

ThreatQuotient



Shodan Action Guide

Version 1.0.2

December 06, 2022

ThreatQuotient
20130 Lakeview Center Plaza Suite 400
Ashburn, VA 20147

 ThreatQ Supported

Support

Email: support@threatq.com

Web: support.threatq.com

Phone: 703.574.9893

Contents

Integration Details.....	5
Introduction	6
Prerequisites	7
Installation.....	8
Configuration	9
Action Functions	11
Shodan.....	11
Enriched Data.....	19
Use Case Example	20
Known Issues / Limitations	21
Change Log.....	22

Warning and Disclaimer

ThreatQuotient, Inc. provides this document “as is”, without representation or warranty of any kind, express or implied, including without limitation any warranty concerning the accuracy, adequacy, or completeness of such information contained herein. ThreatQuotient, Inc. does not assume responsibility for the use or inability to use the software product as a result of providing this information.

Copyright © 2022 ThreatQuotient, Inc.

All rights reserved. This document and the software product it describes are licensed for use under a software license agreement. Reproduction or printing of this document is permitted in accordance with the license agreement.

Support

This integration is designated as **ThreatQ Supported**.

Support Email: support@threatq.com

Support Web: <https://support.threatq.com>

Support Phone: 703.574.9893

Integrations/apps/add-ons designated as **ThreatQ Supported** are fully supported by ThreatQuotient's Customer Support team.

ThreatQuotient strives to ensure all ThreatQ Supported integrations will work with the current version of ThreatQuotient software at the time of initial publishing. This applies for both Hosted instance and Non-Hosted instance customers.



ThreatQuotient does not provide support or maintenance for integrations, apps, or add-ons published by any party other than ThreatQuotient, including third-party developers.

Integration Details

ThreatQuotient provides the following details for this integration:

Current Integration Version	1.0.2
Compatible with ThreatQ Versions	>= 5.6.0
ThreatQ TQO License Required	Yes
Support Tier	ThreatQ Supported
ThreatQ Marketplace	https://marketplace.threatq.com/details/shodan-action

Introduction

The Shodan action for ThreatQ submits a data collection of IP Address objects to the Shodan API. The Shodan API queries the submitted IPs for any services running and returns related threat intelligence to be ingested into the ThreatQ library.

The action provides the following functions:

- **Shodan** - submits an IP Address to the Shodan API to enrich the indicator with all services found by Shodan on the host.

The action is compatible with the IP Address type indicators and returns enriched indicators.



This action is intended for use with ThreatQ TRD Orchestrator (TQO). An active TQO license is required for this feature.

Prerequisites

The action requires the following:

- An active ThreatQ TRD Orchestrator (TQO) license.
- A data collection containing the IP Address objects.
- A Shodan API Key.

Installation

Perform the following steps to install the integration:



The same steps can be used to upgrade the integration to a new version.

1. Log into <https://marketplace.threatq.com/>.
2. Locate and download the action file.
3. Navigate to the integrations management page on your ThreatQ instance.
4. Click on the **Add New Integration** button.
5. Upload the action file using one of the following methods:
 - Drag and drop the file into the dialog box
 - Select **Click to Browse** to locate the integration file on your local machine



ThreatQ will inform you if the action already exists on the platform and will require user confirmation before proceeding. ThreatQ will also inform you if the new version of the action contains changes to the user configuration. The new user configurations will overwrite the existing ones for the action and will require user confirmation before proceeding.

You will still need to [configure](#) the action.

Configuration



ThreatQuotient does not issue API keys for third-party vendors. Contact the specific vendor to obtain API keys and other integration-related credentials.

To configure the integration:

1. Navigate to your integrations management page in ThreatQ.
2. Select the **Actions** option from the *Category* dropdown (optional).
3. Click on the action entry to open its details page.
4. Enter the following parameters under the **Configuration** tab:



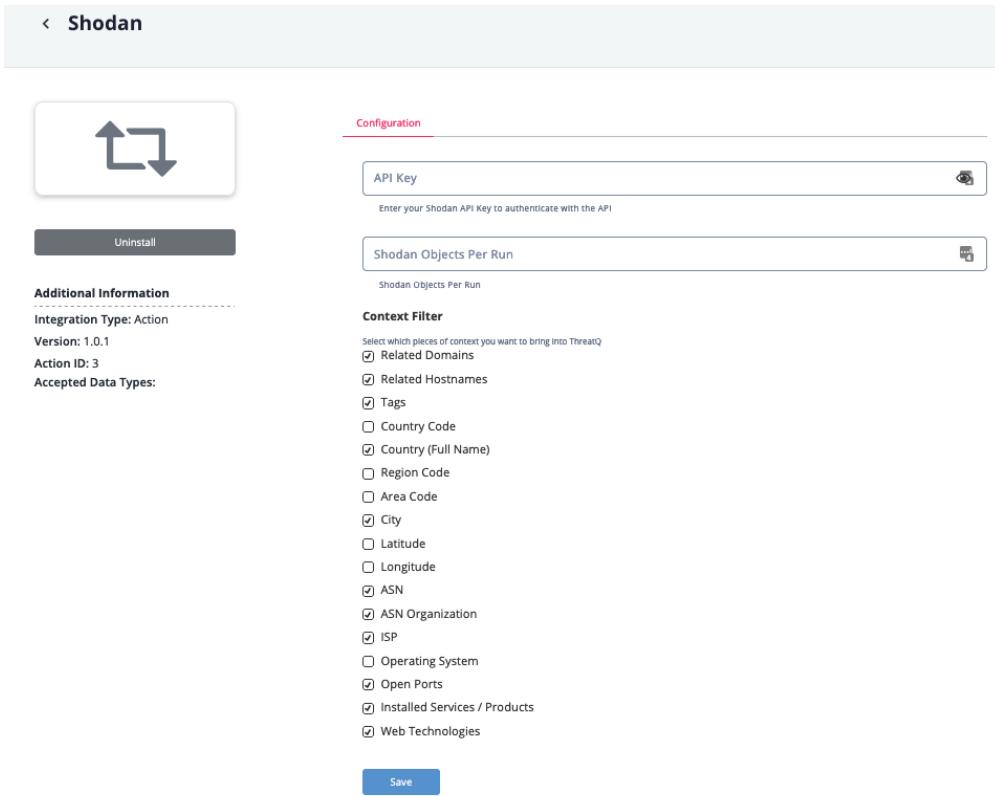
The configurations set on this page will be used as the default settings when inserting this action into a new workflow. Updating the configurations on this page will not update any instances of this action that have already been deployed to a workflow. In that scenario, you must update the action's configurations within the workflow itself.

PARAMETER	DESCRIPTION
API Key	Your Shodan API Key to authenticate with the API.
Shodan Objects Per Run	The amount of objects per run. The max value for this parameter is 50,000.
Context Filter	Select which pieces of context you want to bring into ThreatQ. Options include: <ul style="list-style-type: none">◦ Related Domains◦ Related Hostnames◦ Tags◦ Country Code◦ Longitude◦ ASN◦ ASN Organization◦ ISP

PARAMETER

DESCRIPTION

- | | |
|-----------------------|---------------------------------|
| ◦ Country (Full Name) | ◦ Operating System |
| ◦ Region Code | ◦ Open Ports |
| ◦ Area Code | ◦ Installed Services / Products |
| ◦ City | ◦ Web Technologies |
| ◦ Latitude | |



Shodan

Configuration

API Key 

Enter your Shodan API Key to authenticate with the API

Shodan Objects Per Run 

Additional Information

Integration Type: Action
Version: 1.0.1
Action ID: 3
Accepted Data Types:

Context Filter

Select which pieces of context you want to bring into ThreatQ

Related Domains
 Related Hostnames
 Tags
 Country Code
 Country (Full Name)
 Region Code
 Area Code
 City
 Latitude
 Longitude
 ASN
 ASN Organization
 ISP
 Operating System
 Open Ports
 Installed Services / Products
 Web Technologies

Save

5. Review any additional settings, make any changes if needed, and click on **Save**.

Action Functions

The action provides the following function:

FUNCTION	DESCRIPTION	OBJECT TYPE	OBJECT SUBTYPE
Shodan	Performs IP lookups using the Shodan API.	Indicator	IP Address

Shodan

The Shodan function performs IP lookups and uses the returning data to enrich system indicators.

```
GET https://api.shodan.io/shodan/host/{{ip}}
```

Sample Response:

```
{  
  "region_code": "25",  
  "tags": ["self-signed"],  
  "ip": 2956492918,  
  "area_code": null,  
  "domains": ["128bit.ee"],  
  "hostnames": ["128bit.ee"],  
  "country_code": "IT",  
  "org": "Lasi SA",  
  "data": [  
    {  
      "ip": 2956492918,  
      "hash": 1132111599,  
      "port": 443,  
      "transport": "tcp",  
      "location": {  
        "city": "Milan",  
        "region_code": "25",  
        "area_code": null,  
        "longitude": 9.18951,  
        "country_name": "Italy",  
        "country_code": "IT",  
        "latitude": 45.46427  
      },  
      "product": "nginx",  
      "http": {  
        "status": 200,  
        "robots_hash": null,  
        "redirects": []  
      }  
    }  
  ]  
}
```

```
        "securitytxt": null,
        "title": null,
        "sitemap_hash": null,
        "robots": null,
        "server": "nginx",
        "headers_hash": -723384840,
        "host": "176.56.128.118",
        "html": "",
        "location": "/",
        "securitytxt_hash": null,
        "sitemap": null,
        "html_hash": 0
    },
    "tags": ["self-signed"],
    "timestamp": "2022-04-14T22:41:52.130646",
    "ssl": {
        "chain_sha256": [
            "a9033f37cf0e5f652e17d3bdb4da913b63c1e2491e5f2c037f048e5e6e223000"
        ],
        "jarm": "2ad2ad0002ad2ad0002ad2ad2ade1a3c0d7ca6ad8388057924be83dfc6a",
        "chain": [
            "-----BEGIN CERTIFICATE-----\nMIIDzCCAgAwIBAgIUBcABPSia7G4H8wZZ2PMX7qA9QnowDQYJKoZIhvcNAQEL\nnBQAwdzELMAkGA1UEBhMCR0IxDzANBgNVBAgMBkxvbmRvbjEPMA0GA1UEBwwGTG9u\\nZG9uMRgwFgYDVQQKDA9HbG9iYWwgU2VjdXJpdHkxFjAUBgNVBAsMDU1UIERlcGFy\\ndG1lbnQxFDASBgnVBAMMC2V4YW1wbGUuY29tMB4XDTIyMDQxMjEyMjQ1N1oXDTIz\\nMDQzMjEyMjQ1N1owdzELMAkGA1UEBhMCR0IxJpdHkxFjAUBgNVBAgMBkxvbmRvbjEPMA0G\\nA1UEBwwGTG9uZG9uMRgwFgYDVQQKDA9HbG9iYWwgU2VjdXJpdHkxFjAUBgNVBAsM\\nDU1UIERlcGFydG1lbnQxFDASBgnVBAMMC2V4YW1wbGUuY29tMIIBIjANBgkqhkiG\\n9w0BAQEFAOCAQ8AMIIBCgKCAQEA4q3GumzgU1ZB91gGyTTI3v4xueDuJdBgMMAn\\n8jsvw388KRALrZkpYf2fgSB3Shg1CuWmIRywk5fq13BA1RGX/Y2mqrNy whole string omitted for brevity
        ],
        "dhparams": null,
        "versions": [
            "-TLSv1",
            "-SSLv2",
            "-SSLv3",
            "-TLSv1.1",
            "TLSv1.2",
            "-TLSv1.3"
        ],
        "acceptable_cas": [],
        "tlsext": [
            {
                "id": 65281,
                "name": "renegotiation_info"
            },
            {
                "id": 11,
                "name": "ec_point_formats"
            },
            {
                "id": 35,
                "name": "session_ticket"
            }
        ]
    }
}
```

```
        }
    ],
    "alpn": ["http/1.1"],
    "cert": {
        "sig_alg": "sha256WithRSAEncryption",
        "issued": "20220412122457Z",
        "expires": "20230412122457Z",
        "pubkey": {
            "bits": 2048,
            "type": "rsa"
        },
        "version": 2,
        "extensions": [
            {
                "data": "\x04\x14\x8d\xe3f\xb5\xc1M\x a7\xc8\xd0\x81\x a8I\x dfw\x0f!\xd7\\':\\xf1",
                "name": "subjectKeyIdentifier"
            },
            {
                "data": "0\x16\x80\x14\x8d\xe3f\xb5\xc1M\x a7\xc8\xd0\x81\x a8I\x dfw\x0f!\xd7\\':\\xf1",
                "name": "authorityKeyIdentifier"
            },
            {
                "critical": true,
                "data": "0\x03\x01\x01\xff",
                "name": "basicConstraints"
            }
        ],
        "fingerprint": {
            "sha256": "a9033f37cf0e5f652e17d3bdb4da913b63c1e2491e5f2c037f048e5e6e223000",
            "sha1": "55fa46031f38791fcf160902656b539e89969810"
        },
        "serial": 33540428702073900056198168940564612456308884090,
        "issuer": {
            "C": "GB",
            "CN": "example.com",
            "L": "London",
            "O": "Global Security",
            "ST": "London",
            "OU": "IT Department"
        },
        "expired": false,
        "subject": {
            "C": "GB",
            "CN": "example.com",
            "L": "London",
            "O": "Global Security",
            "ST": "London",
            "OU": "IT Department"
        }
    },
    "cipher": {
        "version": "TLSv1/SSLv3",
        "bits": 256,
        "name": "ECDHE-RSA-AES256-GCM-SHA384"
    },
    "trust": {
        "revoked": false,
        "browser": null
    }
},
```

```
"handshake_states": [
    "before/connect initialization",
    "SSLv2/v3 write client hello",
    "SSLv2/v3 read server hello",
    "SSLv3/TLS read server hello",
    "SSLv3/TLS read server certificate",
    "SSLv3/TLS read server key exchange",
    "SSLv3/TLS read server done",
    "SSLv3/TLS write client key exchange",
    "SSLv3/TLS write change cipher spec",
    "SSLv3/TLS write finished",
    "SSLv3/TLS flush data",
    "SSLv3/TLS read server session ticket",
    "SSLv3/TLS read finished",
    "SSL negotiation finished successfully"
],
"ja3s": "e35df3e00ca4ef31d42b34bebba2f86e",
"ocsp": {}
},
"hostnames": [],
"org": "Lasi SA",
"data": "HTTP/1.1 200 OK\r\nServer: nginx\r\nDate: Thu, 14 Apr 2022 22:41:52
GMT\r\nContent-Type: text/html; charset=UTF-8\r\nTransfer-Encoding: chunked\r\nConnection: keep-alive\r\n\r\n",
"asn": "AS12637",
"cpe23": ["cpe:2.3:a:igor_sysoev:nginx"],
"isp": "SEEWEB s.r.l.",
"cpe": ["cpe:/a:igor_sysoev:nginx"],
"domains": [],
"ip_str": "176.56.128.118",
"os": null,
"_shodan": {
    "id": "3153f648-fe43-41af-b3bc-72a0508e1ec7",
    "ptr": true,
    "options": {},
    "module": "https",
    "crawler": "91597136eb9b132d7cc954511e0d9cbe7ce2e377"
},
"opts": {
    "vulns": [],
    "heartbleed": "2022/04/14 22:42:06 176.56.128.118:443 - SAFE\n"
}
},
{
    "_shodan": {
        "id": "00633169-f138-4344-ba79-6b46ba65debe",
        "ptr": true,
        "options": {},
        "module": "auto",
        "crawler": "240a12b6c2ac5dba30ed961e4ab8f056540fdaf0"
    },
    "hash": 0,
    "os": null,
    "opts": {},
    "timestamp": "2022-04-16T19:16:39.858796",
    "isp": "SEEWEB s.r.l.",
    "asn": "AS12637",
    "hostnames": [],
    "location": {
        "city": "Milan",
        "region_code": "25",
    }
}
```



```
"data": "HTTP/1.1 403 Forbidden\r\nServer: nginx\r\nDate: Mon, 11 Apr 2022 09:34:51 GMT\r\nContent-Type: text/html\r\nContent-Length: 564\r\nConnection: keep-alive\r\n\r\n",
"port": 5000,
"transport": "tcp",
"location": {
    "city": "Milan",
    "region_code": "25",
    "area_code": null,
    "longitude": 9.18951,
    "country_name": "Italy",
    "country_code": "IT",
    "latitude": 45.46427
},
{
    "_shodan": {
        "id": "6b01d22b-22a4-4c60-a2b3-c82793ca0635",
        "ptr": true,
        "options": {},
        "module": "https-simple-new",
        "crawler": "dfd12d70c30ccb3812bf26f89905deeb85e98c77"
    },
    "http": {
        "status": 200,
        "robots_hash": null,
        "redirects": [],
        "securitytxt": null,
        "title": "3CX Phone System Management Console",
        "sitemap_hash": null,
        "robots": null,
        "favicon": {
            "data": "iVBORw0KGgoAAAANSUhEUgAAACAAAAAgEAYAAAj6qa3AAAABmJLR0T/////////8JWPfcAAACXB1\nWXMABIAAAASABGyWs+AAACXZwQwCAAAgAAAAIACH+pydAAADF1EQVRo3s2ZXUgUURTH98O\nnakpYh+KRSnFrNRQSQtKykLetAKSqqIISWhYiSjXG0Fc1VKi1ALi9TKtC0zKgMp0MogISItMwoq\\nNsM0kyTN\ndMMe/meEGWbTdfaMnZcf08Pec8//3nPmfmglbprJVFra3i78Wno0rI8DA3zdbc89K4KB\\n05rBUU1PT2pqcPDUW9Qp\n61BHC1hIAvx+wCvArkywIV14Ih4QFQSQV7x6EVhj5xVgjgHMPg0GX1Ta\\nolZpA+IR8C8G65+Ay27wClKrB/cuBH86\n3E0JhSkgtfdpYC51YTCWV4D4q2DSY+GJuymhWAB5xeu6\\nwMoIXgEM08Ajb8CITHdbUJwCUh0PgDkEtG8EIwt5BwMI\nAp0oWPYbJ0oJD6eA1Bxt4IkL4I9uXn9x\\no2AK1QatbaKU8LgA8orfDwXLA+jBIR4BdM+o+TBw7XbhjSsh2GaAWhn\nE3gyHmy6yeUXNv81aKWF\\n2YJwl5LxdkRqXy+DuVQL+oJ4/UUPgQeyQX2vdCZ4vAi6MrFj7SfQ8hK0Pgd1Vh7vA7SA\n2pMA1tUK\\nb1SbAeKUGKOpWVINNm7i9e49AuY8Ahd3qi6AvBDfa8DjD0FHDK/35V/AjB5wpk11AeSt1RYwZ+aB\\nzg\nZef4lGcN9+1WqAKxPXBhPVhsadYGgLr/e2bdM2A+S/yxsqQf8BXu/9VjD/6X+SAoF4LFo0Khg\\nh/9PuwKU3wHtZt\nUFEI/87G9gFm2fg2J4vTdTjSmuAJ2tqgkgP+V3U/Xf/o7X+2eq/p10gNIIdIryZ\\nphSILACPzgINbTx+nGawkIRuqR\nPeCJ9jdqHEI+9DJ0YWH9C8hde7/S54qUoauGBsn0HJ1h8FZNBu\\nMM8b1A/ze0+8DW611wbHdVfnAh6fAfK5vo78p0\nfxBj6YDFq9hMAN+ocXT0fG5SgBs+mkxtTH669i\\nCxhr/HRatRMh8cjrq0qmrQDX/OINVGU1aFsJj1R09nRYSQDyU3\n4zHXgk03deM8QTe08pMGs92BX1\\nbgseTgFF6kj0WXDUw57A/9DmqYj2Ck2rhDeq3QuIR35GL3iYRiCMKXDB7tEVXB\nndTY71T/WOUK8s\\ncMFo86bj8gMN4ZNv0R37UAamktAfY5VejiPmgUA6YbE4QGMiT+DDFtDmBF8UeKr1SS+EJJsYOs\nsr\\nt4GJ13gCF+w8BX7QjwTpUjrygv0FK7crLMjvW2oAAABZelRYdFNvZnR3YXJ1AAB42vPMUTxP9U1M\\nz0zOVjDT\nM9KzUDAw1Tcw1zc0Ugg0NFNIy8xJtdIvLS7SL85ILErV90Qo1zXTM9Kz0E/JT9bPzEtJ\\nrdDLKMnNAQctThisdBuu\nawAACF6VFh0VGh1bWI60kRvY3VtzW500jpQYwdlcwAeNozBAAAMgAy\\nDBLihAAACF6VFh0VGh1bWI60kltYwd1\nOjpoZWlnaHQAAhjaMzMyAQABPQCdhy3QKAAAACB6VFh0\\nVGh1bWI60kltYwd10jpXaWR0aAAAeNozNrcAAFCAKPM\nZvwvAAAAInpUWHRUaHVTyjo6TWltZXR5\\ncGUAAHjay8xNTE/VL8hLBwARewN4Xz1h4gAAACB6VFh0VGh1bWI60k1u\naw11AAB42jM0MTUxMzcz\\nNrMAAAtIAhNXXjtGAAAAGXpUWHRUaHVTyjo6U216ZQAeNozNmp0AgAC1gExPX1XPQAA\nABx6VFh0\\nVGh1bWI601VSSQAAeNpLy8xJtdLX1wcADJoCaJRAUaoAAAASUVORK5CYII=\\n",
        "hash": 970132176,
        "location": "https://176.56.128.118:5001/favicon.ico"
    },
    "headers_hash": -433350924,
    "host": "176.56.128.118",
    "html": "<!doctype html><html ng-app=\"app\" ng-csp=\"no-unsafe-eval\"\nlang=\"en\"><head><meta charset=\"UTF-8\"><title>3CX Phone System Management Console</title>\n</head><body>\n<div ng-view>\n</div>\n</body>\n</html>\n"
}
}
```

```
title><link rel=\"icon\" type=\"image/x-icon\" href=\"/favicon.ico\"><meta name=\"viewport\" content=\"width=device-width,initial-scale=1,maximum-scale=1\"/><base href=\"/\"><link href=\"992.9980c355.bundle.css\" rel=\"stylesheet\"><link href=\"main.a20588e2.bundle.css\" rel=\"stylesheet\"></head><body><noscript><div style=\"display: flex; align-items: center; justify-content: center; height: 100%\"><h1 class=\"padding20\">You must have JavaScript enabled to use this app.</h1></div></noscript><div ng-controller=\"AppCtrl\" id=\"content\" class=\"h-full\" ui-view style=\"display: flex; overflow: hidden\"></div><script defer=\"defer\" src=\"runtime.3819602b.bundle.js\"></script><script defer=\"defer\" src=\"992.04ab934f.bundle.js\"></script><script defer=\"defer\" src=\"main.df5528a8.bundle.js\"></script></body></html>",
    "location": "/",
    "components": {
        "AngularJS": {
            "categories": ["JavaScript frameworks"]
        }
    },
    "securitytxt_hash": null,
    "server": "nginx",
    "sitemap": null,
    "html_hash": -723903722
}
],
"asn": "AS12637",
"city": "Milan",
"latitude": 45.46427,
"isp": "SEEWEB s.r.l.",
"longitude": 9.18951,
"last_update": "2022-04-16T19:16:39.858796",
"country_name": "Italy",
"ip_str": "176.56.128.118",
"os": null,
"ports": [2000, 5000, 443, 5060, 5001]
}
```

ThreatQuotient provides the following default mapping for this function:

FEED DATA PATH	THREATQ ENTITY	THREATQ OBJECT TYPE OR ATTRIBUTE KEY	PUBLISHED DATE	EXAMPLES	NOTES
.region_code	Indicator.Attribute	Region Code	N/A	N/A	NA
.area_code	Indicator.Attribute	Area Code	N/A	N/A	N/A
.country_code	Indicator.Attribute	Country Code	N/A	N/A	CH
.org	Indicator.Attribute	ASN Organization	N/A	N/A	Lasi SA
.city	Indicator.Attribute	City	N/A	N/A	Milan
.isp	Indicator.Attribute	ISP	N/A	N/A	SEEWEB s.r.l.
.longitude	Indicator.Attribute	Longitude	N/A	N/A	83.1
.latitude	Indicator.Attribute	Latitude	N/A	N/A	-45.2
.country_name	Indicator.Attribute	Country	N/A	N/A	China
.os	Indicator.Attribute	Operating System	N/A	N/A	Windows
.ports[]	Indicator.Attribute	Open Port	N/A	N/A	8001
.data[].product	Indicator.Attribute	Installed Service	N/A	N/A	nginx
.data[].http.components.[KEY]	Indicator.Attribute	Web Technology	N/A	N/A	AngularJS
.tags[]	Indicator.Tag	N/A	N/A	N/A	self-signed
.domains[]	Indicator.Indicator	FQDN	N/A	N/A	N/A
.hostnames[]	Indicator.Indicator	FQDN	N/A	N/A	N/A
.asn	Indicator.Indicator	ASN	N/A	N/A	AS12637

Enriched Data



Object counts and action runtime are supplied as generalities only - objects returned by a provider can differ based on credential configurations and action runtime may vary based on system resources and load.

METRIC	RESULT
Run Time	5 minutes
Indicators	351
Indicator Attributes	4,178

Use Case Example

1. A user submits an IP Address using the Shodan action to the Shodan API.
2. The Shodan API queries the submitted IP Address for service data.
3. The action returns indicators enriched with service data from the Shodan API.

Known Issues / Limitations

- The action is limited based on your Shodan rate limit. This rate limit is based on your Shodan subscription type.

Change Log

- Version 1.0.2
 - Initial release to the ThreatQ Marketplace.