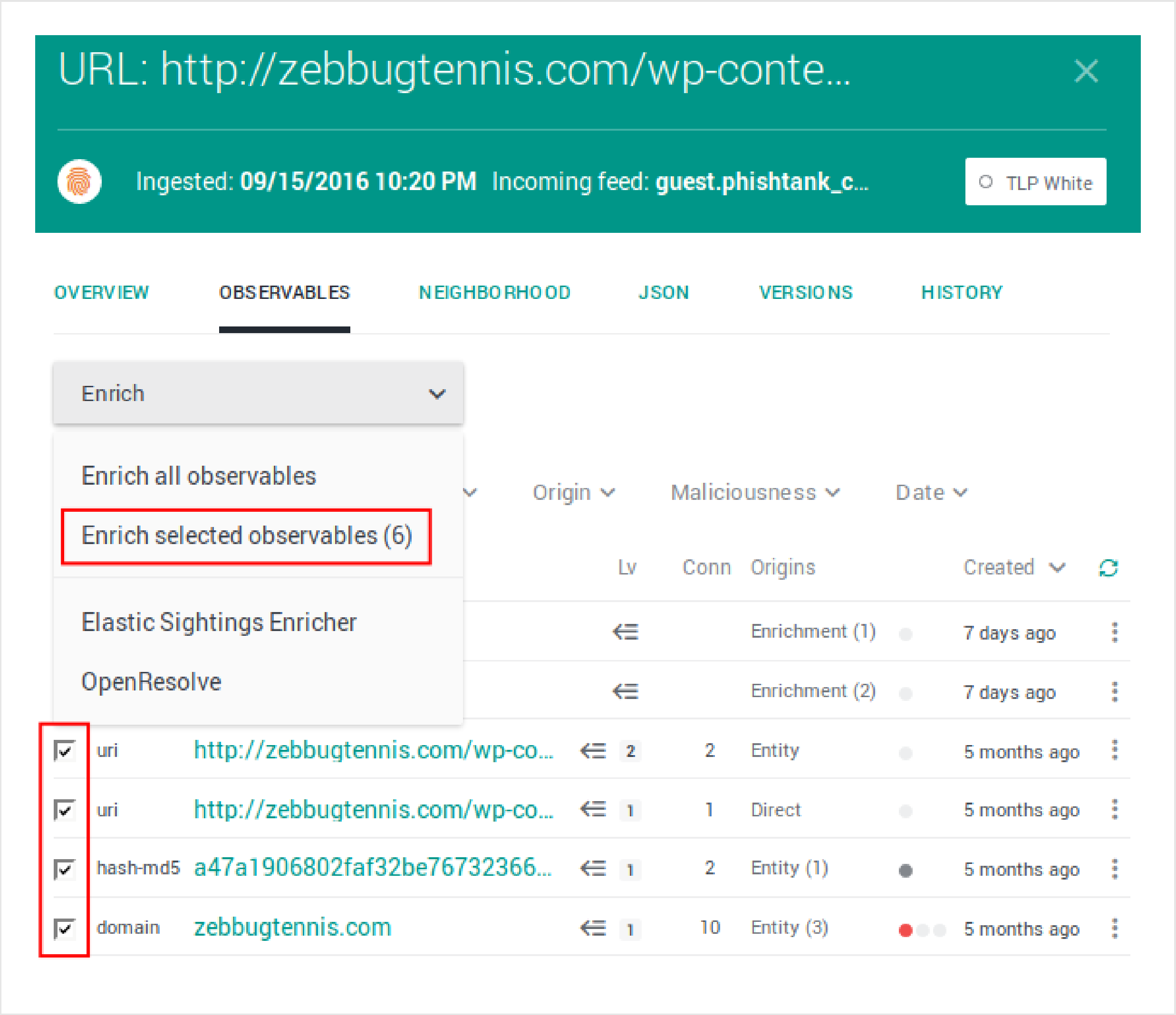
- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.

- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...

Ingested: **09/15/2016 10:20 PM** Incoming feed: **guest.phishtank_c...**

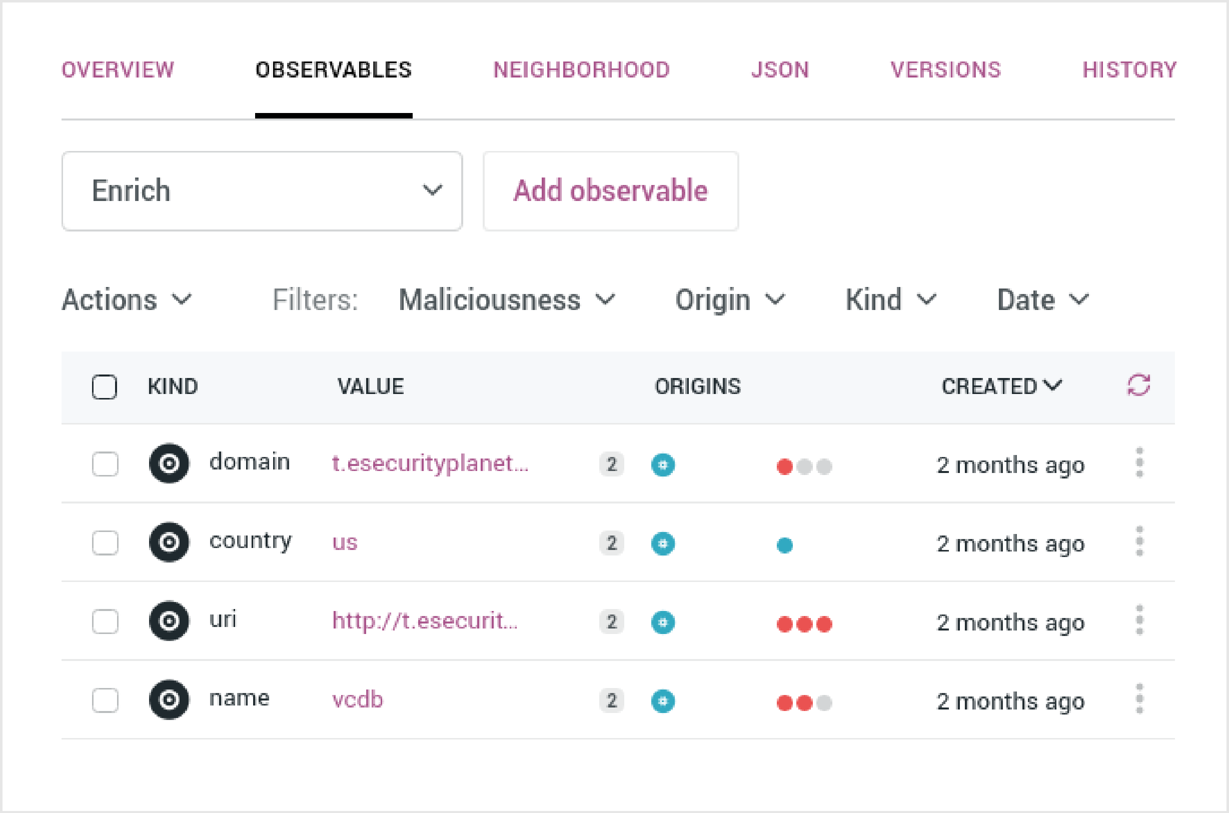
			Lv	Conn	Origins	Created
					Enrichment (1)	7 days ago
					Enrichment (2)	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	2	2	Entity	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	1	1	Direct	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	1	2	Entity (1)	5 months ago
☑	domain	zebbugtennis.com	1	10	Entity (3)	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

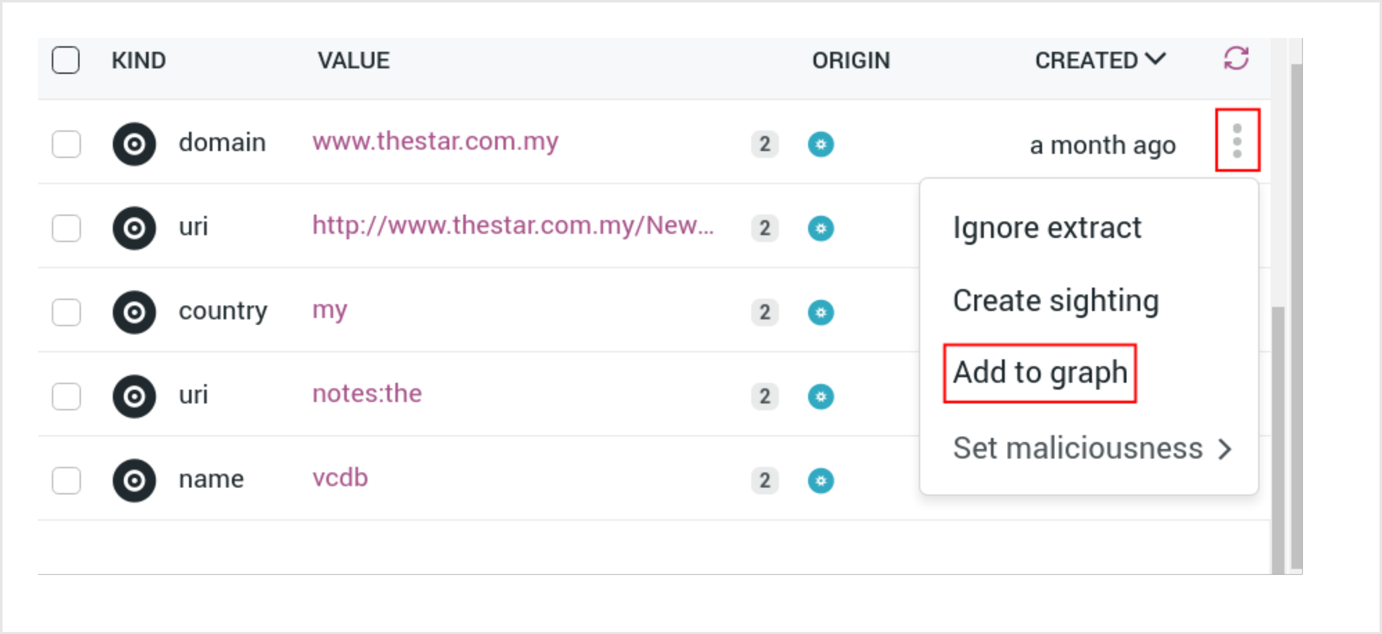


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

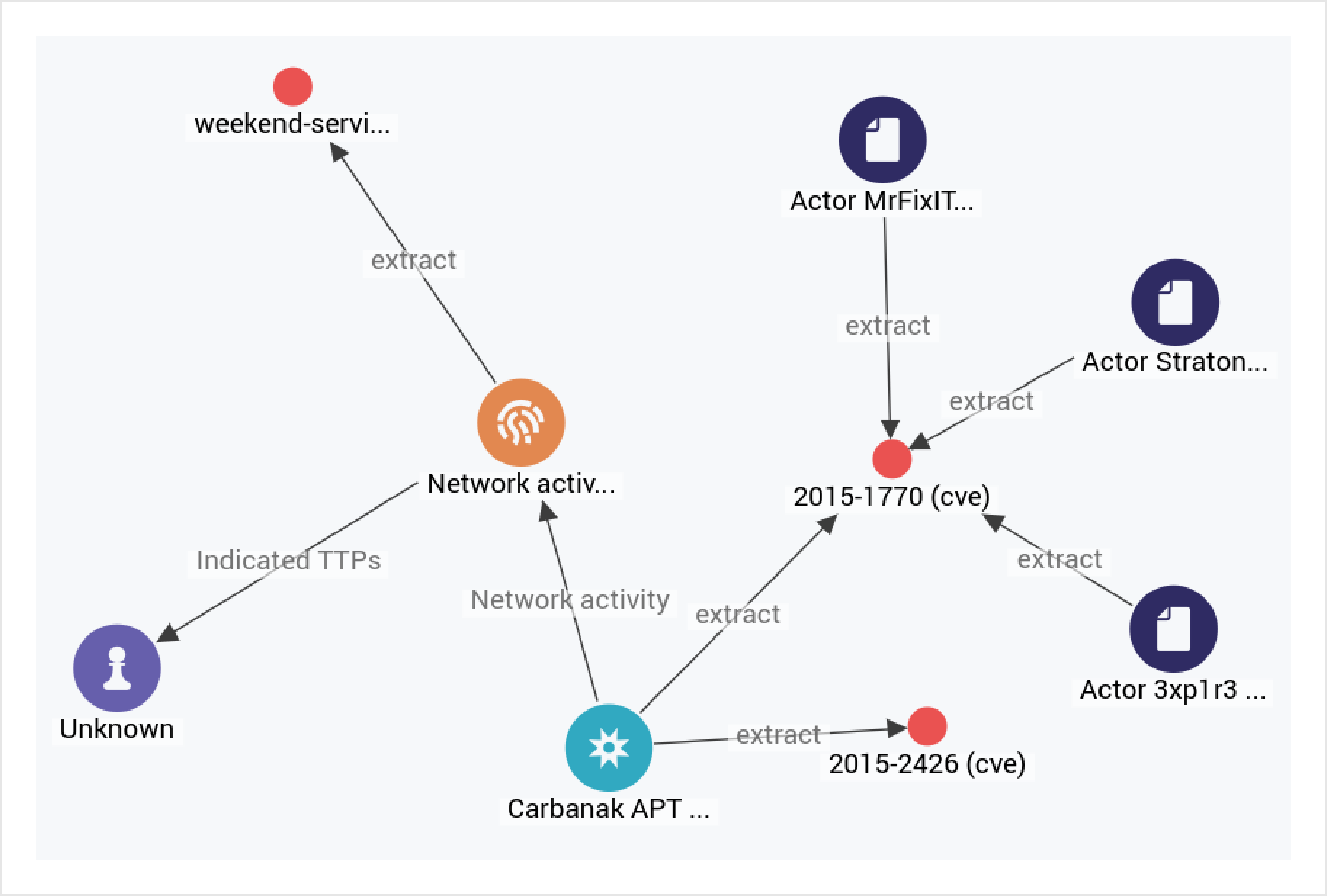
- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.



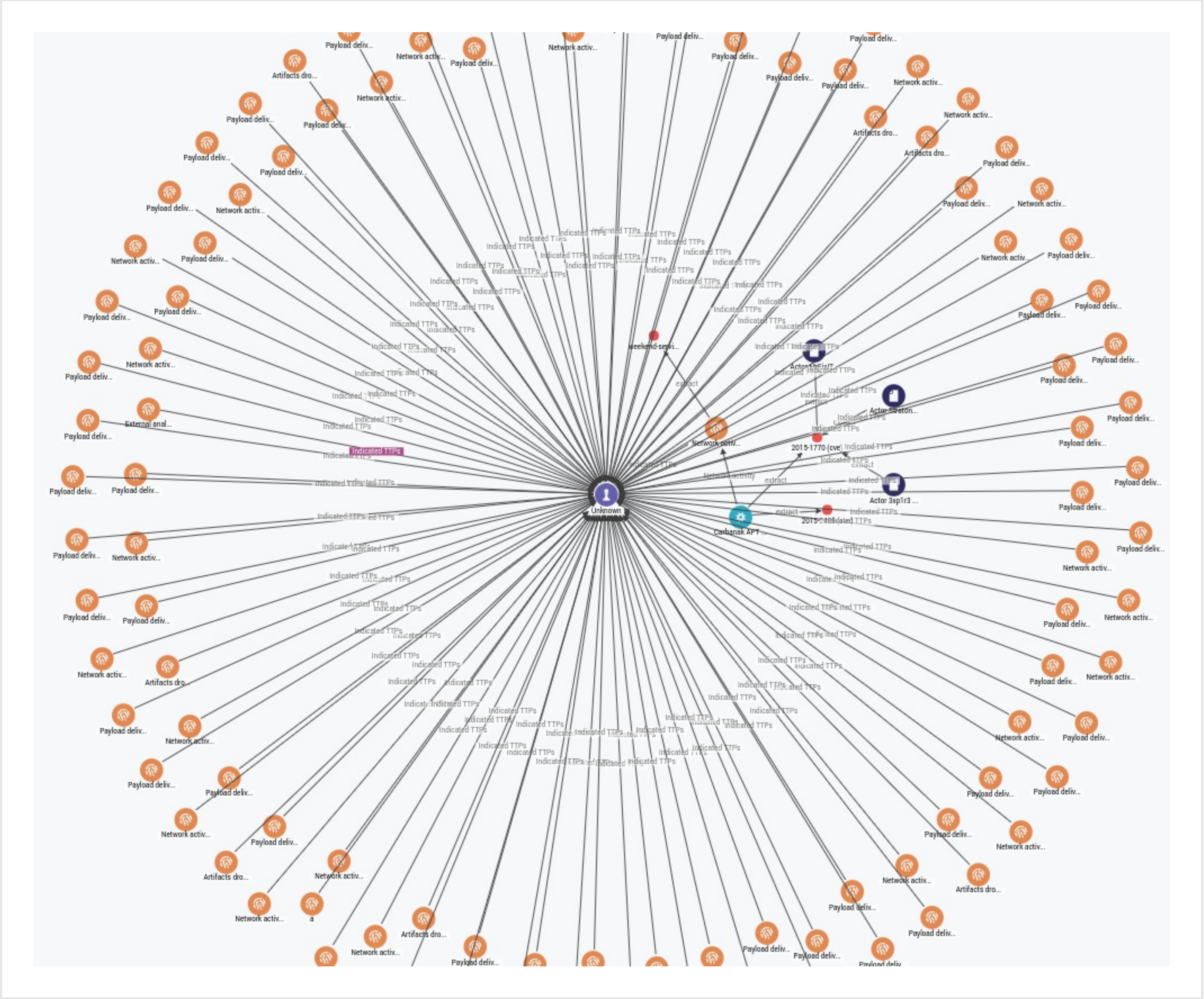
☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	a month ago
☐	uri	http://www.thestar.com.my/New...	2	
☐	country	my	2	
☐	uri	notes:the	2	
☐	name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All**.

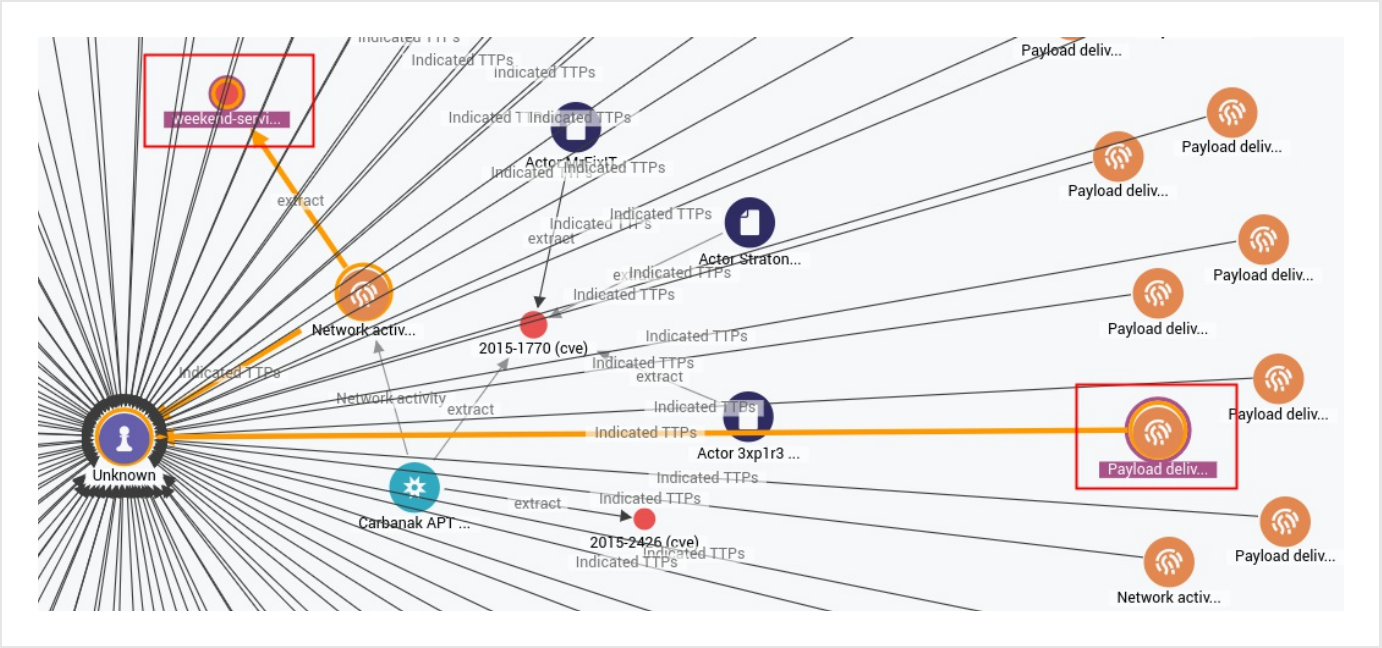


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All**.



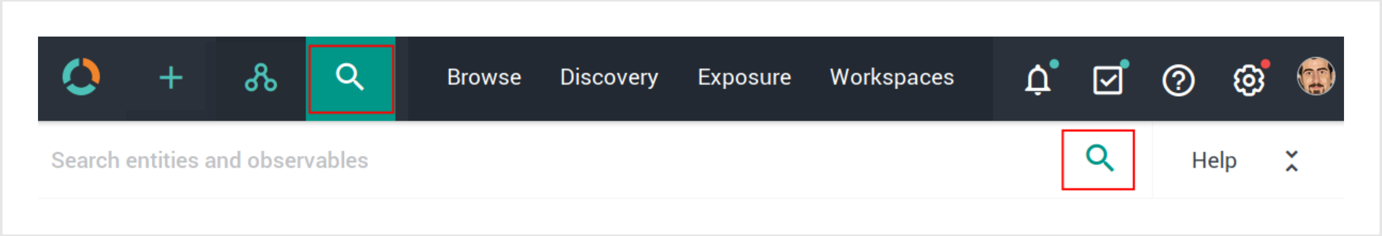
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

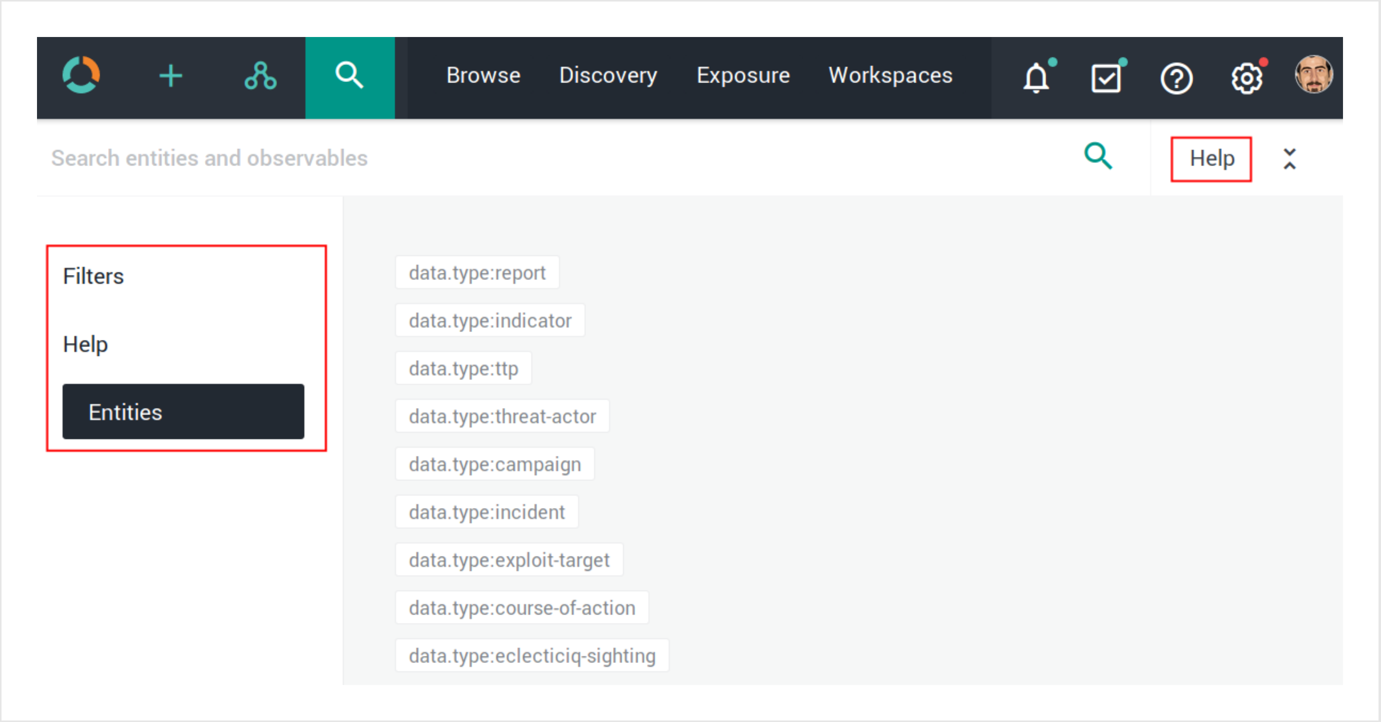


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

> The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

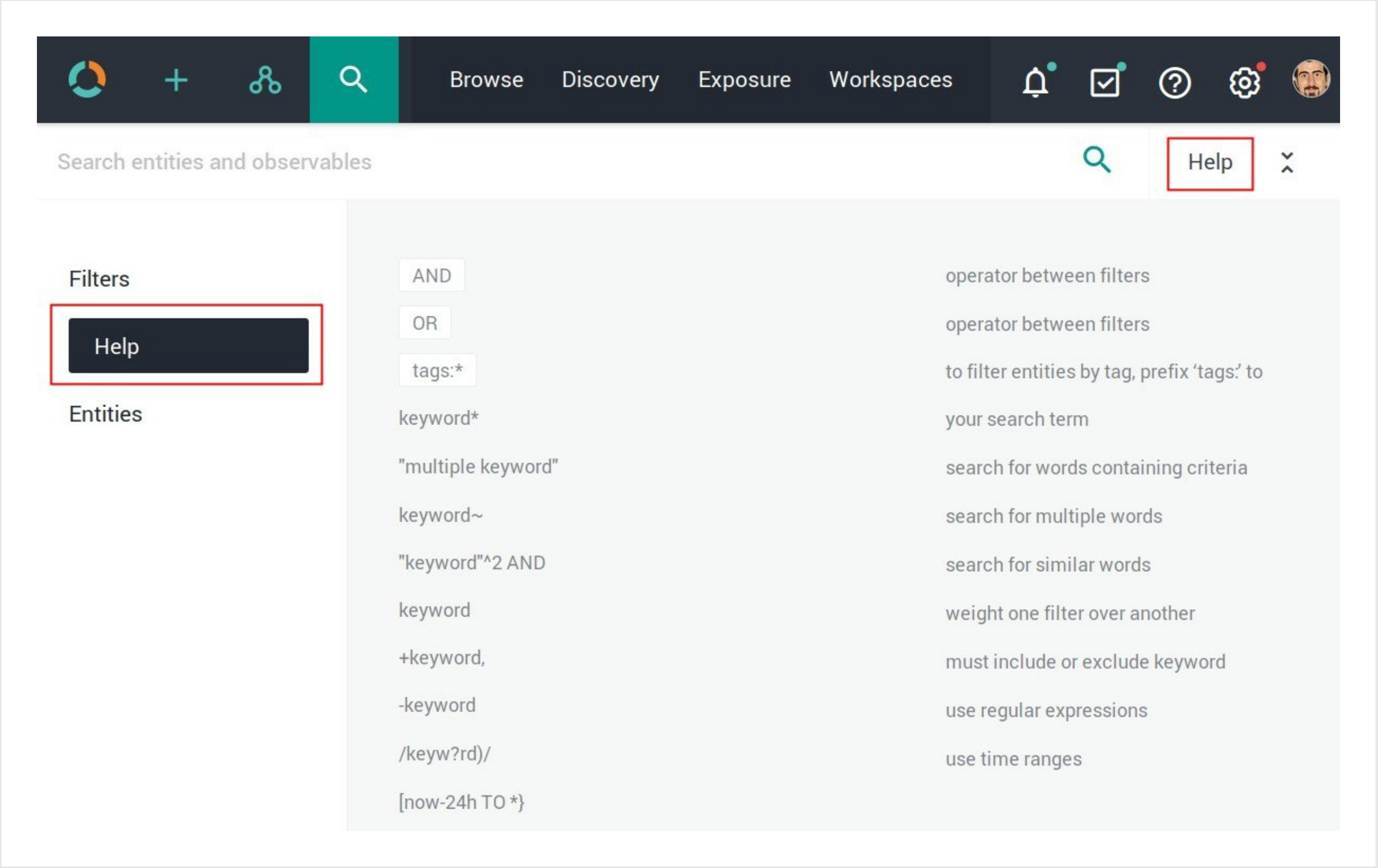
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

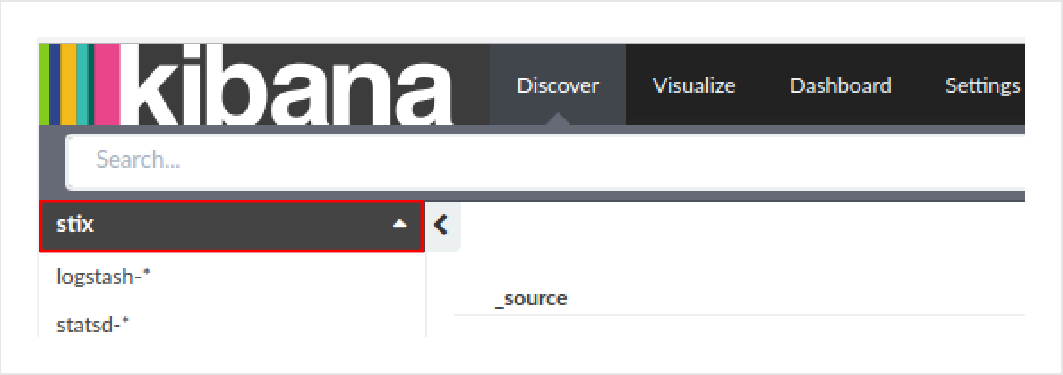
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

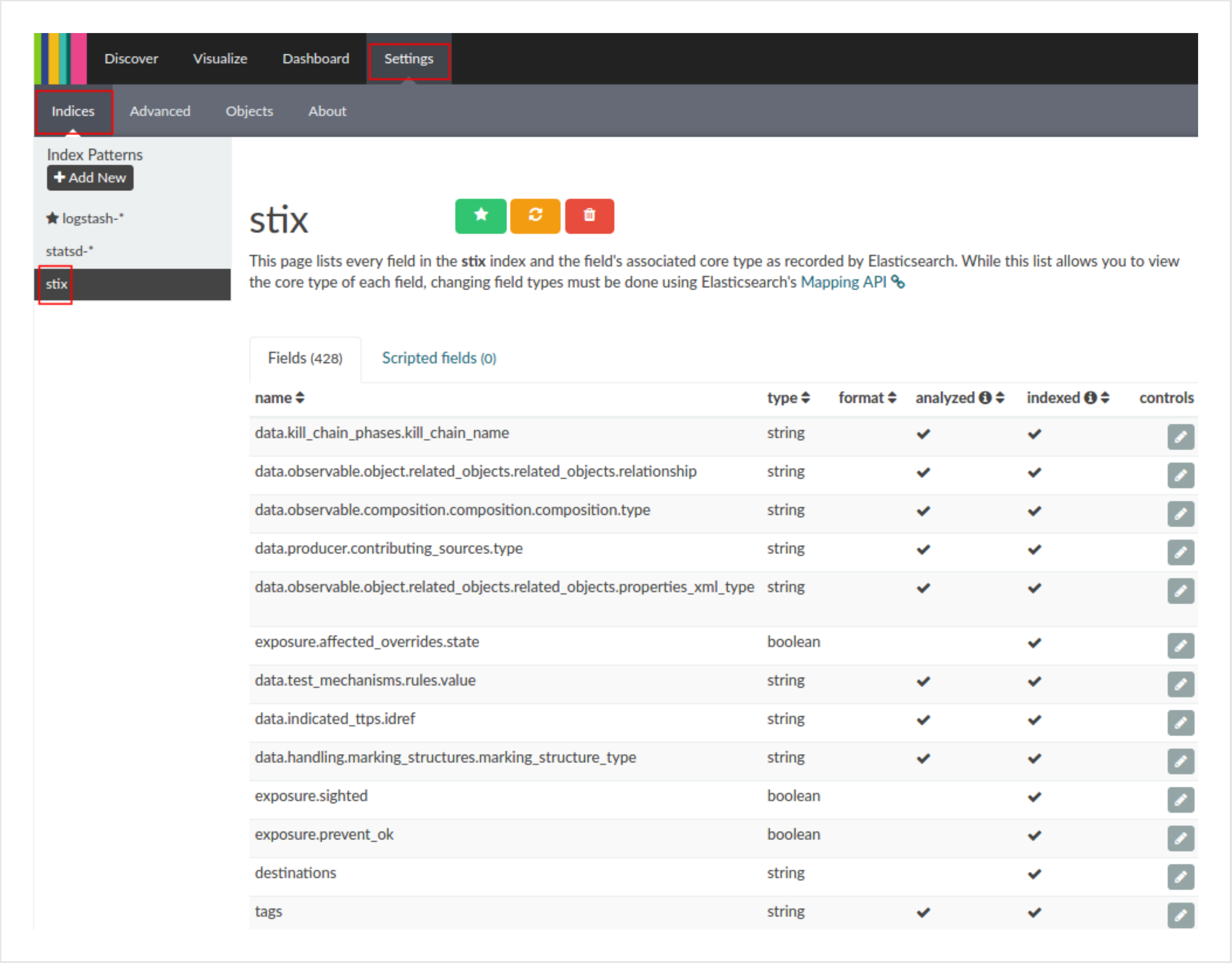
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

Fields (428) Scripted fields (0)

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

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How to work with the ThreatGRID enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the ThreatGRID enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the Cisco Threat Grid enricher

Configure the Cisco Threat Grid enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click **+ > Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✓ On the forms, input fields marked with an asterisk are required.

- **Name**: the name used to identify the enricher. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Cache validity (sec)**: defines for how long enrichment data remains stored in the cache. The value is expressed in seconds.
- **Rate limit (per sec)** : sets the maximum allowed number of requests/executions per second.
- **Monthly execution cap (executions)**: sets a maximum allowed number of requests/executions per month. Together with rate limiting, execution cap helps control data traffic for the enricher; for example, when the API or the service you are connecting to enforces usage limits.

- **Source reliability**: from the drop-down menu select an option to flag the content of the outgoing feed with a predefined reliability value to help other users assess how trustworthy the feed source is.
  Values in this menu have the same meaning as the first character in the **two-character Admiralty System code** `(https://en.wikipedia.org/wiki/admiralty_code).`
  Example: *B - Usually reliable*
- **Enabled**: checkbox. Select the **Enabled** checkbox to enable the enricher task immediately after editing and saving it. If you select the checkbox, the rule is executed automatically. If you deselect it, you need to run the rule manually.
- Under **Parameters**, define the specific configuration options for the selected enricher, where applicable.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **+ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment.**
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

> ✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **+ Add** or **+ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.

- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.

- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP (https://www.us-cert.gov/tlp) provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **✚ Add** or **✚ More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

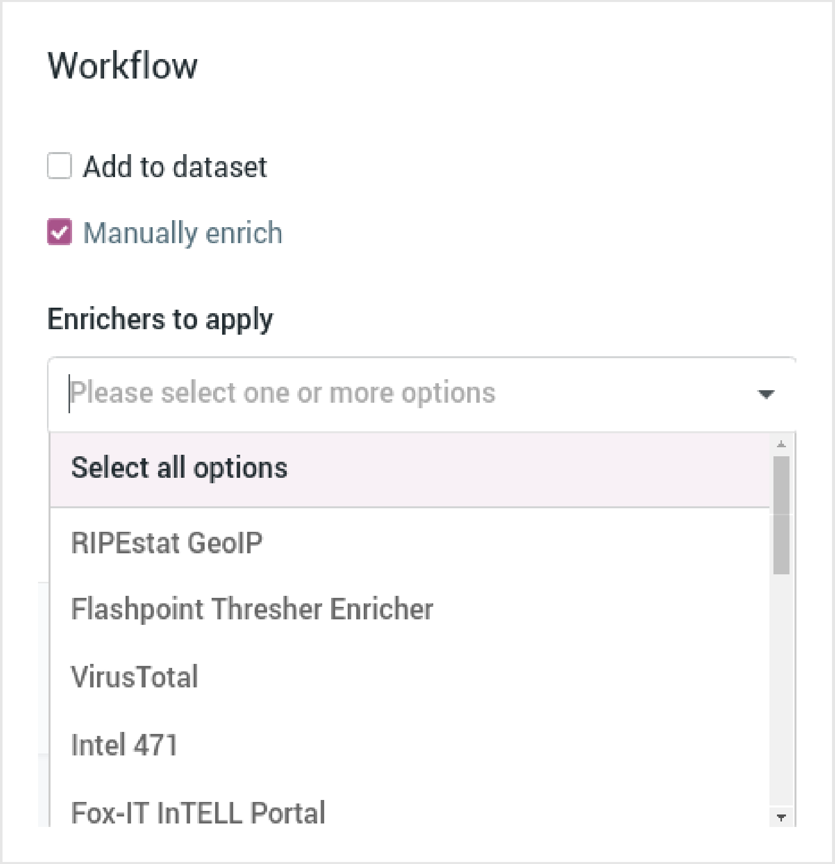
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

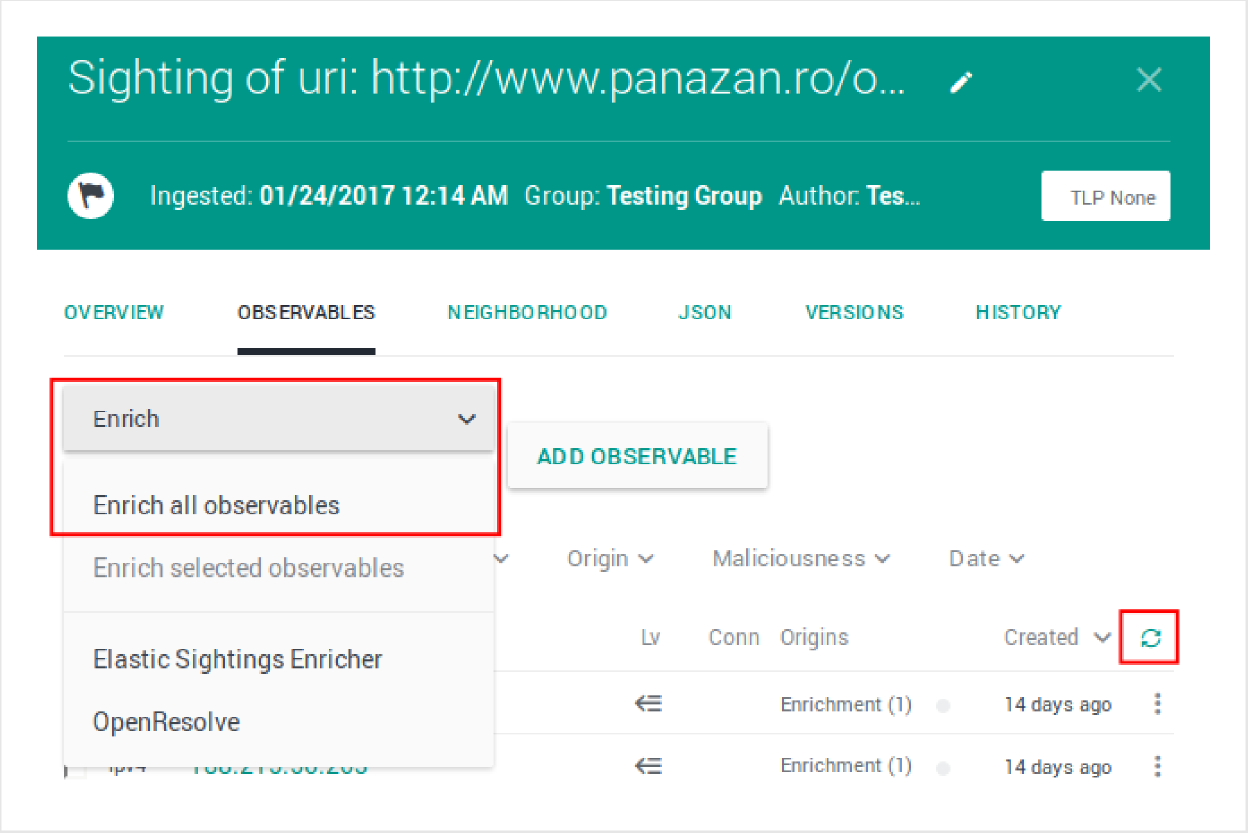
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ⟳ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

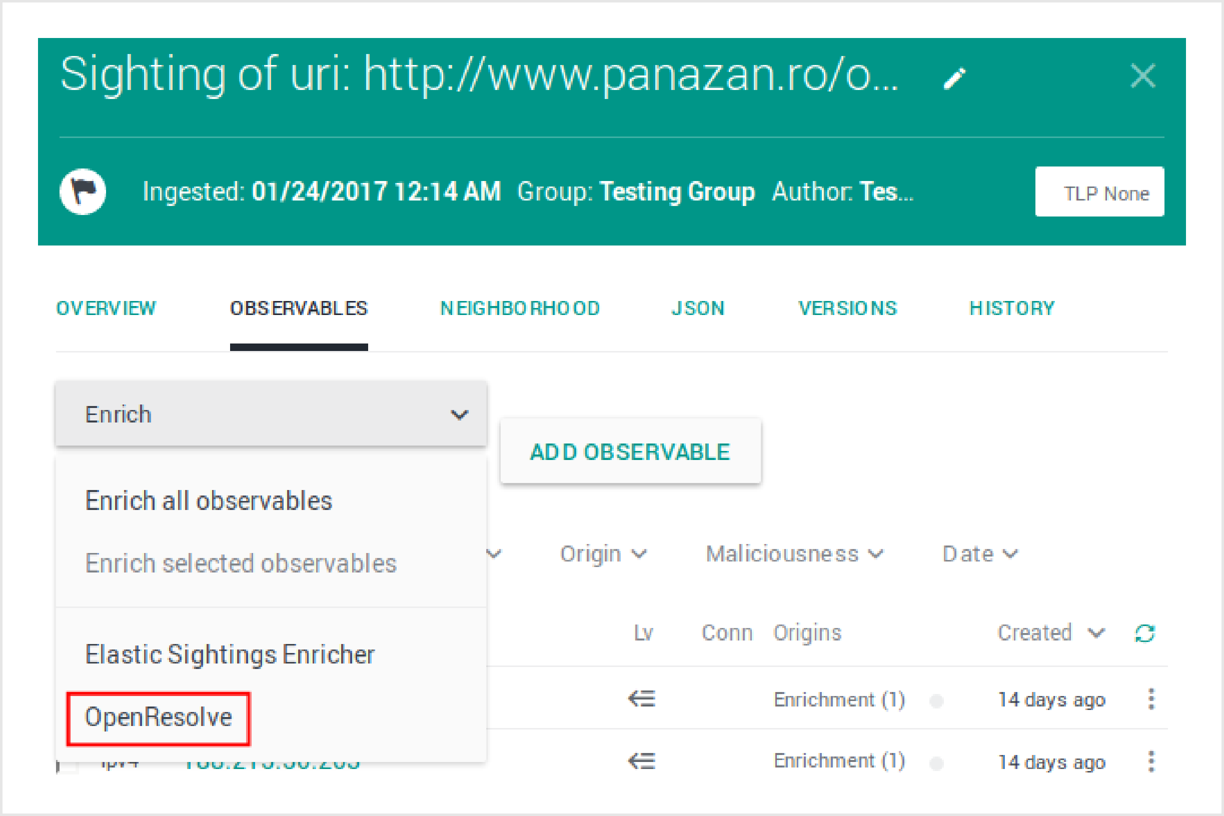


Sighting of uri: http://www.panazan.ro/o...

Ingested: 01/24/2017 12:14 AM Group: Testing Group Author: Tes...

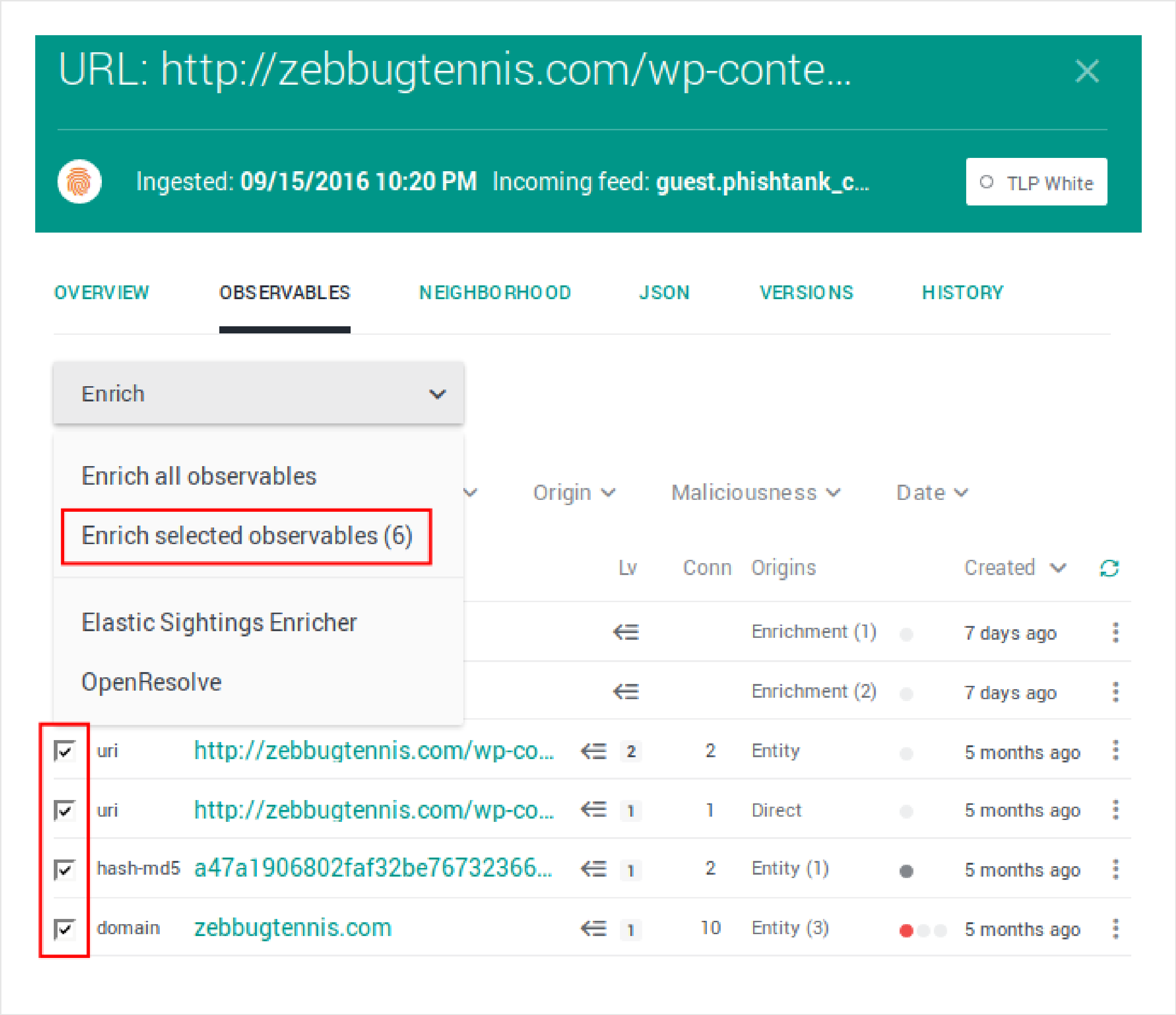
To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.



URL: http://zebbugtennis.com/wp-conte...

Ingested: **09/15/2016 10:20 PM** Incoming feed: **guest.phishtank_c...**

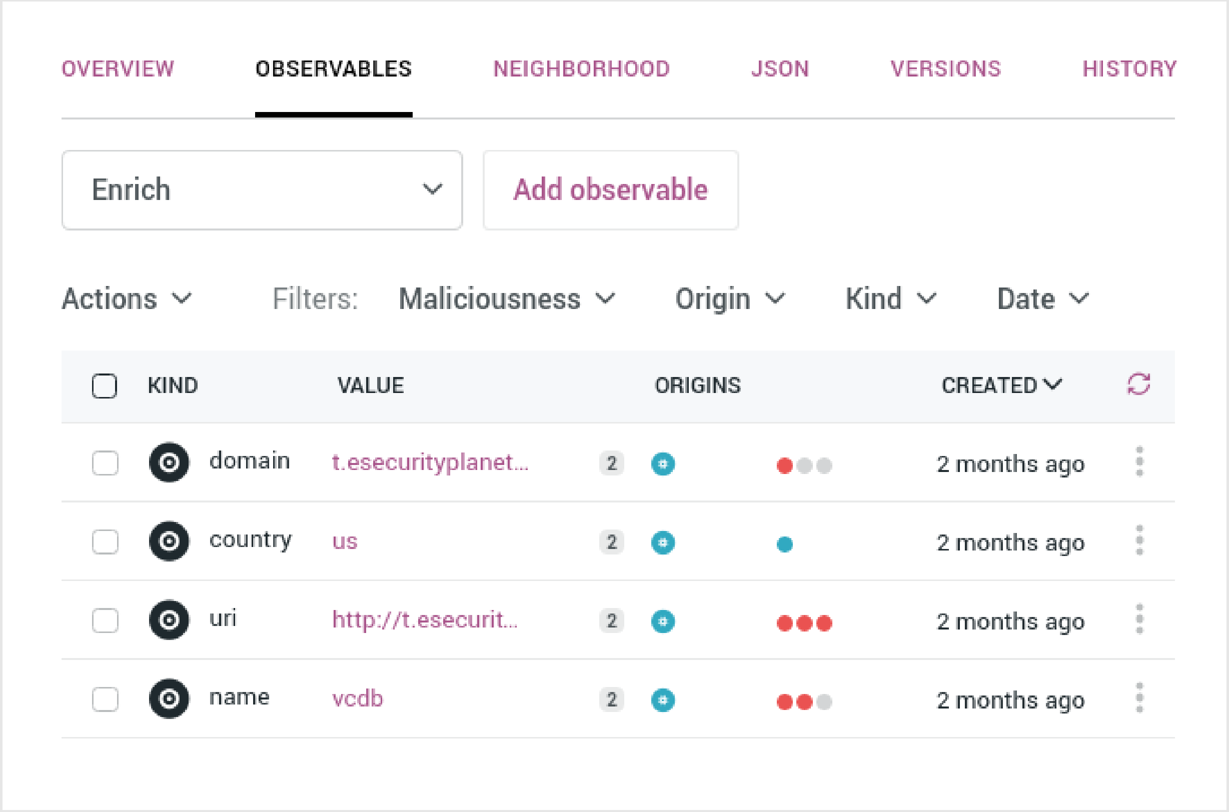
			Lv	Conn	Origins		Created
					Enrichment (1)		7 days ago
					Enrichment (2)		7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	2	2	Entity		5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	1	1	Direct		5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	1	10	Entity (3)	●	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

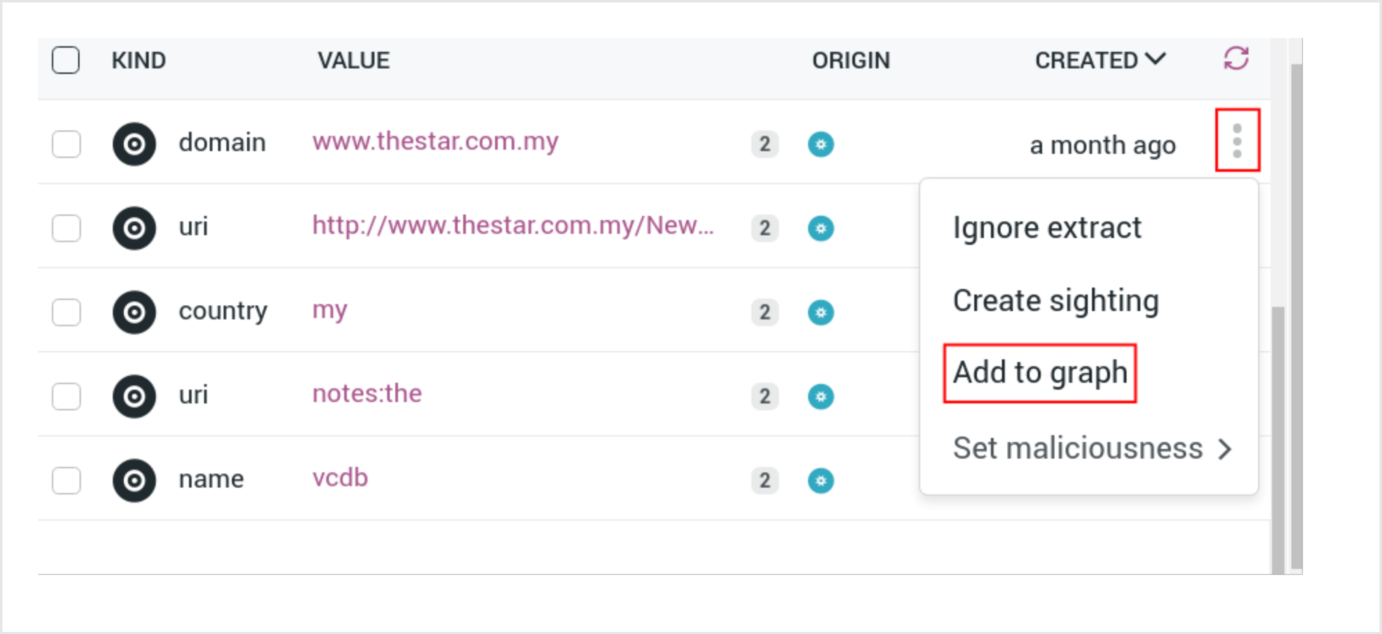


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

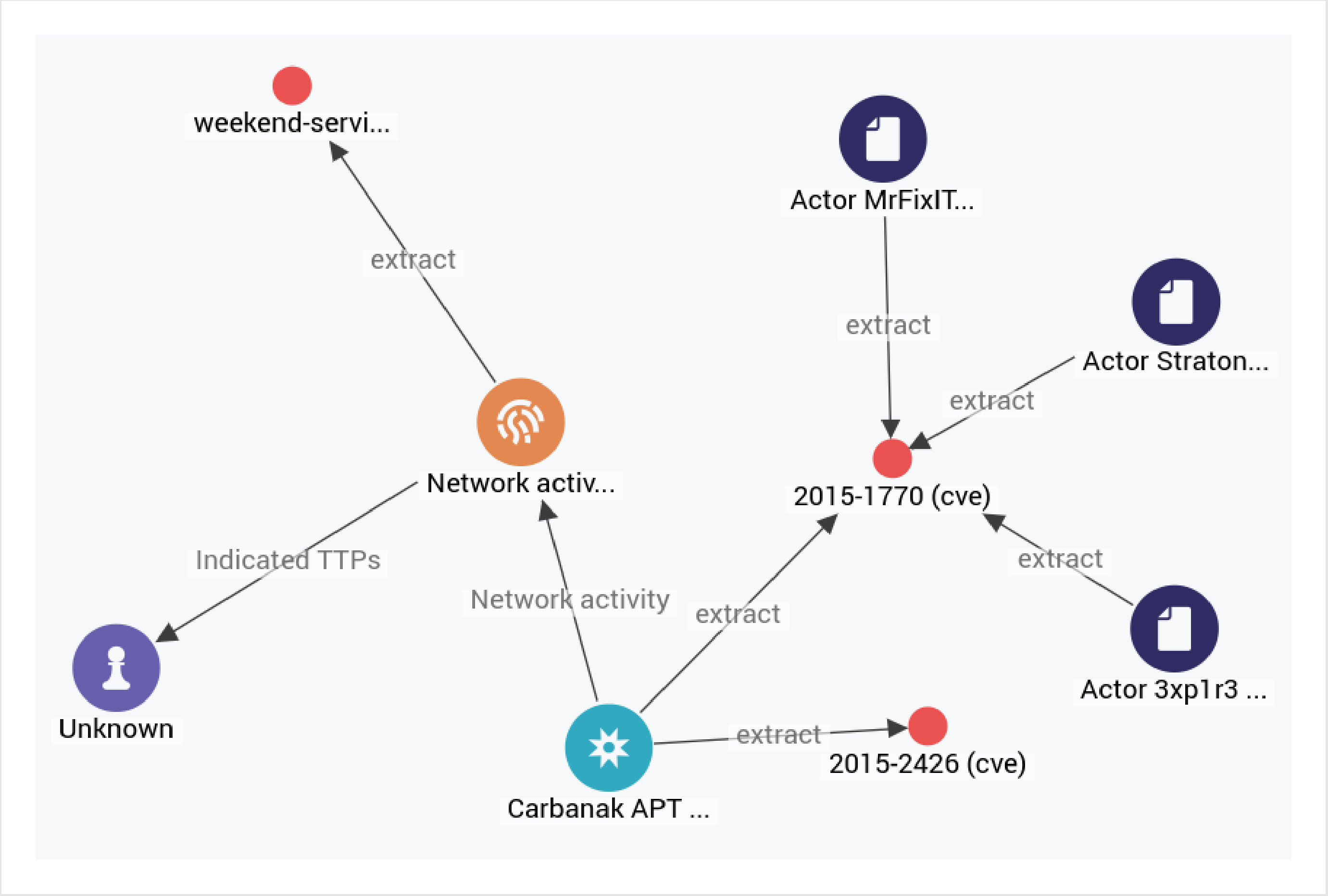
- On the row corresponding to the observable you want to load onto the graph, click the ⁝ icon, and then select **Add to graph**.



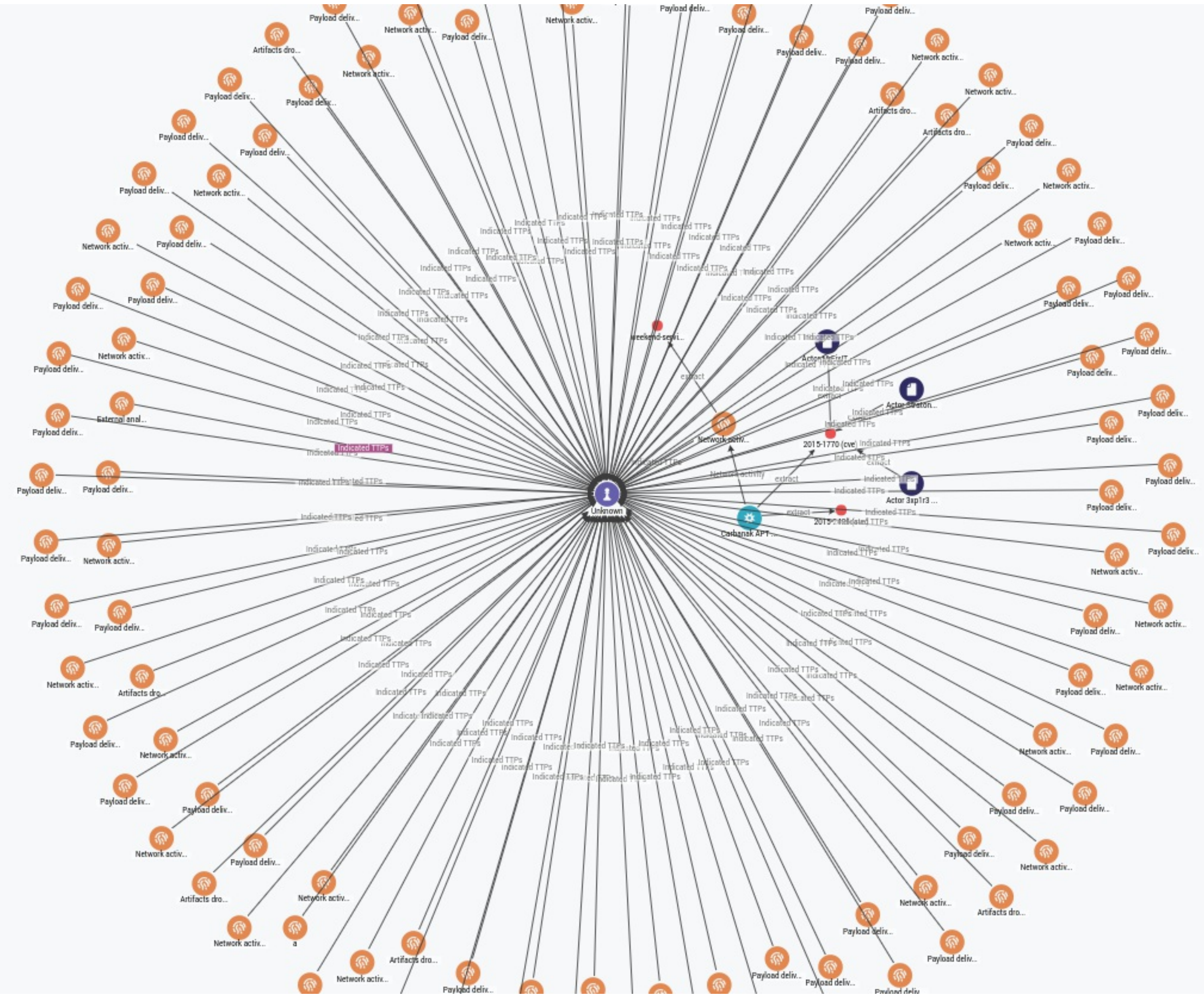
☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	a month ago
☐	uri	http://www.thestar.com.my/New...	2	
☐	country	my	2	
☐	uri	notes:the	2	
☐	name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

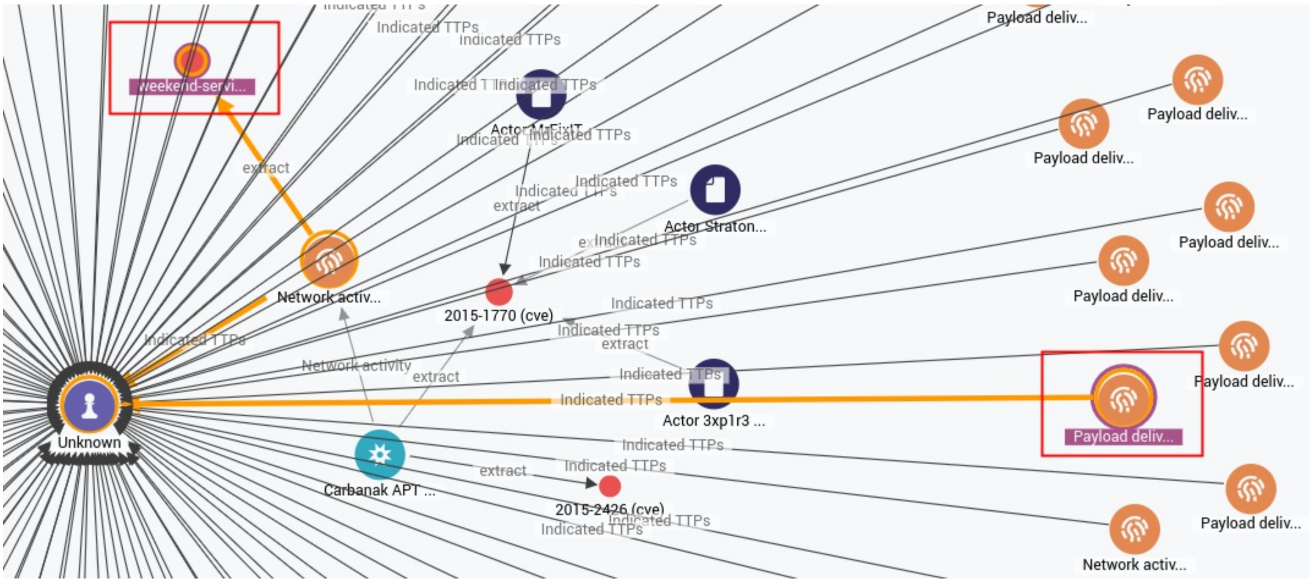


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



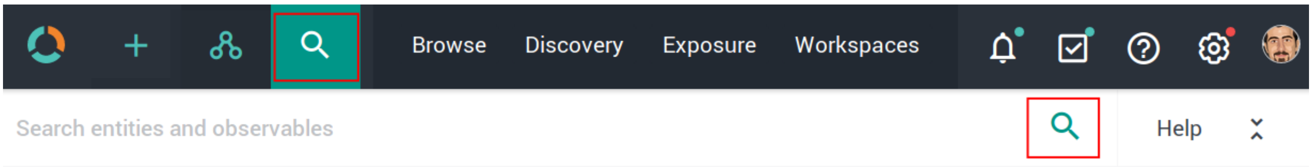
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

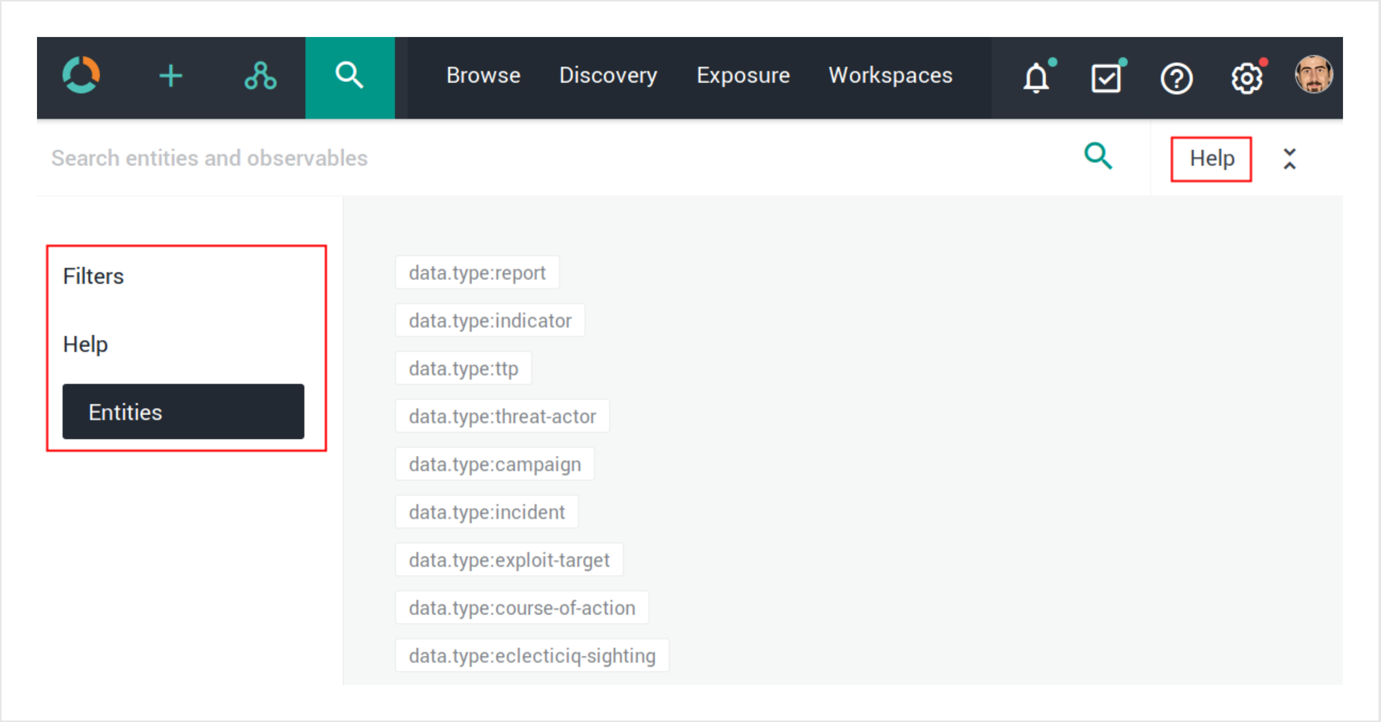


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

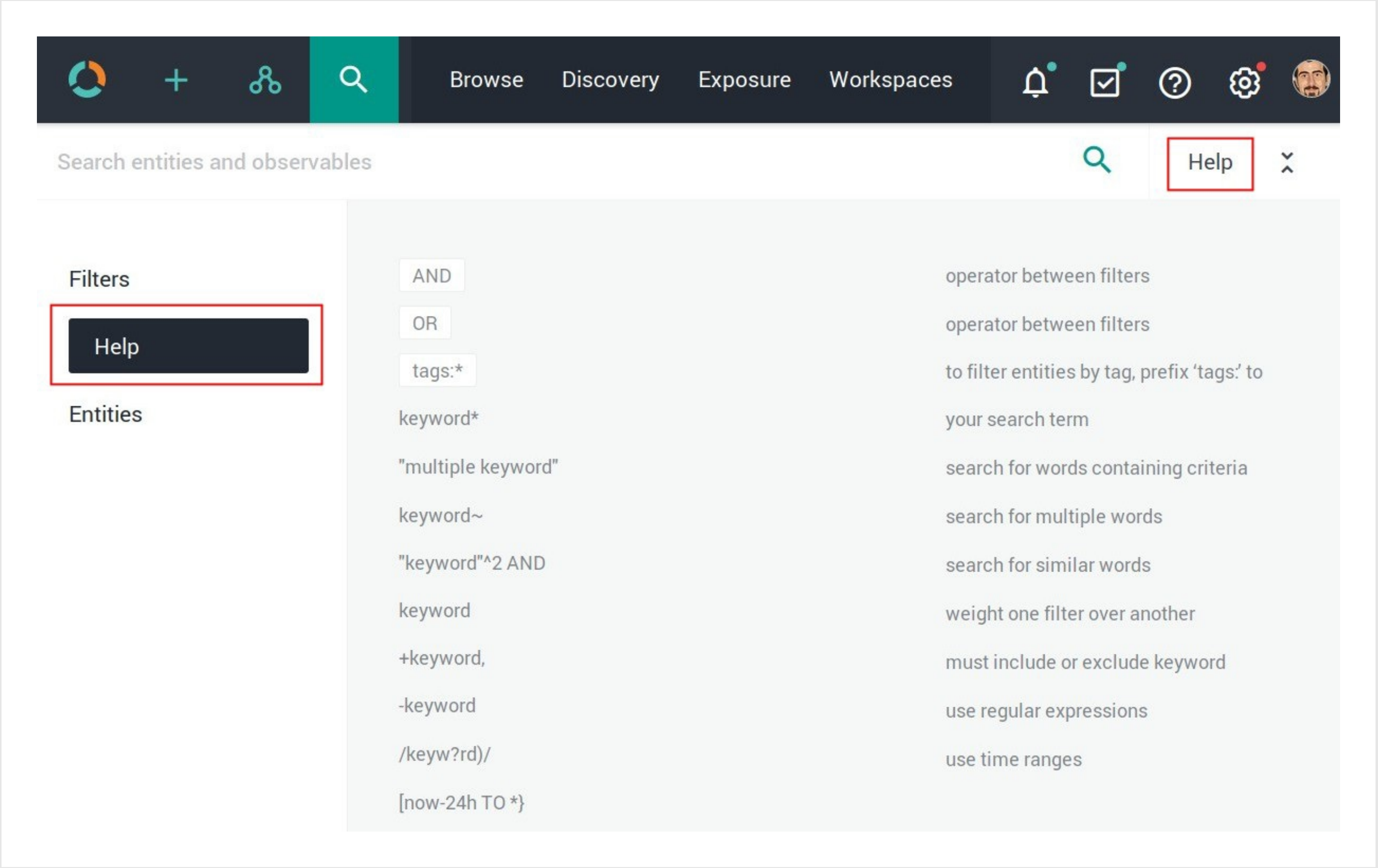
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

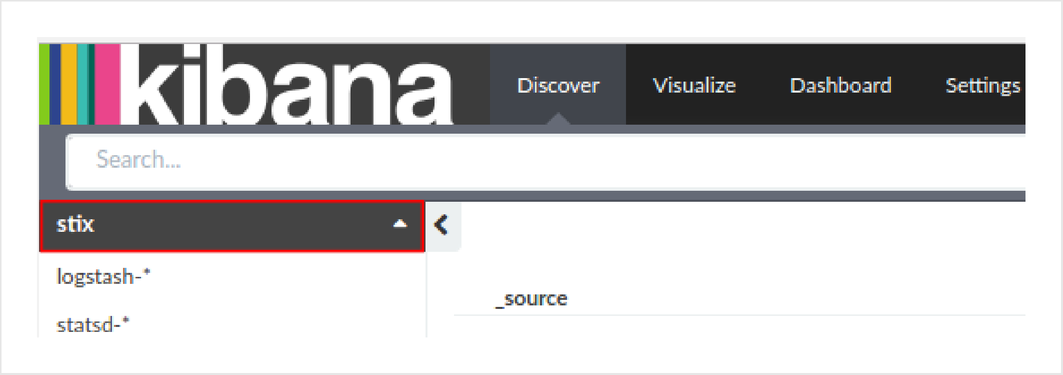
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

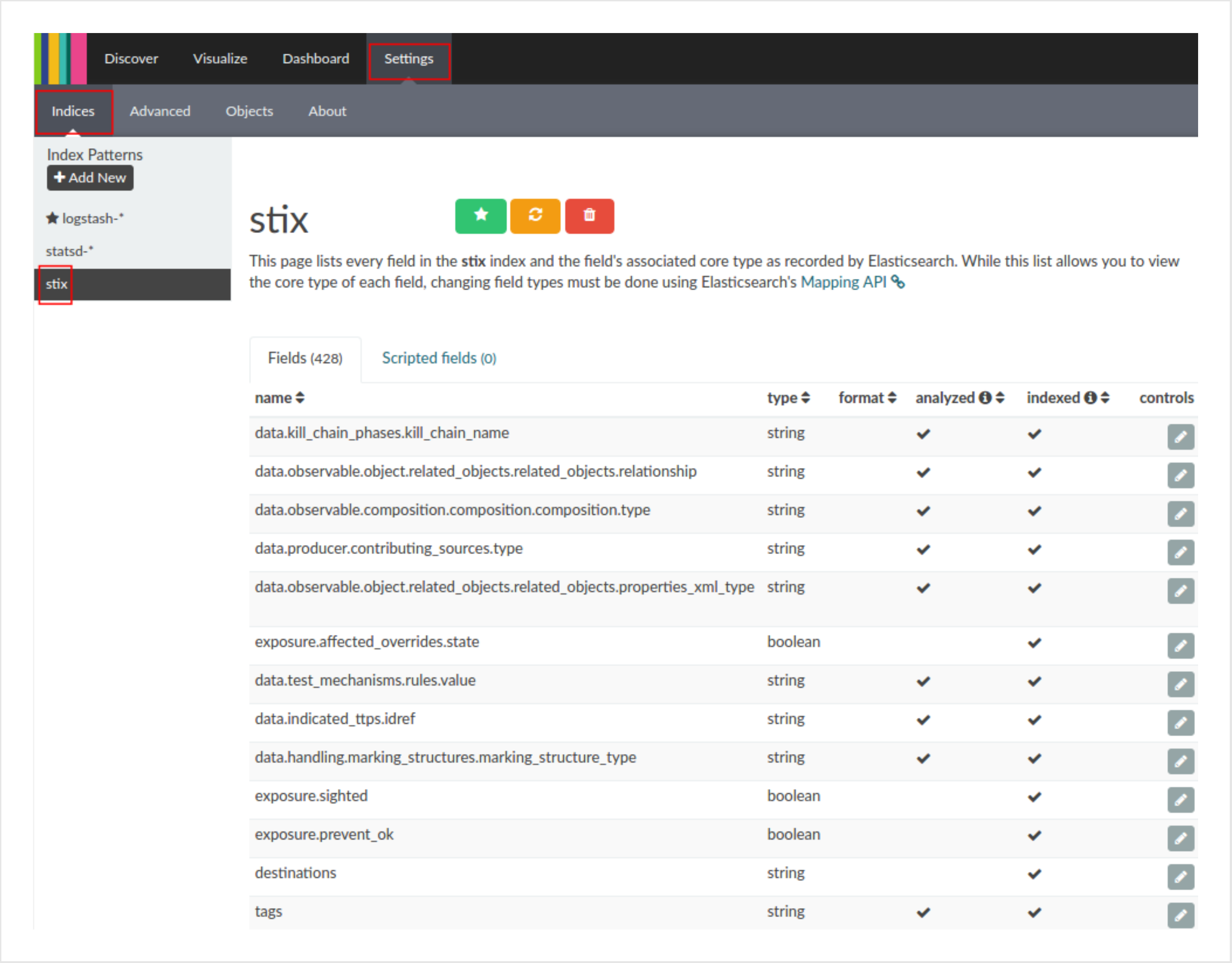
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the Unshorten-URL enricher

The Unshorten-URL polls the specified URL shortener services to return the resolved original URLs corresponding to the submitted shortened ones.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the Unshorten-URL enricher

This article describes how to configure the Unshorten-URL enricher parameters.
To configure the general options for the Unshorten-URL enricher, see Configure enrichers.

RIPEstat GeoIP	**enricher**
Enricher name	Unshorten-URL
API endpoint	`https://unshorten.me/s/{}`
Input	uri
Output	Original URL the submitted shortened one.
Description	It takes shortened URL as an input, and it returns the corresponding resolved original URLs, which can then be analyzed in the platform to discover relationships with other entities.

Configure the Unshorten-URL enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment**.
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✓ On the forms, input fields marked with an asterisk are required.

- **Observable types**: select the observable type representing the shortened URLs that the enricher submits to the spcified services.
  The supported observable type is *uri*.

Under **Parameters**, define the specific configuration options for the Unshorten-URL enricher:

- **Providers**: enter one or more URL shortener services to use with the enricher.

  Separate multiple URL shortener services with either a comma or a white space.
  Example: *bit.ly,goo.gl,tinyurl.com*, or *bit.ly goo.gl tinyurl.com*

  You do not need to prefix the domains with the transmission protocol. If included, *http://* or *https://* is stripped at runtime.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **✚ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

✔ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **✚ Add** or **✚ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.

- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.

- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data. **TLP** `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.
- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

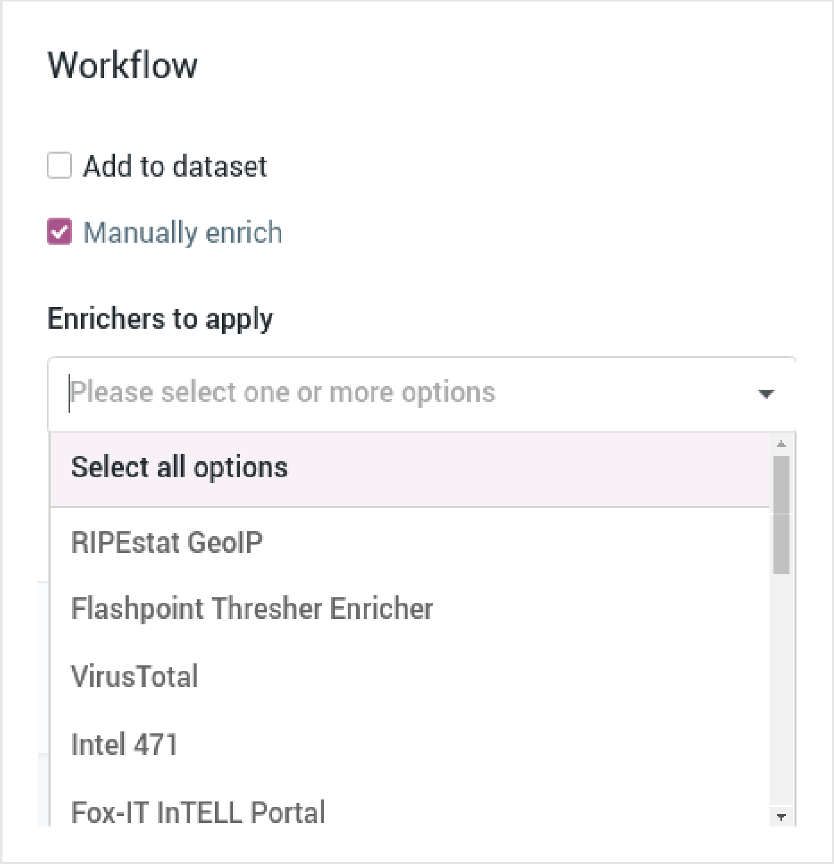
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

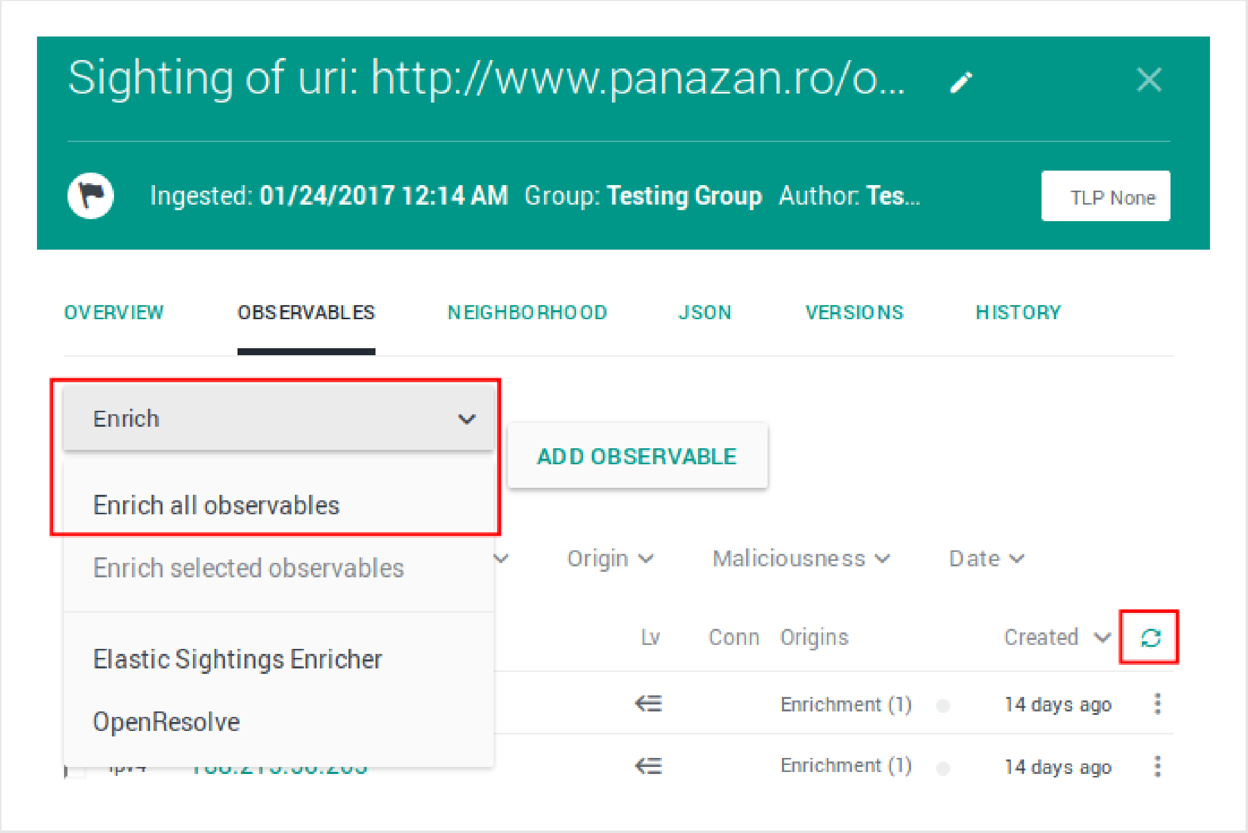
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the ↻ refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

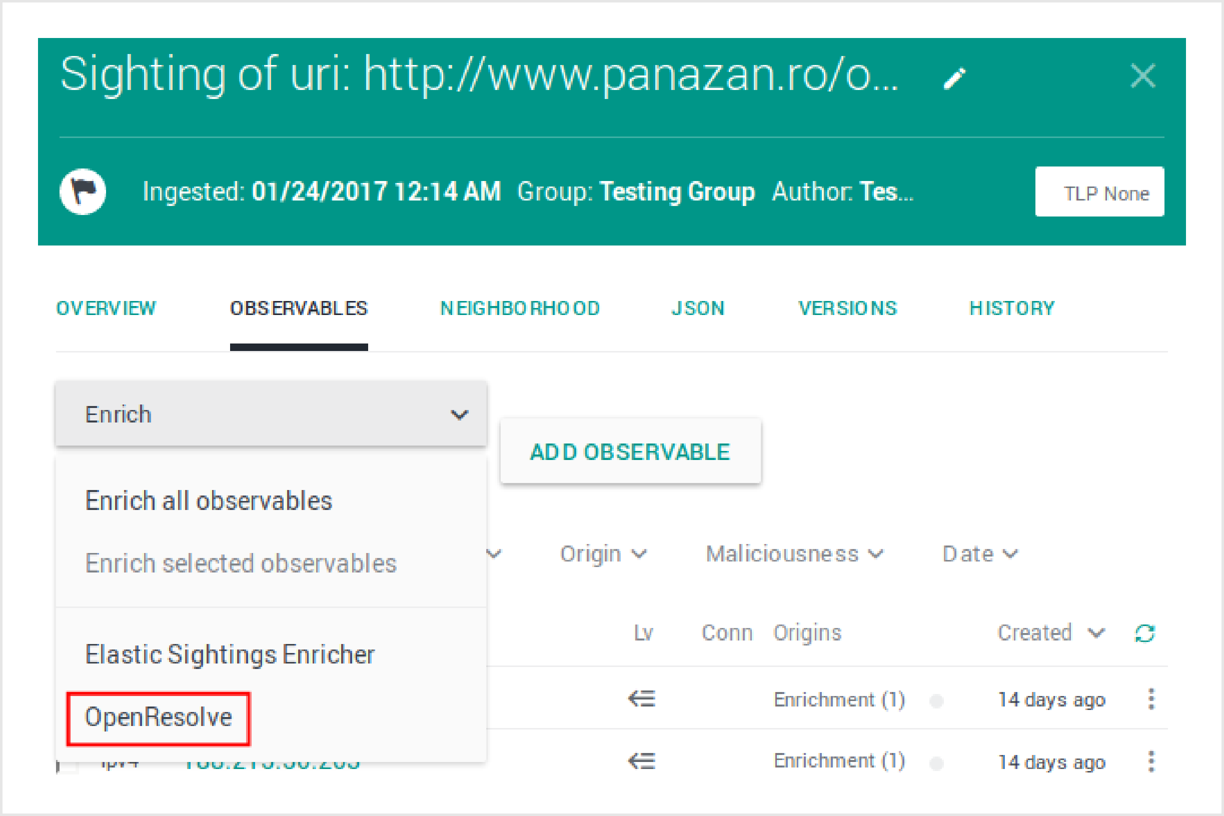


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

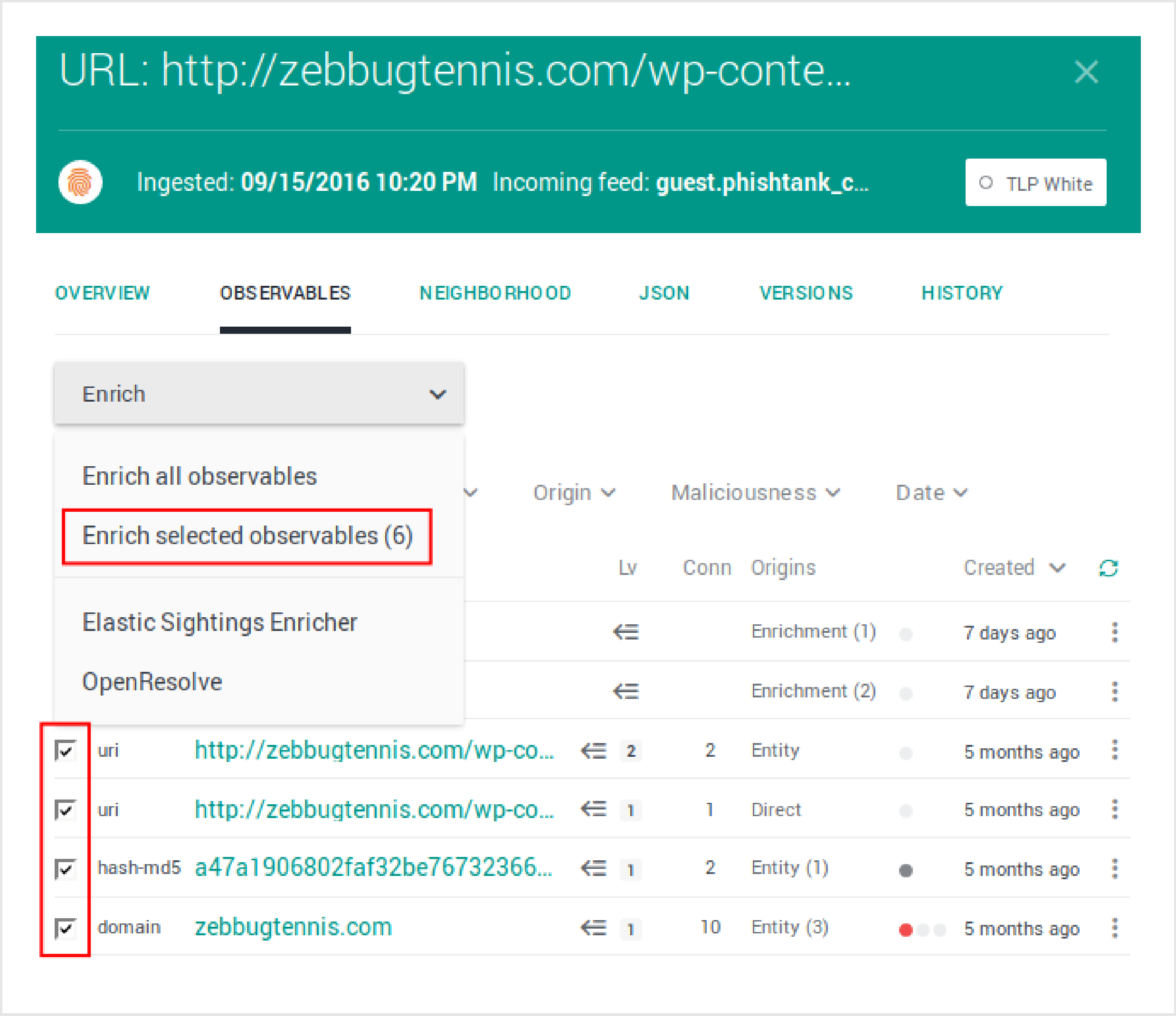
To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.
- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...
Ingested: 09/15/2016 10:20 PM Incoming feed: guest.phishtank_c...
TLP White
OVERVIEW
OBSERVABLES
NEIGHBORHOOD
JSON
VERSIONS
HISTORY
Enrich
Enrich all observables
Enrich selected observables (6)
Elastic Sightings Enricher
OpenResolve
Origin
Maliciousness
Date

			Lv	Conn	Origins		Created
					Enrichment (1)		7 days ago
					Enrichment (2)		7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	2	2	Entity		5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	1	1	Direct		5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	1	10	Entity (3)	●	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher’s content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

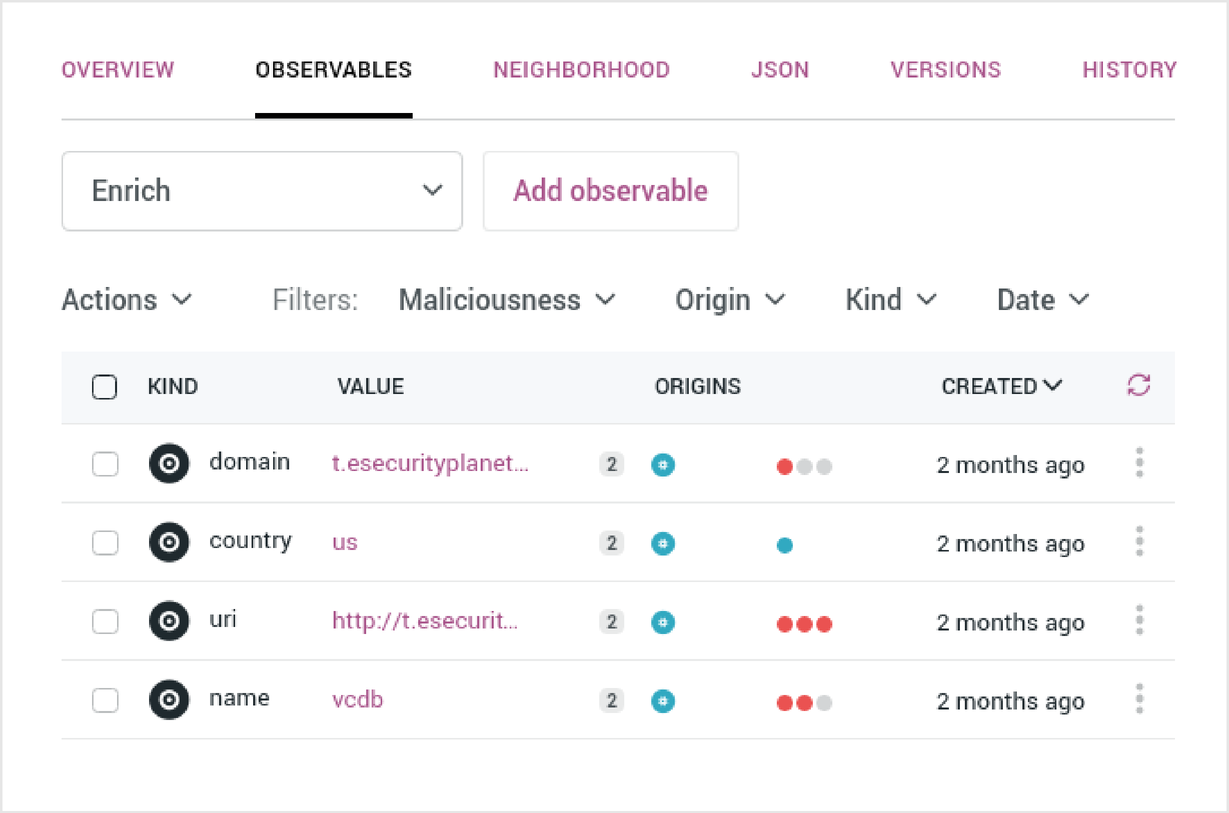
The Unshorten-URL enricher can take the following observable types as input:

- *uri*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with Unshorten-URL.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

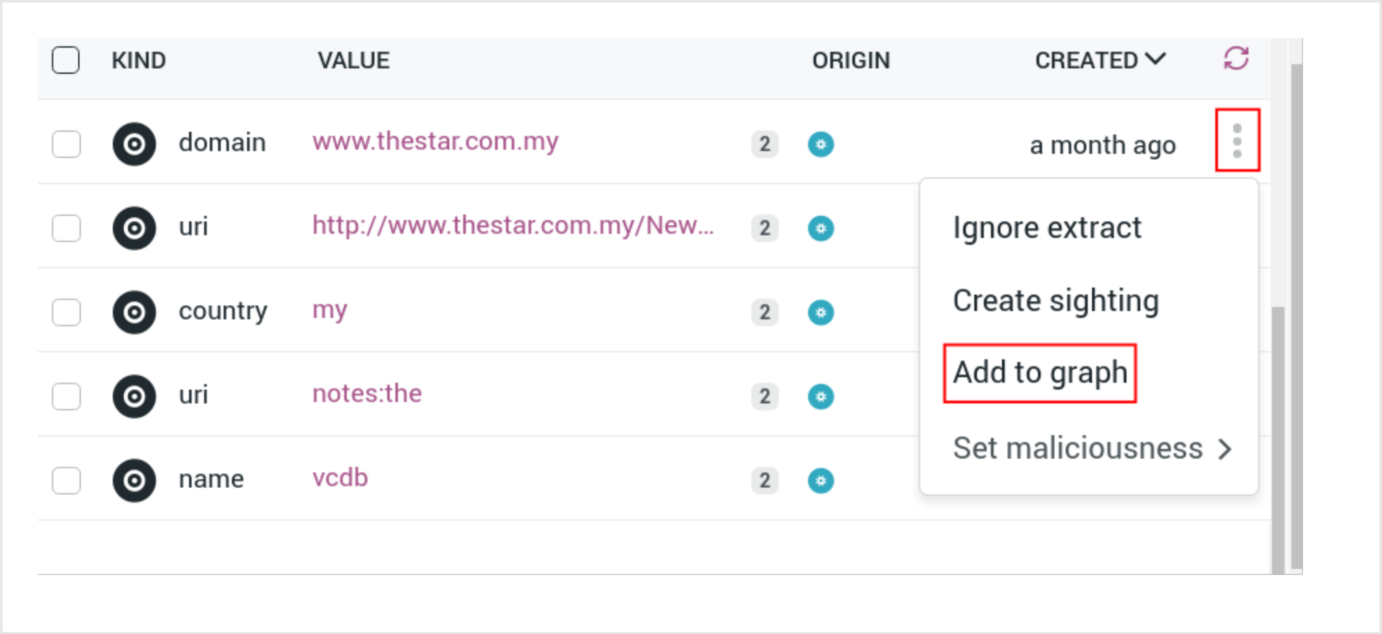


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2 ●	●●●	2 months ago
☐	country	us	2 ●	●	2 months ago
☐	uri	http://t.esecurit...	2 ●	●●●	2 months ago
☐	name	vcdb	2 ●	●●●	2 months ago

Review enrichment observables on the graph

To view enrichment data and their connections with other entities and observables on the graph, do the following:

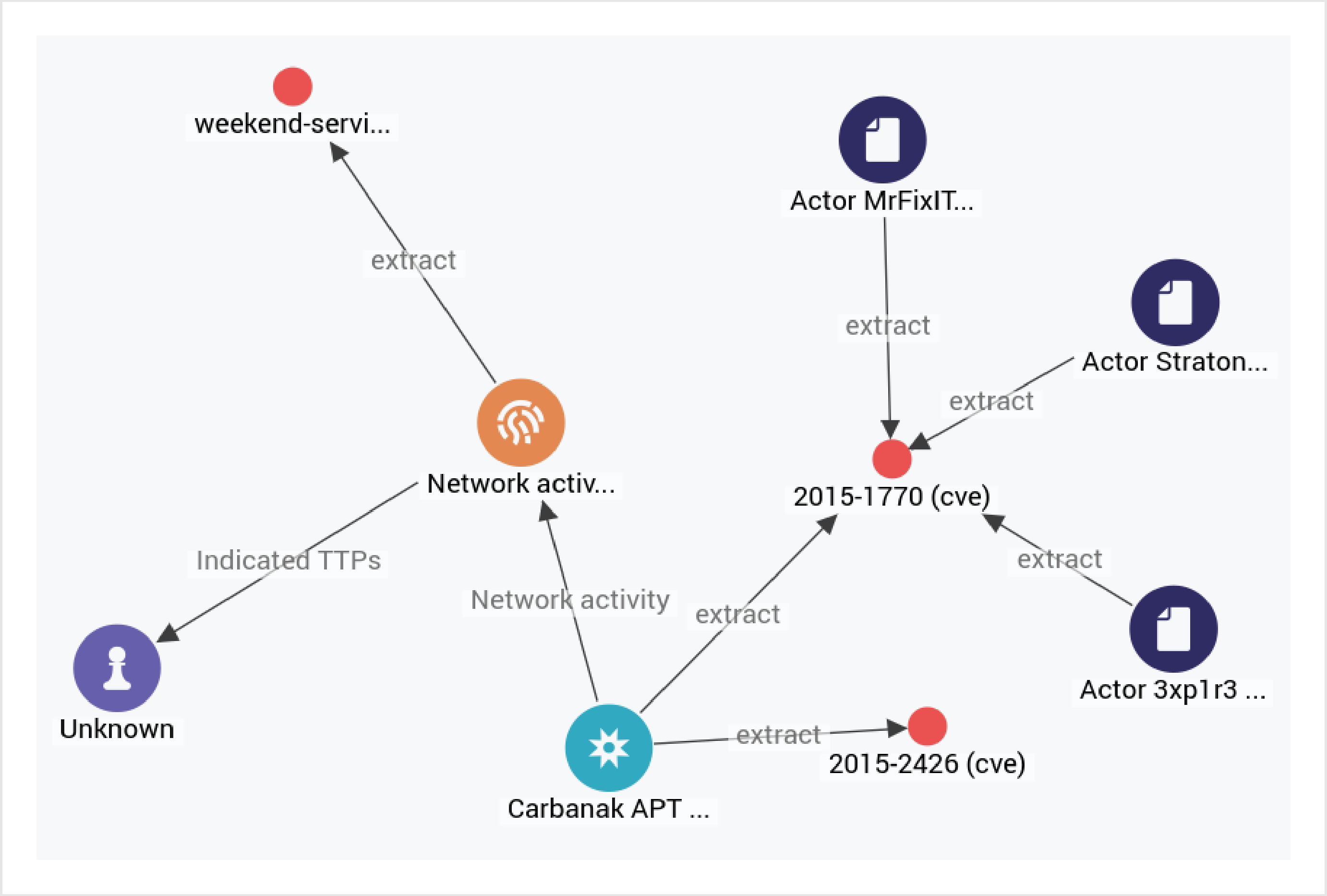
- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.



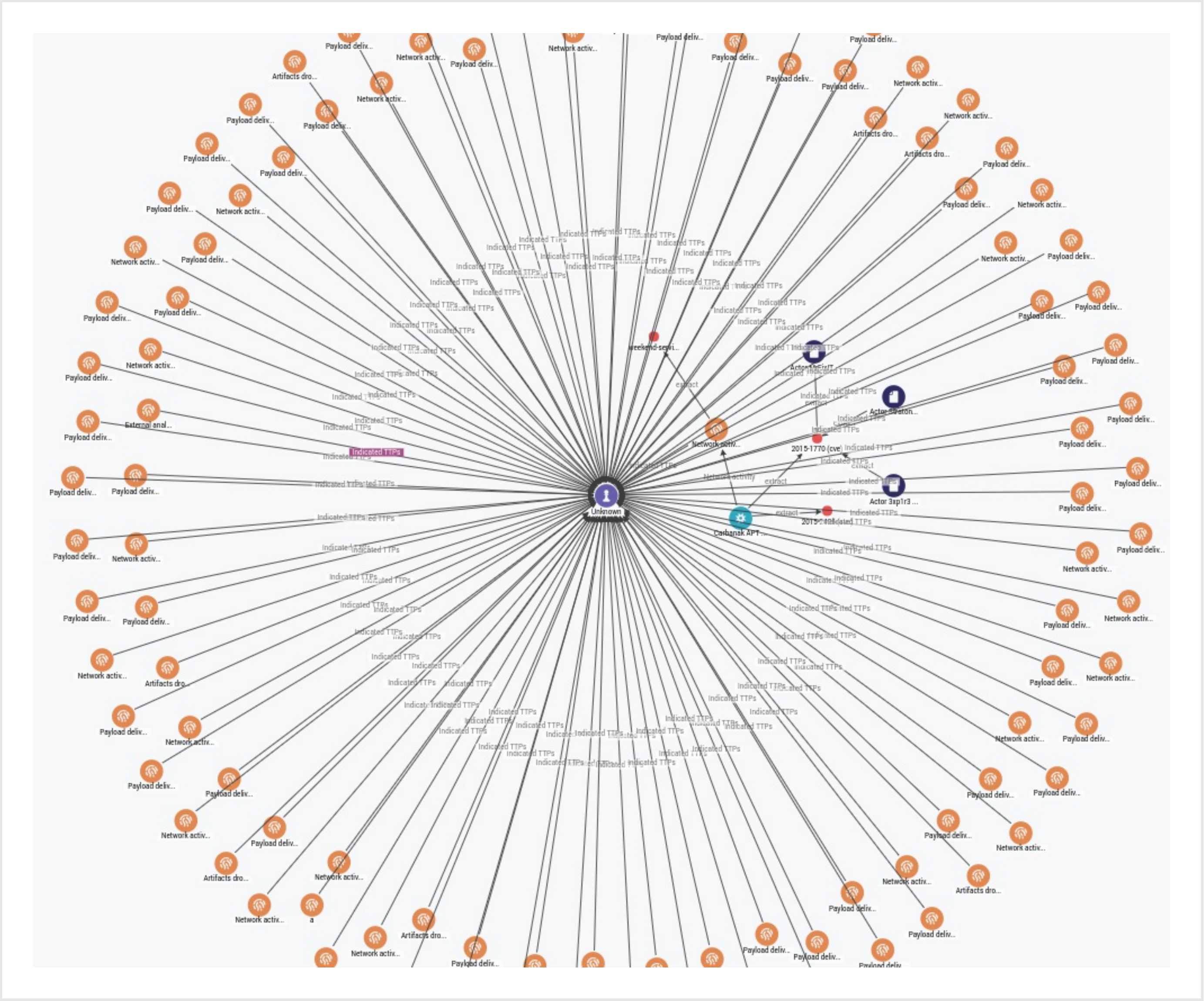
☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2 ●	a month ago
☐	uri	http://www.thestar.com.my/New...	2 ●	
☐	country	my	2 ●	
☐	uri	notes:the	2 ●	
☐	name	vcdb	2 ●	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.

- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

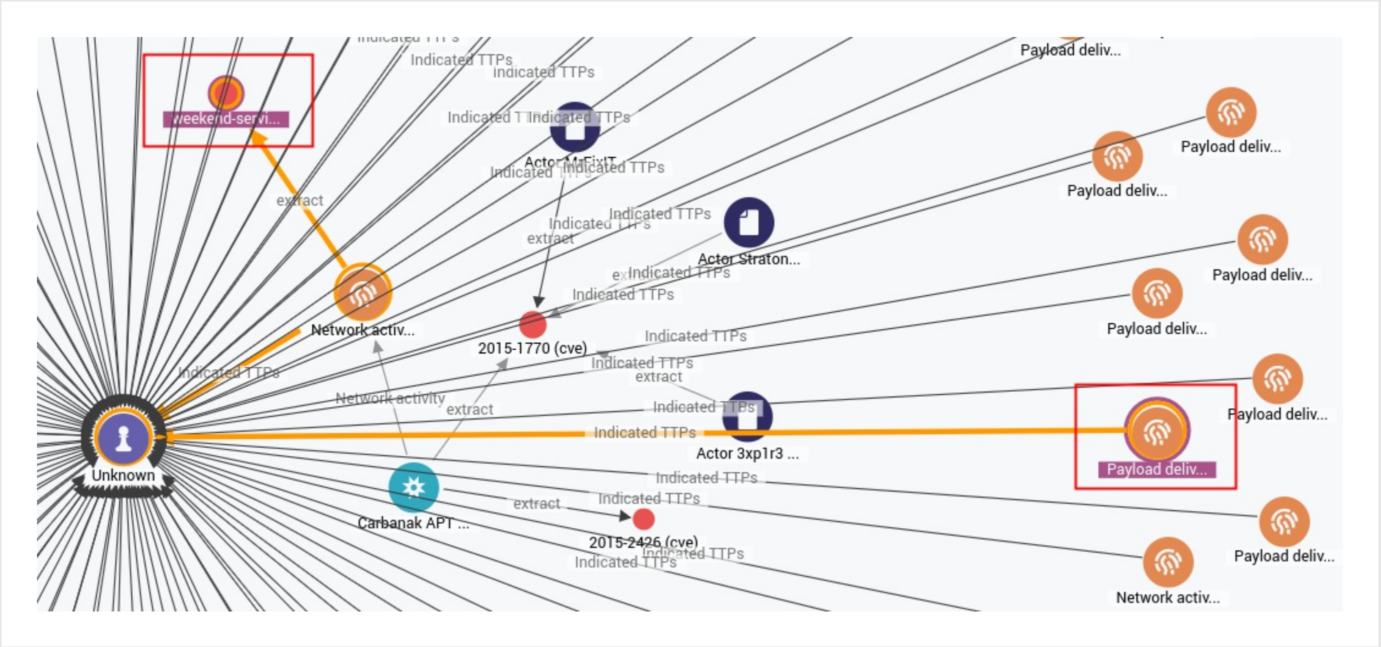


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



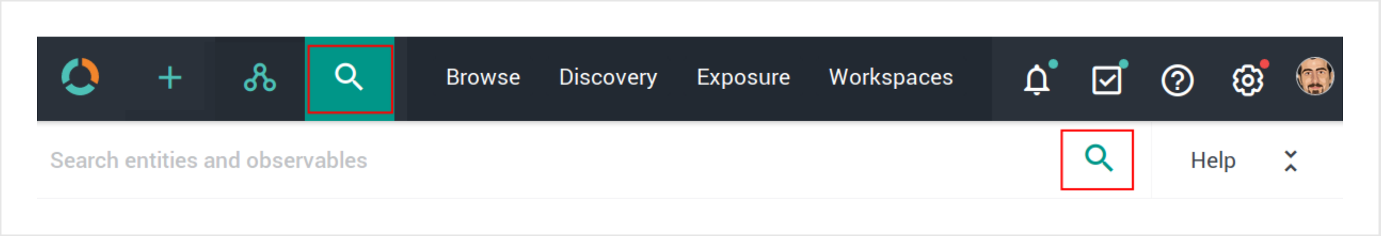
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

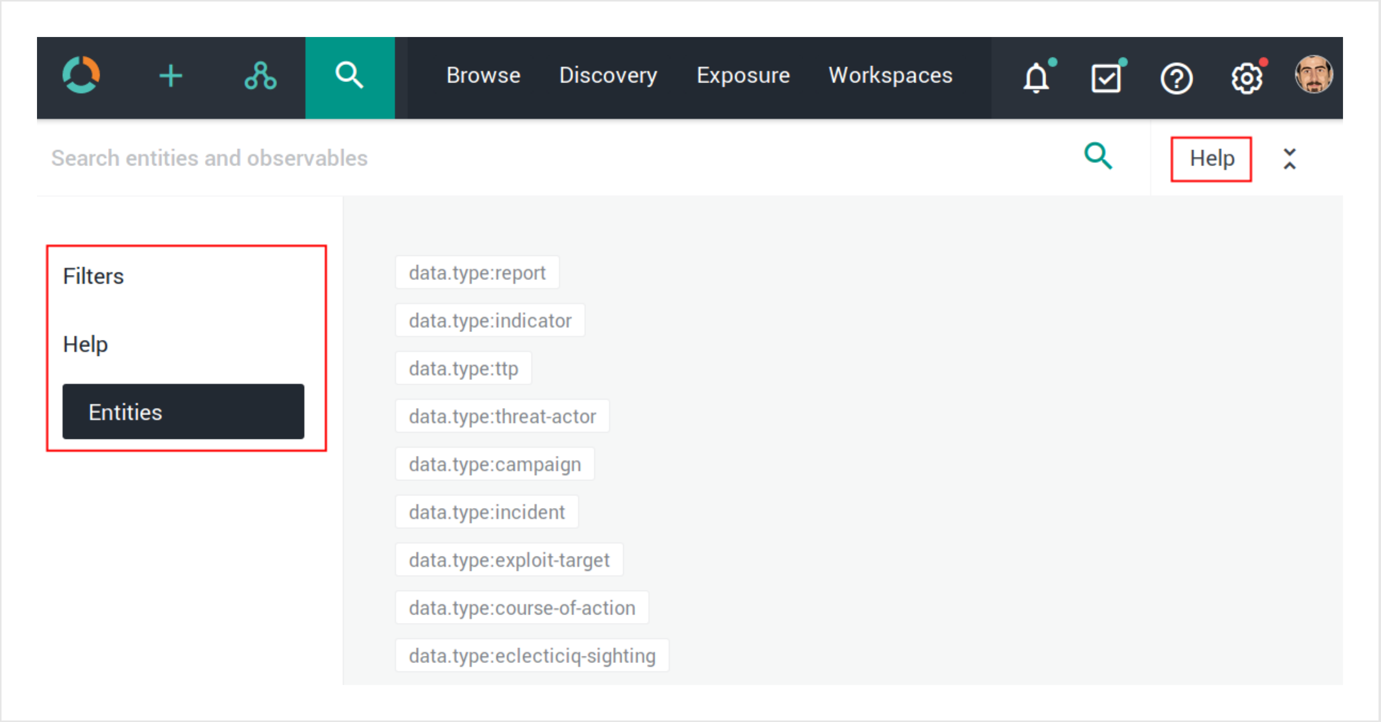


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

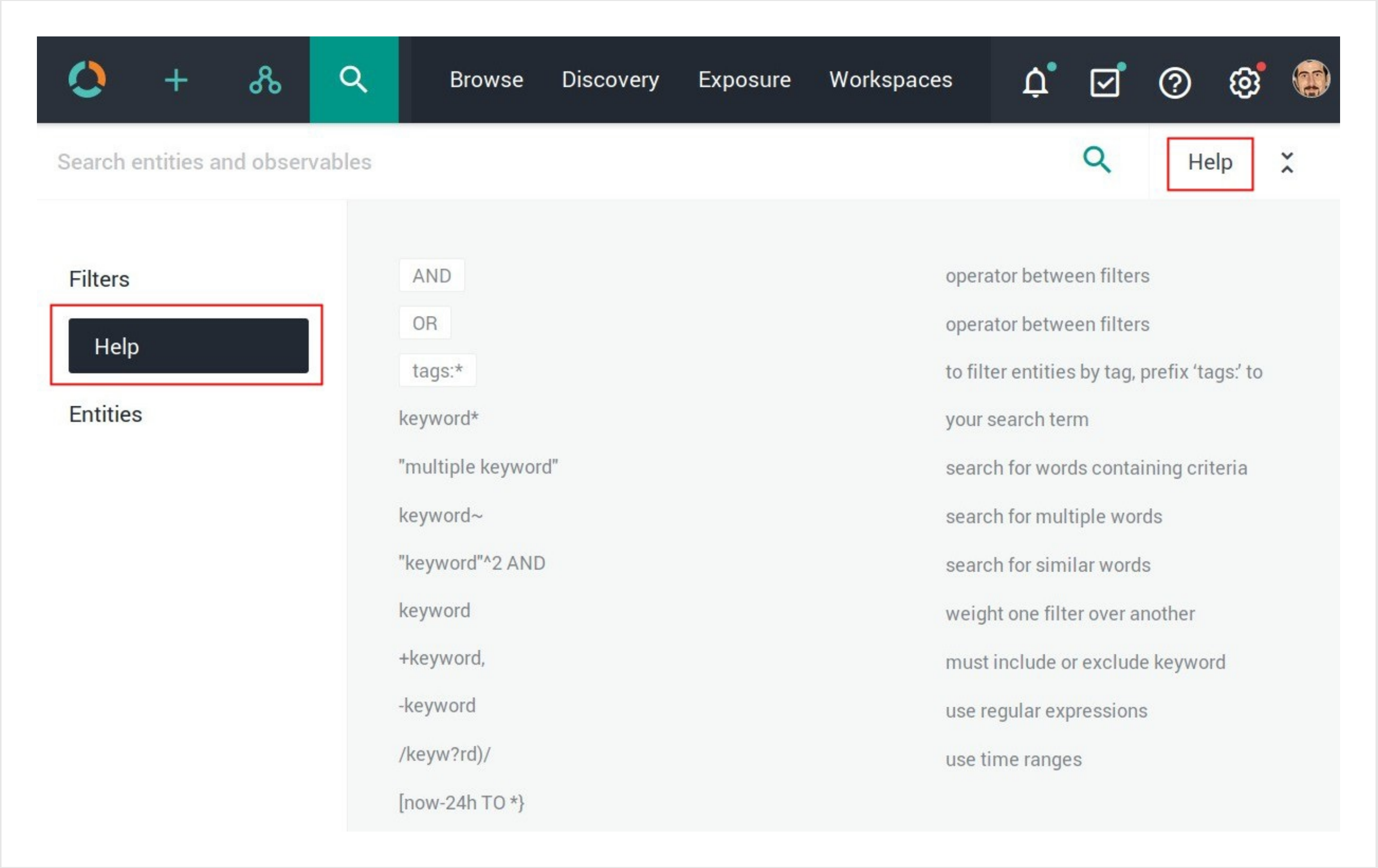
> The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix ‘tags:’ to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

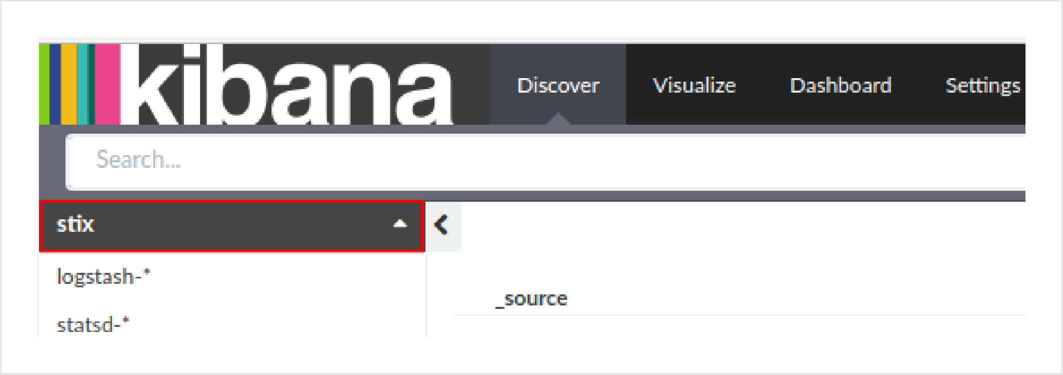
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

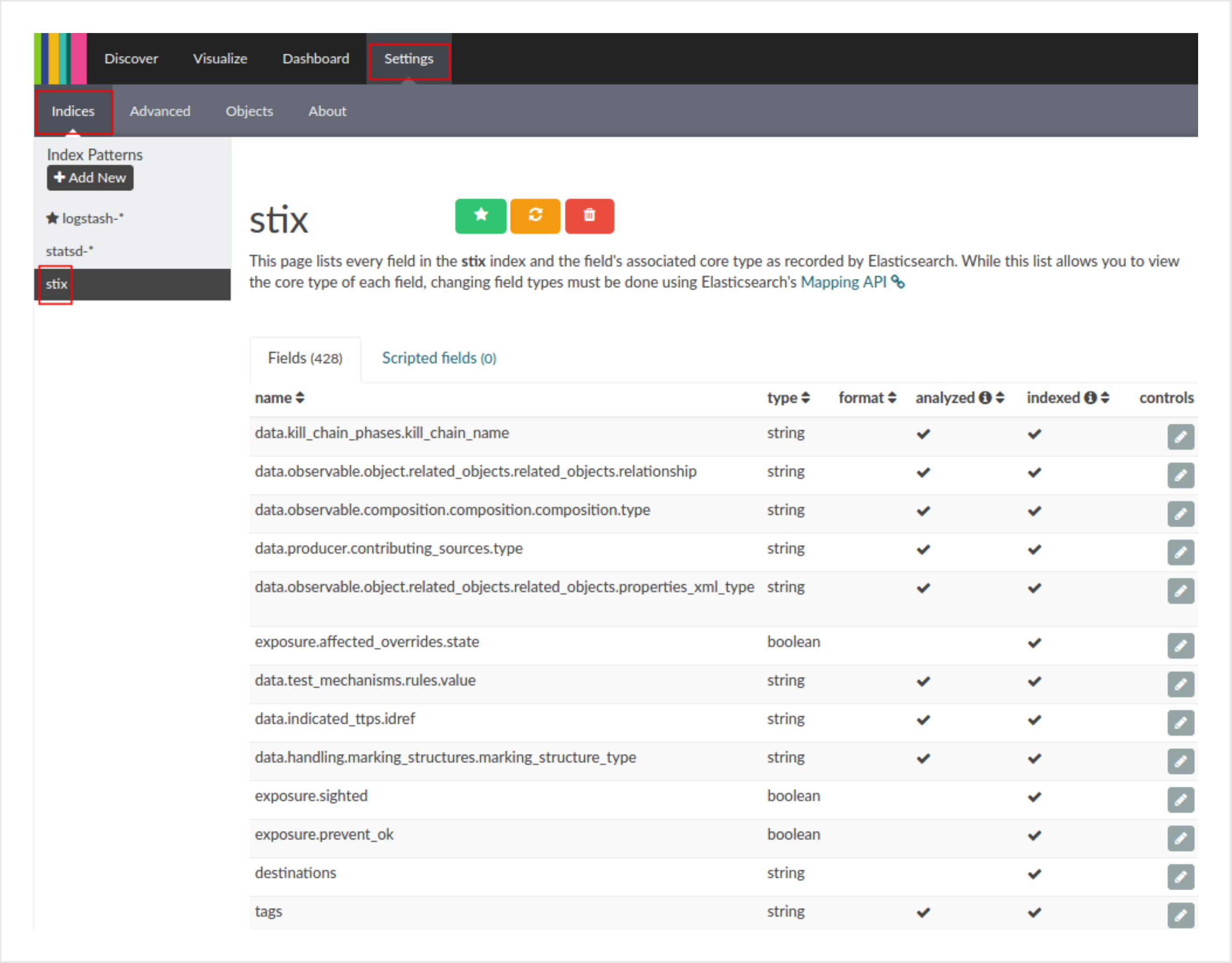
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

How to work with the VirusTotal enricher

Raw data enrichment observables improve the quality of the intelligence you obtain from external sources and use for cyber data analysis. Configure and run the VirusTotal enricher, view enrichment observables in the entity detail pane and on the graph, and search for enrichment observables using queries.

Enrichers poll external data sources to provide additional context and detail to augment — hence, enrich — the intelligence value of the entities stored in the platform.

The platform ships with several built-in, ready-to-use enrichers to obtain geolocation IP and whois details, DNS domain and malware information, as well as other relevant data to help analysts draw a sharper and more comprehensive picture of the cyber threat relationships and the cyber threat scenarios under investigation.

Work with the VirusTotal enricher

This article describes how to configure the VirusTotal enricher parameters.
To configure the general options for the VirusTotal enricher, see Configure enrichers.

VirusTotal	**enricher**
Enricher name	VirusTotal
API endpoint	`https://www.virustotal.com/vtapi/v2/{}`
Input	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Output	Enriches the supported observable types with maliciousness confidence level information.
Description	Polls data from the VirusTotal API. It provides information on malware, domains (passive DNS) and IP addresses. Submitted data is checked against 60+ antimalware products, resulting in a detection ratio output and additional metadata information, when available.

Configure the VirusTotal enricher

To configure or to edit an enricher task, do the following:

- On the top navigation bar click ✚ > **Data management > Dataset > Enrichment** .

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Data management**.
- On the left-hand navigation sidebar click **Enrichment.**
- Click the enricher you want to configure or modify.
- On the enricher detail page, click the **Edit** button.

✔ On the forms, input fields marked with an asterisk are required.

Under **Parameters**, define the specific configuration options for the VirusTotal enricher:

- **API key**: **sign up** `(https://www.virustotal.com/en/documentation/public-api/#getting-started)` to the VirusTotal community to automatically be assigned a personal API key to access the VirusTotal public API, and then enter it in this field.
- **Scan URLs**: select this checkbox to to **submit URLs** `(https://www.virustotal.com/en/documentation/public-api/#scanning-urls)` to VirusTotal.
- **Scan files**: select this checkbox to to **submit files/file hashes** `(https://www.virustotal.com/en/documentation/public-api/#scanning-files)` to VirusTotal.
  File hashes are embedded inside entities as raw artifacts.
- **Max low confidence infection rate**: you can set an *upper threshold* to automatically flag enriched observables with a *low confidence* value.
  After completing the sample analysis, enriched observables with a *lower* detection ratio than the specified value are flagged with **Malicious - Low confidence**.
  - Enter a numeric value between *0.1* and *0.9* — that is, *0 < value < 1* .
  - Default value: *0.2*.
- **Min high confidence infection rate**: you can set a *bottom threshold* to automatically flag enriched observables with *high confidence* value.
  After completing the sample analysis, enriched observables with a *higher* detection ratio than the specified value are flagged with **Malicious - High confidence**.
  - Enter a numeric value between *0.1* and *0.9* — that is, *0 < value < 1* .
  - Default value: *0.5*.
- Enriched observables with a detection ratio falling in the range defined by **Max low confidence infection rate** (range lower limit) and **Min high confidence infection rate** (range upper limit) are flagged with **Malicious - Medium confidence**.
- Click **Save** to store your changes, or **Cancel** to discard them.

Configure enricher rules

Add enricher rules

To add a new enricher rule, do the following:

- On the top navigation bar click **+ > Rules > Enrichment**.

Alternatively:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.

- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click the **+ Rule** button.

> ✓ On the forms, input fields marked with an asterisk are required.

On the **Rules > Enrichment > Create** page, fill out the fields to create the new enricher rule:

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- Click **+ Add** or **+ More** to add a filtering option.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click **+ Add** or **+ More** to add a new filtering option. For example, to include another incoming feed or a different entity type. A filter can take only one source and one entity type at a time, but you can set up rules with as many filters as you need.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to.
  When a rule is applied to one or more enrichers, it filters the enrichment data polled from the enricher source, based on the specified rule filters and criteria.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Save options

Besides committing current data by clicking **Save**, you can also click the downward-pointing arrow on the **Save** button to display a context menu with additional save options:

- **Save and new**: saves the current data for the active item, and it allows you to start creating a new item of the same type right away. For example, a dataset, a feed, a rule, a workspace, or a task.
- **Save and duplicate**: saves the current data for the active item, and it creates a pre-populated copy of the same item, which you can use as a template to speed up manual creation work.

Edit enricher rules

To edit enricher rules, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.

- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.

To edit the details of a specific rule, do the following:

- Click an area on the row corresponding to the rule you want to examine. An overlay slides in from the side of the screen to display the rule detail pane.
- On the detail pane, click **Edit**.

Alternatively:

- Click the ⋮ icon on the row corresponding to the enricher you want to configure or modify.
- From the drop-down menu select **Edit**.

> ✔ On the forms, input fields marked with an asterisk are required.

- **Name**: define a name to identify the rule. It should be descriptive and easy to remember.
- **Description**: additional textual details. If you want, you can add a short description to provide more information and context.
- **Source**: from the drop-down menu select the incoming feed or the enricher whose observables you want to augment with additional information.
- **Entity types**: from the drop-down menu select the entity type whose observables you want to enrich with additional information.
- **TLP**: from the drop-down menu select the TLP color code you want to use to filter enrichment data.
  TLP `(https://www.us-cert.gov/tlp)` provides an intuitive reference to assess how sensitive information is, focusing in particular on how serious it is, and whom it should or should not be shared with.
- Click ✚ **Add** or ✚ **More** to add a new filtering option. For example, to include another incoming feed or a different entity type.
- **Enrichers**: from the drop-down menu select one or more enrichers to apply the rule to. They are external data providers that are polled to obtain relevant enricher raw data; for example, whois lookup, reverse DNS, or GeoIP information.
- Select the **Enabled** checkbox to enable the rule immediately after creating it.
- Click **Save** to store your changes, or **Cancel** to discard them.

Delete enricher rules

To delete an enricher rule, do the following:

- On the top navigation bar, click the ⚙ icon next to the user avatar image.
- From the drop-down menu select **Rules**.
- On the left-hand navigation sidebar click **Enrichment**.
- The **Rules > Enrichment** page shows an overview of the configured enricher rules.
  You can sort the items on the view by column header. To do so, click the column header you want to base the data sorting on. An upward-pointing ▲ or a downward-pointing ▼ arrow in the header indicates ascending and descending sort order, respectively.
- Click an area on the row corresponding to the rule you want to delete. An overlay slides in from the side of the screen to display the rule detail pane.

- Click **Delete** on the rule detail pane.

Alternatively:

- Click the ⋮ icon on the row corresponding to the rule you want to delete.
- From the drop-down menu select **Delete**.
- On the confirmation pop-up dialog, click **Delete** to confirm the action.
- The rule is deleted.

Run the enricher

Automatically

To automatically enrich entities, make sure enricher tasks are active, and the necessary enrichment rules are configured.

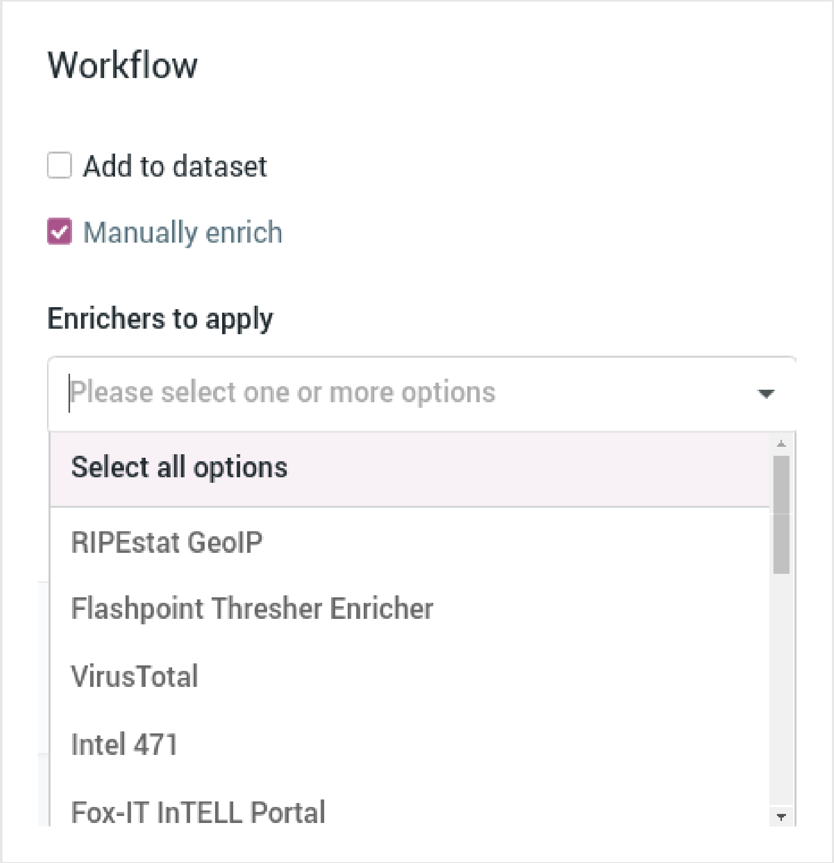
Rules give you control over the type of information you want to retrieve or exclude, and what you want to do with it. You can assign one or more enricher sources to specific observable types. You can set multiple filters to cover usage scenarios as needed. You can then examine the returned enrichment observable data, as well as route it to other devices that enforce cyber threat detection or prevention.

To run the enricher automatically, go to the enricher edit mode, and make sure the **Enabled** checkbox on the edit form is selected.
If it is deselected, check it, and then click **Save**.

Manually

To adjust enrichment behavior to manually apply it to the entities you want to enrich, do the following:

- Open an entity in edit mode.
  For example, on the top navigation bar click **Browse > Published** to display an overview of the published entities available in the platform.
- On the row corresponding to the entity you want to manually enrich, click the ⋮ icon to display the context menu.
- From the drop-down menu select **Edit**.
- At the bottom of the entity editor page click the **Manually enrich** checkbox.
  A new input field with a drop-down menu becomes available.
- From the drop-down menu select one or more enrichers you want to apply to the entity.



Workflow

☐ Add to dataset

☑ Manually enrich

Enrichers to apply

- Click **Save draft** to store your changes without publishing the entity, **Publish** to release the new version of the entity including your changes, or **Cancel** to discard the changes.

Alternatively, you can manually enrich an entity by selecting it; for example, from a dataset, from **Browse** or from **Discovery**.
An overlay slides in from the side of the screen to display the entity detail pane.

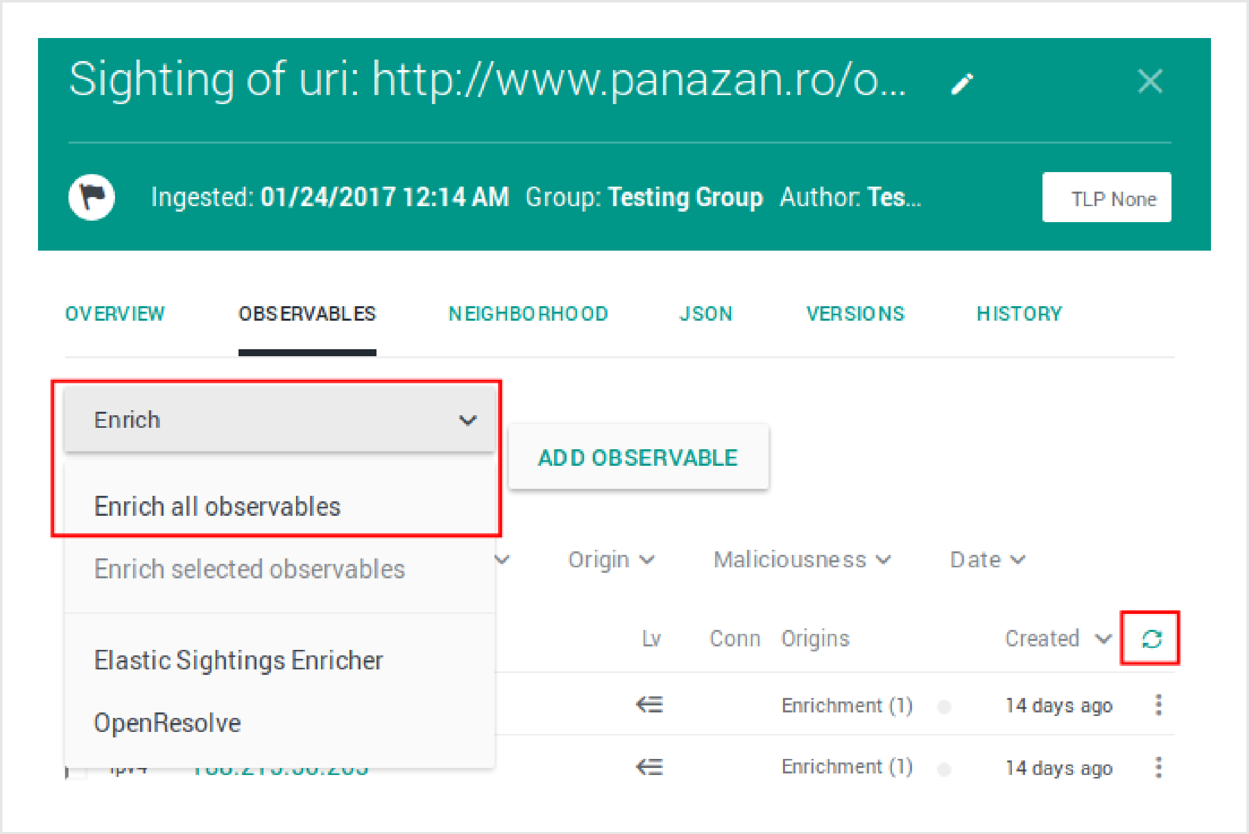
- On the entity detail pane, click **Observables**.
- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

To manually enrich the entity observables:

- Click the 🔄 refresh icon to trigger a task run that polls all the enrichers configured for the entity.

Alternatively:

- From the **Enrich** drop-down menu, select **Enrich all observables**.
- The platform polls all applicable enrichers for the entity, and it enriches all the entity observables with the retrieved data.

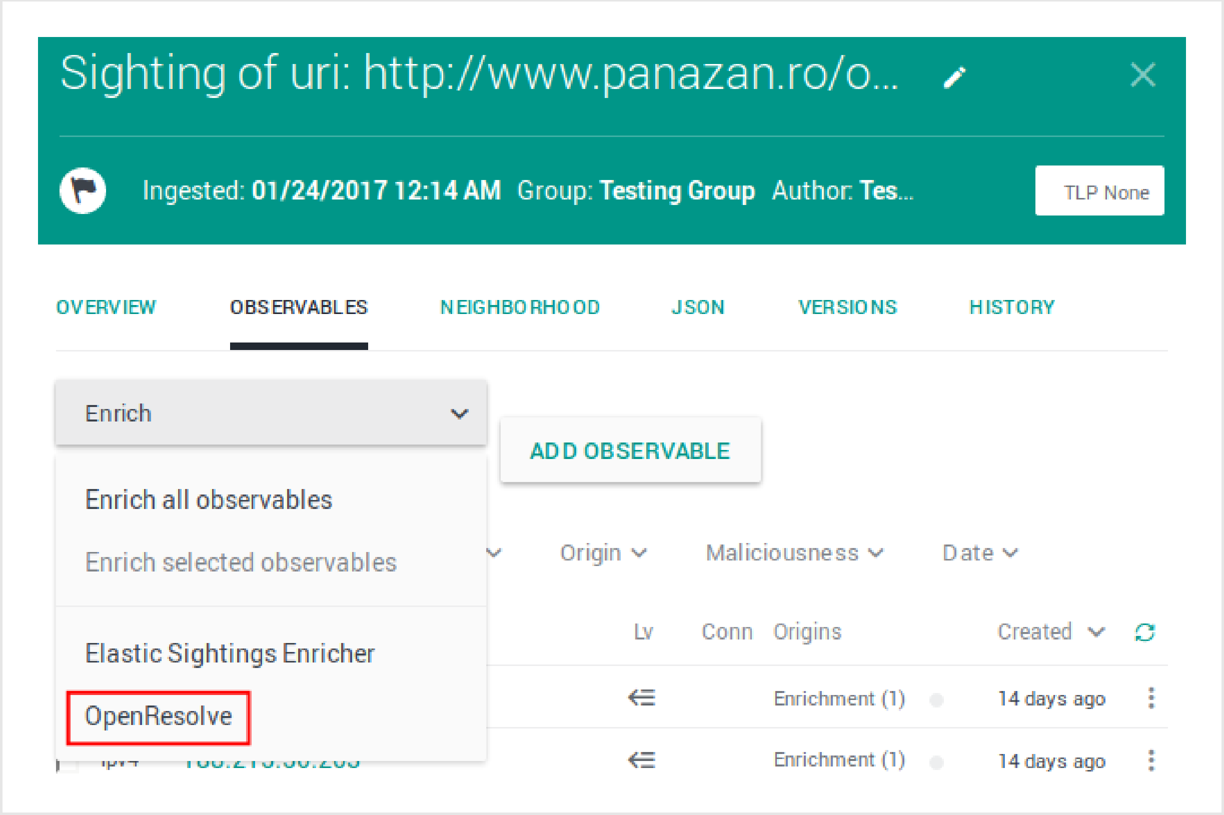


Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To poll a specific enricher:

- Select it from the **Enrich** drop-down menu, and then click it.
- The platform polls the specified enricher for the entity, and it enriches all the entity observables with the retrieved data.



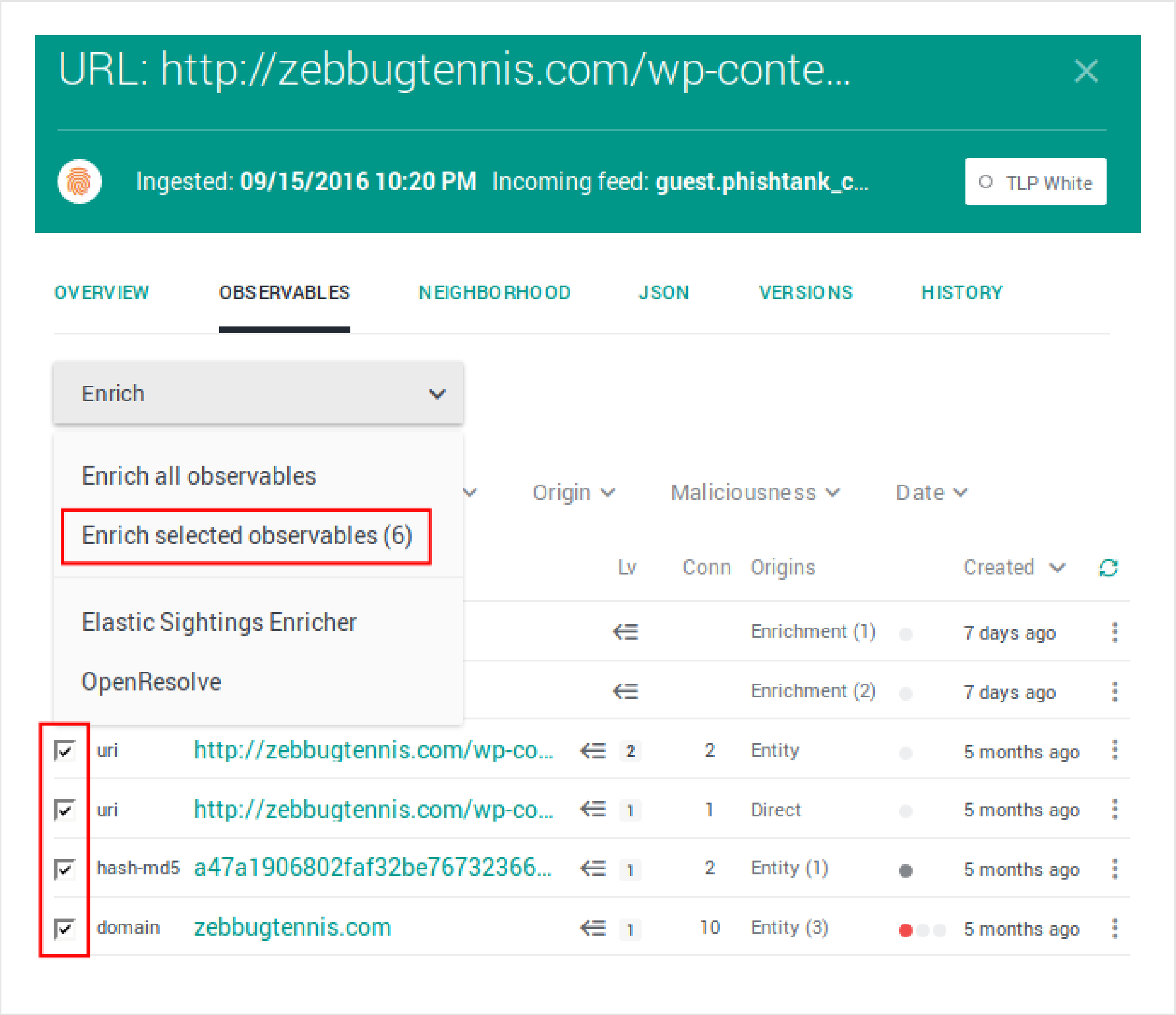
Sighting of uri: http://www.panazan.ro/o...

Ingested: **01/24/2017 12:14 AM** Group: **Testing Group** Author: **Tes...**

To enrich only specific observables:

- On the **Observables** tab, select the checkboxes corresponding to the observables you want to enrich.

- From the **Enrich** drop-down menu, select **Enrich selected observables**.
- The platform polls all applicable enrichers for the entity, and it enriches the selected entity observables with the retrieved data.


URL: http://zebbugtennis.com/wp-conte...
×
Ingested: 09/15/2016 10:20 PM Incoming feed: guest.phishtank_c...
○ TLP White
OVERVIEW
OBSERVABLES
NEIGHBORHOOD
JSON
VERSIONS
HISTORY
Enrich
Enrich all observables
Enrich selected observables (6)
Elastic Sightings Enricher
OpenResolve
Origin
Maliciousness
Date

			Lv	Conn	Origins		Created
			⇇		Enrichment (1)	●	7 days ago
			⇇		Enrichment (2)	●	7 days ago
☑	uri	http://zebbugtennis.com/wp-co...	⇇ 2	2	Entity	●	5 months ago
☑	uri	http://zebbugtennis.com/wp-co...	⇇ 1	1	Direct	●	5 months ago
☑	hash-md5	a47a1906802faf32be76732366...	⇇ 1	2	Entity (1)	●	5 months ago
☑	domain	zebbugtennis.com	⇇ 1	10	Entity (3)	●●●	5 months ago

The available enricher tasks in the drop-down menu are automatically filtered to show only the applicable enrichers for the entity.
Enrichers automatically augment all the entities that accept the enricher's content type as an observable. In other words, the observable types an entity supports define the applicable enrichers an entity can use.

Review enrichment observables

The VirusTotal enricher can take the following observable types as input:

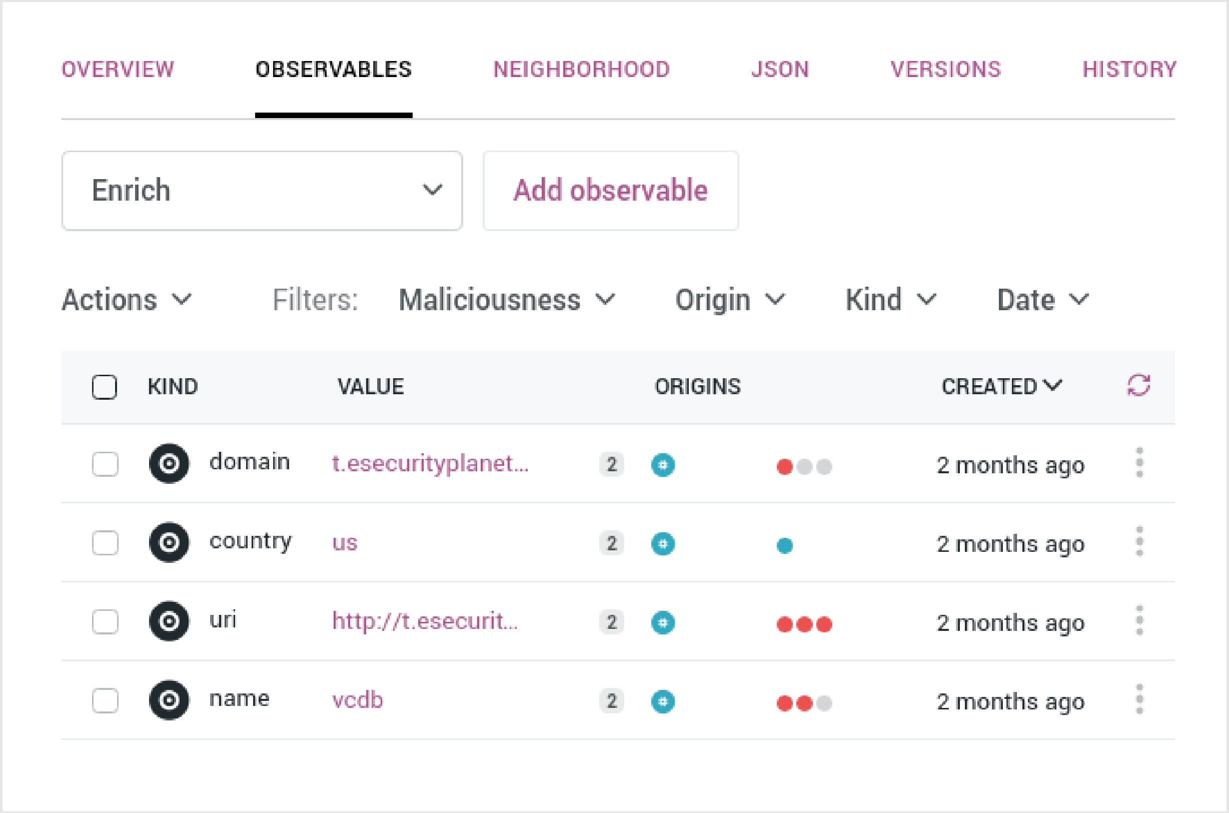
- *ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256*

The enricher uses these input data types to look for additional information to enrich existing observables with. Any entity types supporting these observable types can be enriched with VirusTotal.

To view enrichment information on the entity detail pane, do the following:

- Select an entity; for example, from a dataset, from **Browse** or from **Discovery**.
  An overlay slides in from the side of the screen to display the entity detail pane.
- On the entity detail pane, click **Observables**.

- The **Observables** tab shows an overview of the enrichment observables the entity has been augmented with.

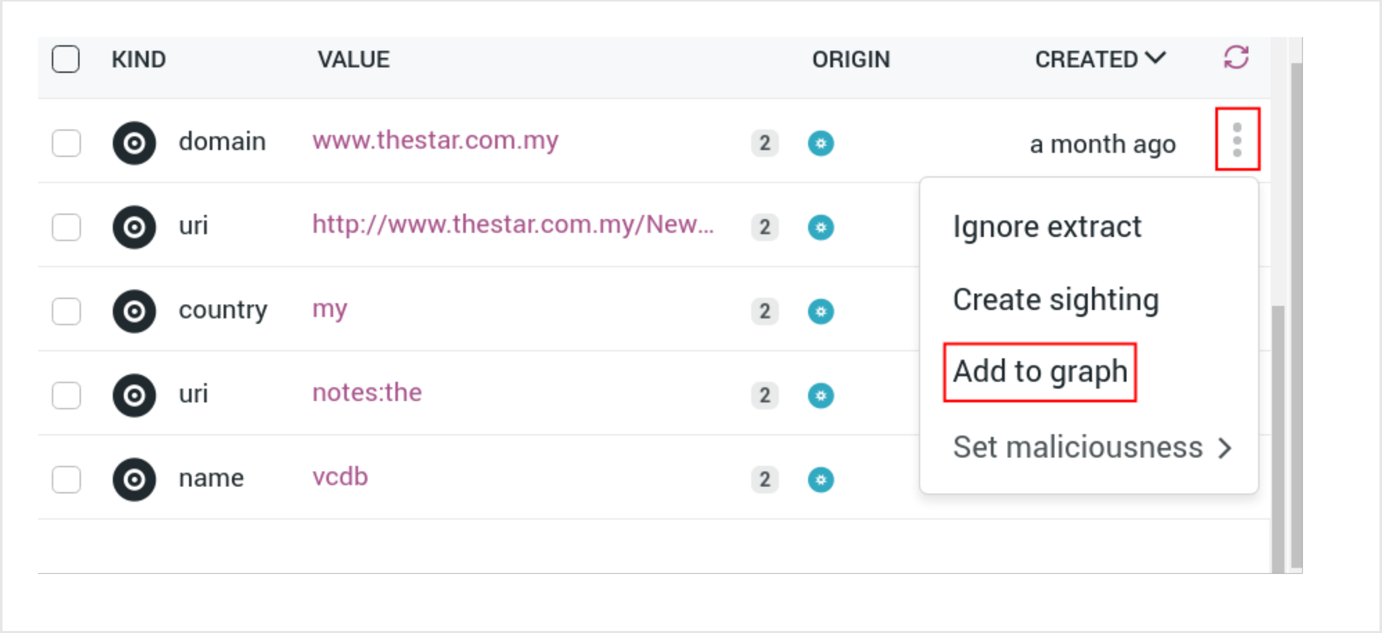


☐	KIND	VALUE	ORIGINS		CREATED
☐	domain	t.esecurityplanet...	2	●●●	2 months ago
☐	country	us	2	●	2 months ago
☐	uri	http://t.esecurit...	2	●●●	2 months ago
☐	name	vcdb	2	●●●	2 months ago

Review enrichment observables on the graph

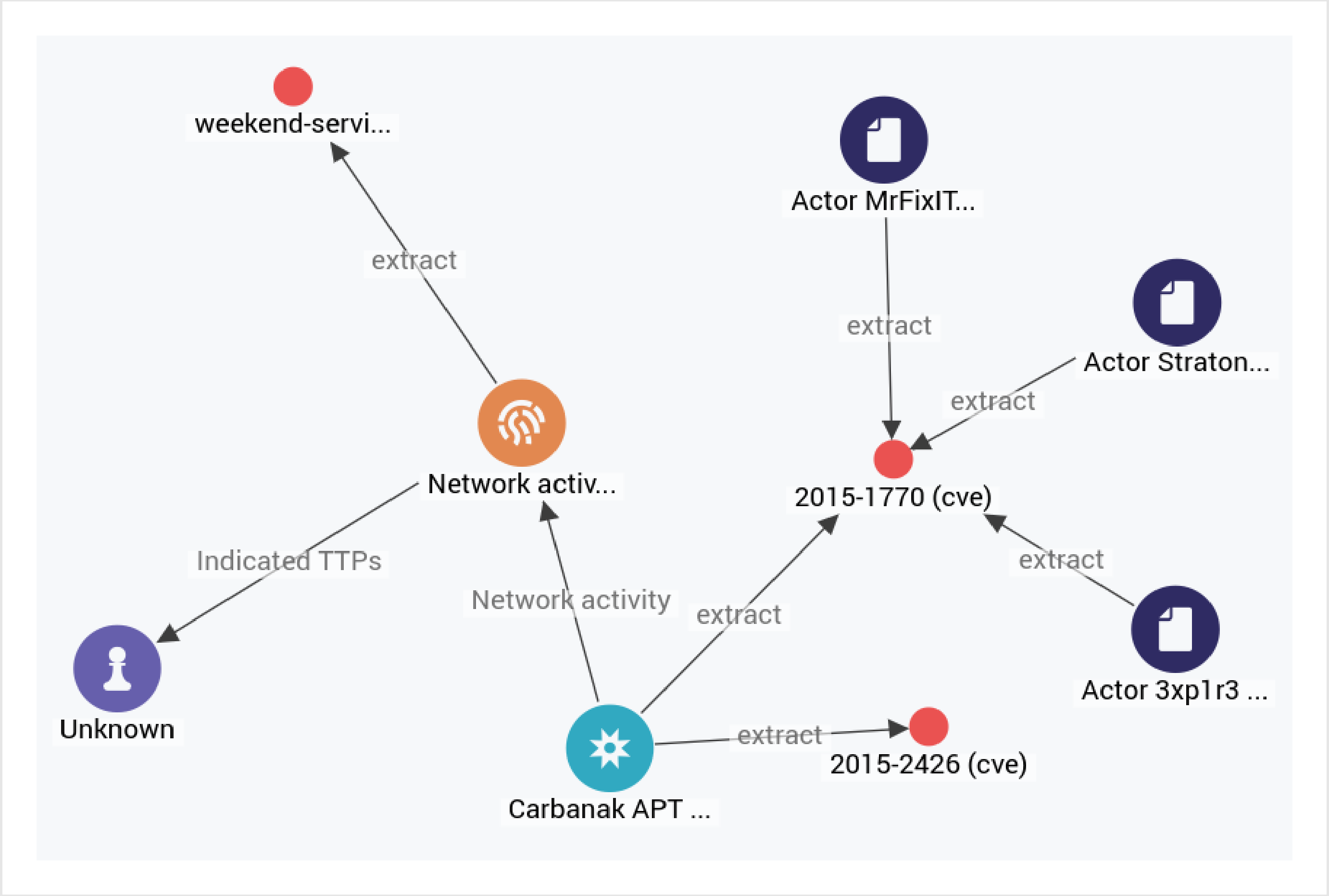
To view enrichment data and their connections with other entities and observables on the graph, do the following:

- On the row corresponding to the observable you want to load onto the graph, click the ⋮ icon, and then select **Add to graph**.

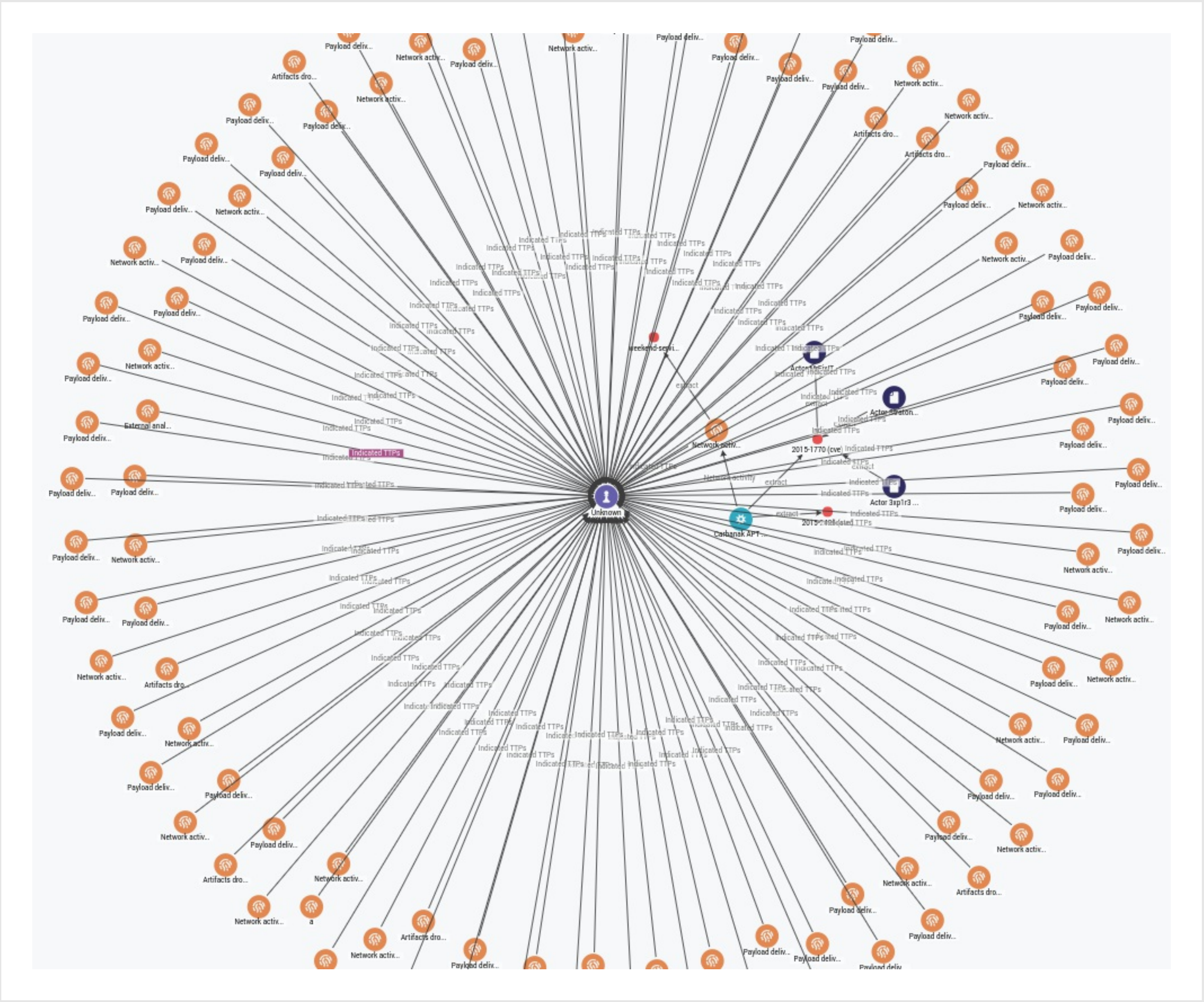


☐	KIND	VALUE	ORIGIN	CREATED
☐	domain	www.thestar.com.my	2	a month ago
☐	uri	http://www.thestar.com.my/New...	2	
☐	country	my	2	
☐	uri	notes:the	2	
☐	name	vcdb	2	

- To load the parent entity whose detail pane you are viewing, instead of its observables, from the pop-up **Actions** menu at the bottom of the pane select **Add to graph**.
- Click the graph thumbnail on the lower side of the screen to expand it.
- On the graph, right-click the entity you want to inspect, and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .

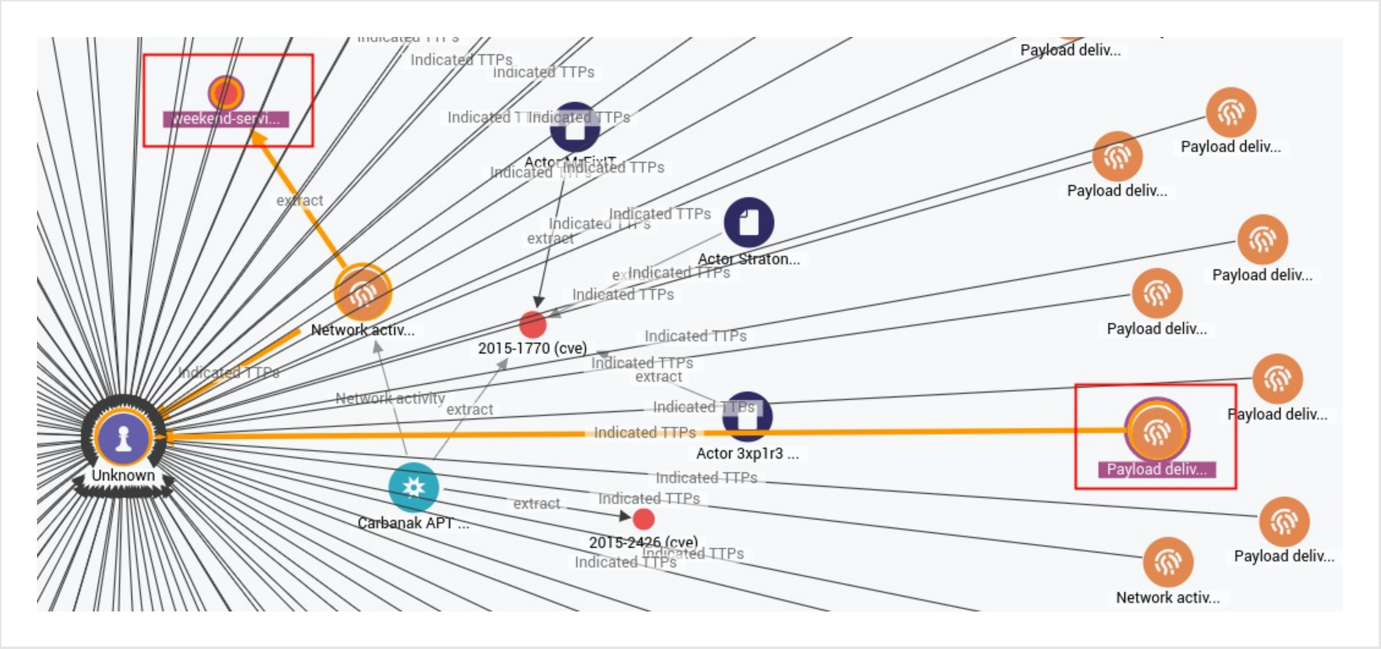


- Right-click an extract or an entity for further inspection and from the context menu select **Load entities > All**, **Load observables > All** or **Load entities by extract > All** .



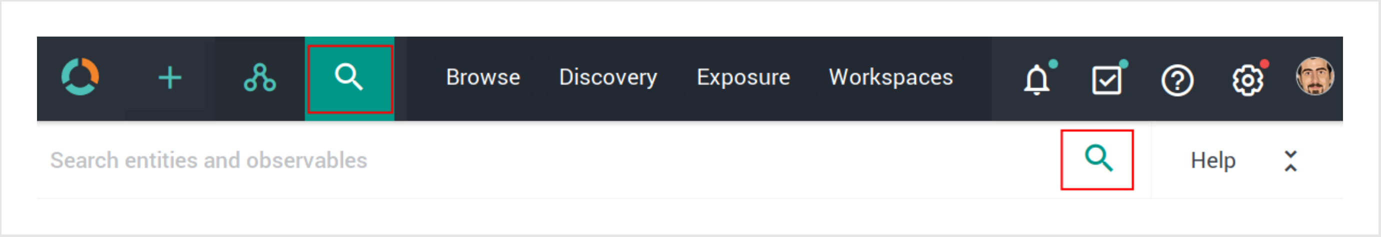
To see how entities, observables and enrichment observables are connected, and to inspect relationships between distant items, do the following:

- **CTRL** + click two nodes on the graph to select them.
- Right-click either selected node, and from the context menu select **Find path** to query the graph database about the existence of a path between the nodes, or **Show path** to highlight asn existing path on the graph.
- If a path does exist, the selected nodes and all the intermediate ones are highlighted on the graph to show the path that links them.



Search for enrichment observables

You can use the search box to look for enrichment observables. You can find the search box on the top bar:

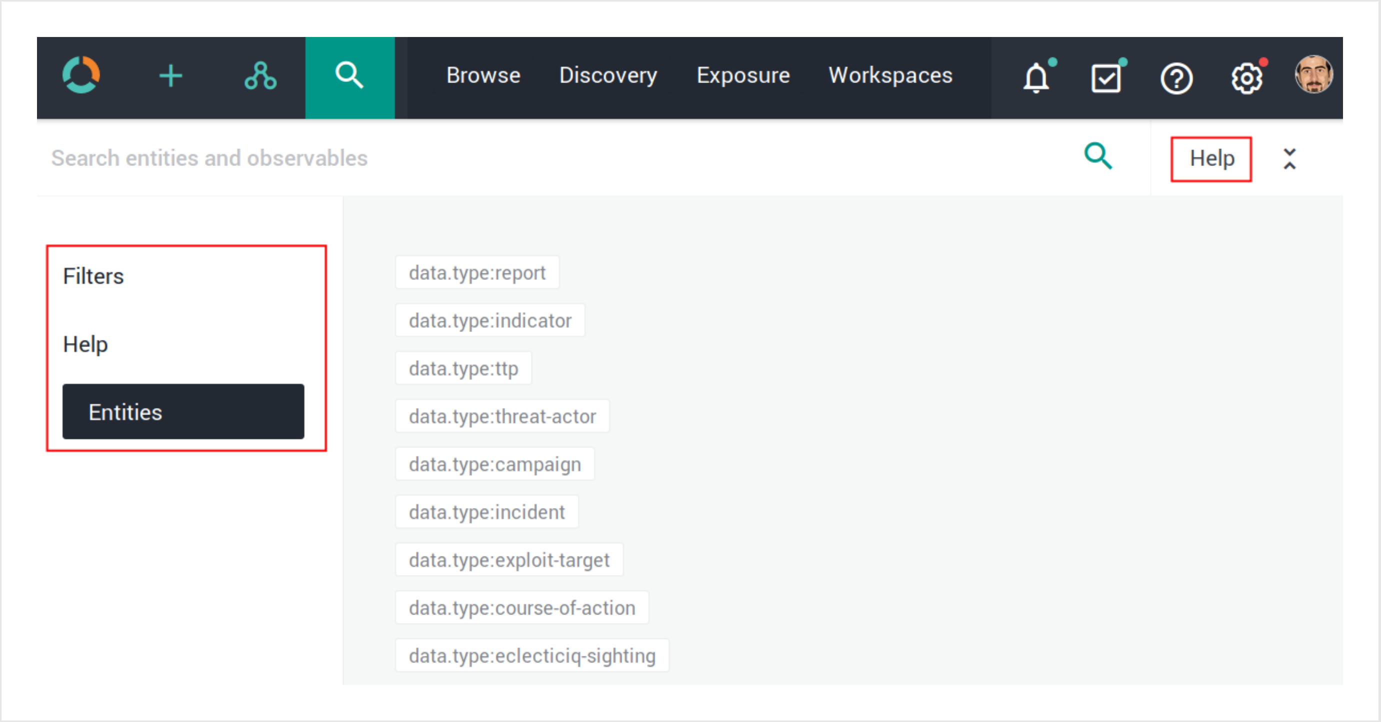


Enter search terms and search queries, and then press **ENTER** or click the search icon to run the search. Searches you run through this search box are executed platform-wide.

> ℹ The search functionality uses **Elasticsearch query syntax** `(https://www.elastic.co/guide/en/elasticsearch/reference/current/full-text-queries.html).`

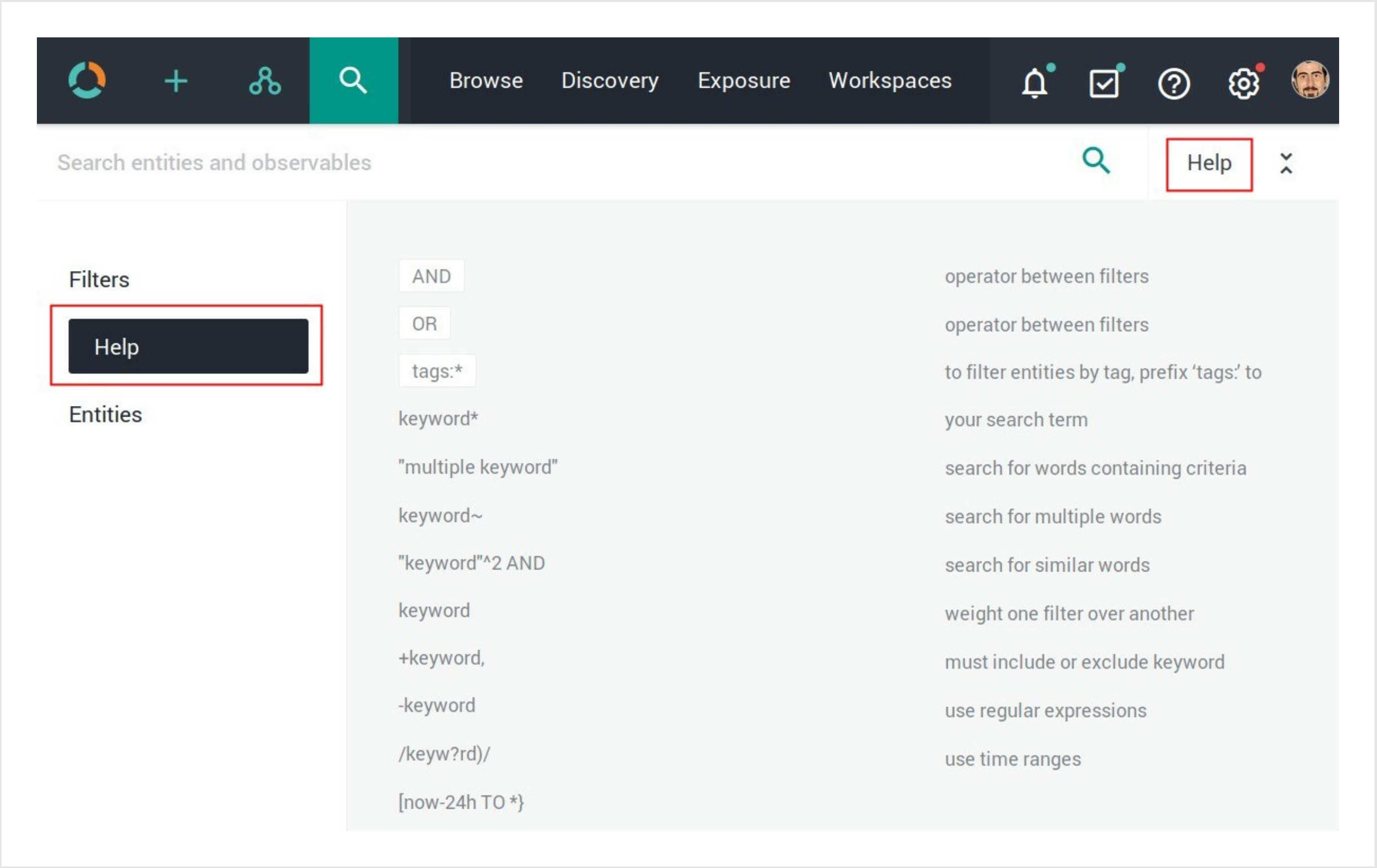
To access a cheatsheet with search examples using entity types, filters, and for help with the search syntax, click **Help** to display thematic drop-down lists with common search queries:

- **Filters**: examples of quick search filters.
- **Help**: examples of regex, Boolean, wildcards, and tag search usage.
- **Entities**: examples of searchable entity types.



data.type:report
data.type:indicator
data.type:ttp
data.type:threat-actor
data.type:campaign
data.type:incident
data.type:exploit-target
data.type:course-of-action
data.type:eclecticiq-sighting

Besides full text search, you can use Boolean operators, wildcards, regex, and you can combine these filtering options to create more refined searches.



AND	operator between filters
OR	operator between filters
tags:*	to filter entities by tag, prefix 'tags:' to
keyword*	your search term
"multiple keyword"	search for words containing criteria
keyword~	search for multiple words
"keyword"^2 AND	search for similar words
keyword	weight one filter over another
+keyword,	must include or exclude keyword
-keyword	use regular expressions
/keyw?rd)/	use time ranges
[now-24h TO *}	

Use operators to combine multiple quick filters and create a more complex search query.
Example:

enrichment_extracts.kind:domain AND enrichment_extracts.meta.classification:high

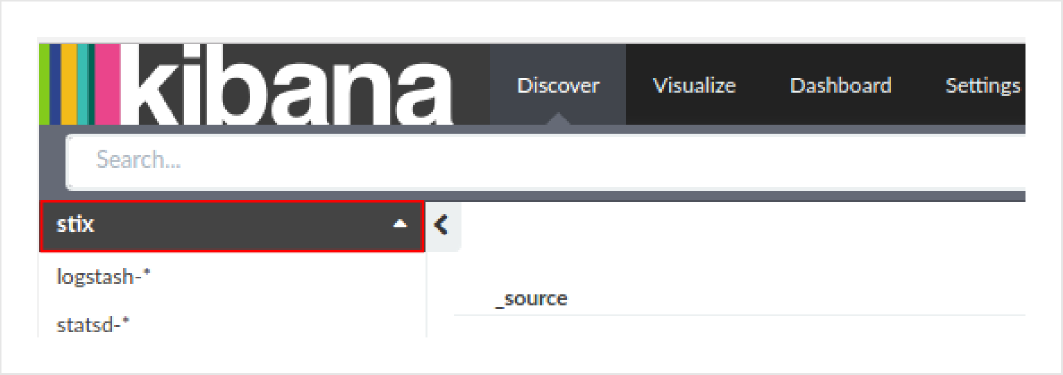
Field	Description	Example
enrichment_extracts.id	string — The alphanumeric ID string that uniquely identifies the enrichment observable.	`01h12x45-01q2-1234-od01-123456h78h90`
enrichment_extracts.kind	string — The enrichment observable data type.	`domain`
enrichment_extracts.meta.blacklisted	Boolean — An observable is blacklisted when it is included in the results returned by an *ignore* extraction rule. Allowed values: `true`, `false`.	`true`
enrichment_extracts.meta.classification	string — This value is defined in **Rules** by selecting appropriate options under **Action** and **Confidence**. Allowed classification metadata values are `good`, `bad`, and `unknown`.	`good`
enrichment_extracts.meta.confidence	string — This value is defined in **Rules** by selecting the appropriate option under **Action** and **Confidence**. The selected action must be **Mark as malicious** for the **Confidence** drop-down list to become available. Allowed confidence metadata values are `low`, `medium`, and `high`.	`high`
enrichment_extracts.value	string — The actual value of the enrichment observable, based on the enrichment observable data type.	`doom.dismay.biz`

Enricher	Supported kinds (observable types)
Elasticsearch sightings	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512
Fox-IT InTELL Portal	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256
Intel 471	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha256
OpenDNS OpenResolve	ipv4, ipv6, domain, host
PyDat	ipv4, ipv6, domain
RIPEstat GeoIP	ipv4, ipv6
RIPEstat Whois	ipv4, ipv6
Cisco Threat Grid	ipv4, ipv6, domain, host, uri, hash-md5, hash-sha1, hash-sha256, hash-sha512, winregistry
VirusTotal	ipv4, ipv6, domain, uri, hash-md5, hash-sha1, hash-sha256
Flashpoint AggregINT	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Blueprint	ipv4, ipv6, domain, host, uri, email, actor-id, hash-md5, hash-sha1, hash-sha256, hash-sha512
Flashpoint Thresher	ipv4, domain, host, uri, hash-sha1, file
PassiveTotal Whois	ipv4, ipv6, domain, host

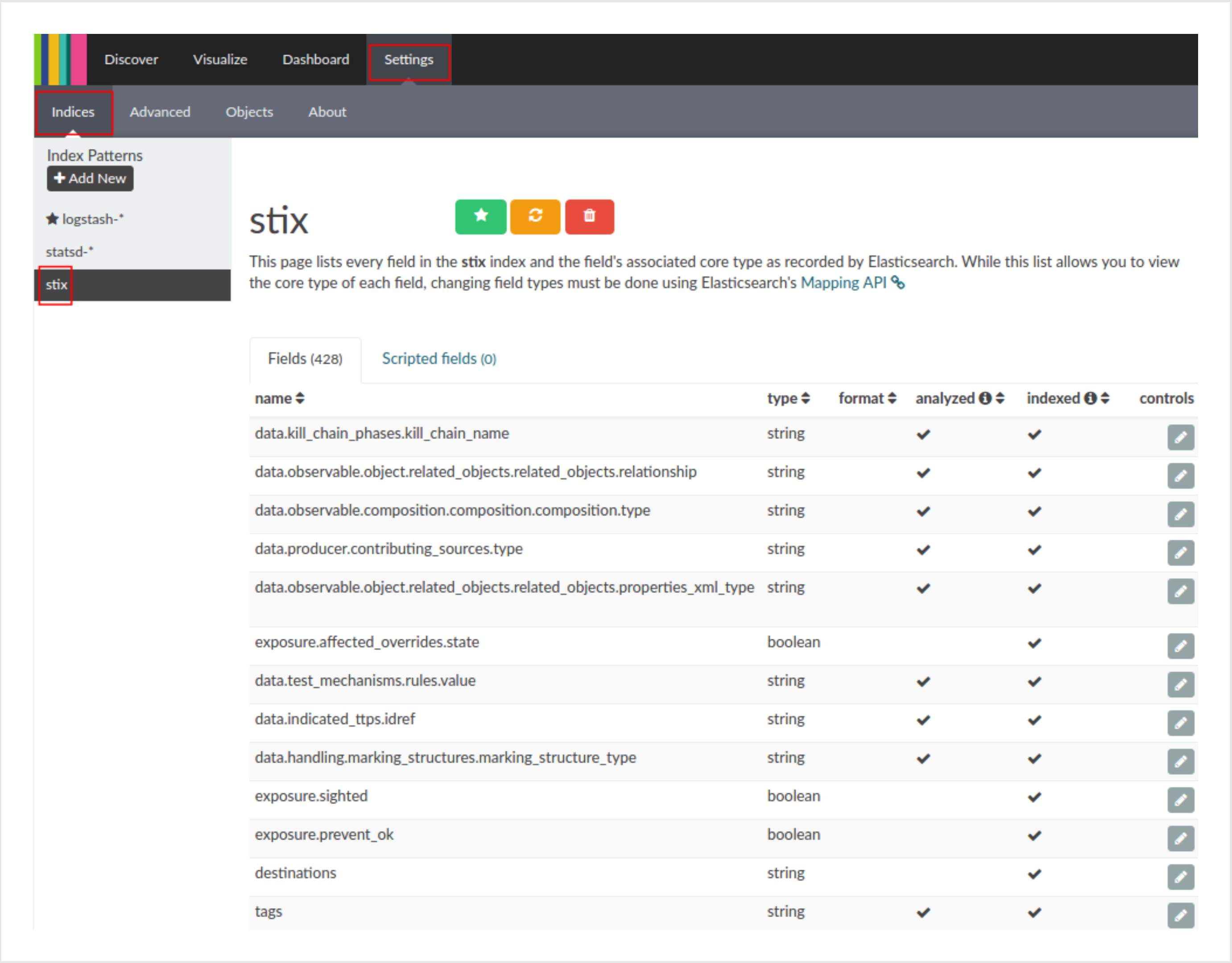
Enricher	Supported kinds (observable types)
PassiveTotal Passive DNS	ipv4, ipv6, domain, host
PassiveTotal IP/Domain	ipv4, ipv6, domain, host
PassiveTotal Malware	domain, host
Splunk sightings	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, uri
DomainTools Hosted Domains	ipv4
DomainTools Reputation	domain, host
DomainTools Suspicious Domains	ipv4
FireEye iSIGHT	asn, domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, host, ipv4, ipv6, uri
Recorded Future	domain, hash-md5, hash-sha1, hash-sha256, hash-sha256, ipv4, ipv6
Unshorten-URL	uri
Farsight DNSDB	domain, host, ipv4, ipv6
ThreatCrowd	domain, email, hash-md5, hash-sha1, hash-sha256, hash-sha512, host, ipv4, ipv6, malware
Censys	asn, city, company, country, country_code, geo-lat, geo-long, hash-md5, hash-sha1, hash-sha256, ipv4, postcode
DomainTools Malicious Server Domains	domain, host
DomainTools Retrieve Parsed Whois Observables	domain, host, ipv4
Crowdstrike Falcon Intelligence Indicator	domain, email, email-subject, file, hash-md5, hash-sha1, hash-sha256, ipv4, ipv6, mutex, name, persona, port, uri

For reference, you can look up a complete list of all available search query fields in Kibana:

- Sign in to the platform with your user credentials.
- To access Kibana, in the web browser address bar enter a URL with the following format:
  `<platform_host>/api/kibana/app/kibana#/`.
  Keep the trailing `/`.
  Example: `https://platform.host.com/api/kibana/app/kibana#/`
- Select the **stix** index field:



- On the main menu bar, select **Settings**:



stix

This page lists every field in the **stix** index and the field's associated core type as recorded by Elasticsearch. While this list allows you to view the core type of each field, changing field types must be done using Elasticsearch's Mapping API

Fields (428) Scripted fields (0)

name	type	format	analyzed	indexed	controls
data.kill_chain_phases.kill_chain_name	string		✓	✓	✎
data.observable.object.related_objects.related_objects.relationship	string		✓	✓	✎
data.observable.composition.composition.composition.type	string		✓	✓	✎
data.producer.contributing_sources.type	string		✓	✓	✎
data.observable.object.related_objects.related_objects.properties_xml_type	string		✓	✓	✎
exposure.affected_overrides.state	boolean			✓	✎
data.test_mechanisms.rules.value	string		✓	✓	✎
data.indicated_ttps.idref	string		✓	✓	✎
data.handling.marking_structures.marking_structure_type	string		✓	✓	✎
exposure.sighted	boolean			✓	✎
exposure.prevent_ok	boolean			✓	✎
destinations	string			✓	✎
tags	string		✓	✓	✎

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