## Storm Quick Reference - Example Storm Operations | For a complete list of operations and commands, see the Storm Reference Guide.

| Operator | Meaning | Example | Query / Question |
|---|---|---|---|
| **Lift** | | | |
| = | Simple lift | `inet:fqdn=vertex.link` | Show me the FQDN **vertex.link** |
| n/a | Lift forms | `inet:fqdn` | Show me **all** the FQDNs |
| # | Lift by tag | `#rep.eset.sednit` | Show me **all the nodes tagged #rep.eset sednit** (i.e., that ESET associates with Sednit) |
| # | Lift form by tag | `hash:sha1#rep.eset.sednit` | Show me all **the SHA1 hashes that ESET associates with Sednit** |
| **Filter** | | | |
| + | Include | `inet:ipv4#rep.talos.tick +:asn=4663` | Show me the IPv4 addresses that Talos associates with Tick **that are part of AS4663** |
| - | Exclude | `inet:fqdn#rep.feye.fin7 -#cno.infra.dns.sink.holed` | Show me the FQDNs that FireEye associates with FIN7 **except for the ones that are sinkholed** |
| **Pivot** | | | |
| -> | Pivot out | `inet:fqdn=elaxo.org -> inet:dns:a` | For the FQDN elaxo.org, **show me its DNS A records** |
| -> * | Pivot out (wildcard) | `file:bytes#rep.paloalto.conti -> *` | For the files that Palo Alto associates with Conti, show me all the nodes **those files reference ("point to")** (i.e., pivot from the files' **properties** to the nodes for those properties) |
| <- * | Pivot in (wildcard) | `file:bytes#rep.paloalto.conti <- *` | For the files that Palo Alto associates with Conti, show me all of the nodes **that reference ("point to") those files** (i.e., pivot from the files to any nodes where **the file is a property**) |

| **Traverse** | | | |
|---|---|---|---|
| `-(<edge>)>` | Traverse named edge (out) | `media:news:publisher:name=mcafee -(refs)> *` | Show me all of the objects (hashes, URLs, etc.) **referenced by** any McAfee news articles (blogs, whitepapers, etc.) |
| `<(<edge>)-` | Traverse named edge (in) | `inet:fqdn=check-update.ru <(seen)- meta:source` | Show me all of the data sources **that have seen / provided data on** FQDN check-update.ru |
| `-(*)>` | Traverse any / all edges (out) | `media:news:publisher:name=clearsky -(*)> *` | Show me all the things **linked by any light edge** to any news articles by Clearsky |
| `<(*)-` | Traverse any / all edges (in) | `inet:ipv4=195.62.52.93 <(*)- *` | Show me all the things IPv4 195.62.52.93 is **linked to by any light edge** |

| **Pivot and Traverse** | | | |
|---|---|---|---|
| `--> *` | Pivot and traverse out | `file:bytes#rep.feye.icefog --> *` | Show me all the things **referenced by or linked to (by any light edge)** the files FireEye associates with IceFog |
| `<-- *` | Pivot and traverse in | `file:bytes#rep.feye.icefog <-- *` | Show me all the things that **reference or link to (by any light edge)** the files FireEye associates with IceFog |

| **Pivot / Traverse and Join (navigate to results and keep the source nodes)** | | | |
|---|---|---|---|
| `-+>` | Pivot and join | `inet:fqdn=elaxo.org -+> inet:dns:a` | Show me the FQDN elaxo.org **and its DNS A records** |
| `-(<edge>)+>` | Traverse and join | `media:news:publisher:name=mcafee -(refs)+> *` | Show me the articles published by McAfee **and all the things referenced by those articles** |