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## **INSTALLATION AND UPGRADE GUIDE**

RELEASE 3.5.0

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Installation and Upgrade Guide  
Release 3.5.0 - June 7, 2022

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# Introduction

## Document Purpose and Intended Audience

This guide is intended to help you install Vantage DX Analytics or upgrade to Release 3.5.0. It contains information about the system requirements and the supported integrations.

## Revision History

| Document Date | Description                                                        |
|---------------|--------------------------------------------------------------------|
| June 7, 2022  | Vantage DX Analytics Installation and Upgrade Guide, Release 3.5.0 |



## About Vantage DX Analytics

Vantage DX Analytics is a powerful IT Operations Analytics solution that integrates all your existing monitoring tools, cloud platforms and ITSM systems. VDX Analytics improves troubleshooting, decreases downtime and makes reporting easier. Using Elasticsearch, it can handle IT alerts in milliseconds, correlating them to help you understand the business impact and automate incident workflows. Straight out of the box, your teams can start to analyze data, streamline alerts and incident workflows and create business value dashboards.



# Planning

The following sections provide information about the requirements that your system must meet before you can install or upgrade VDX Analytics.

- ["Server Requirements" on page 8](#)
- ["IIS Roles and Features" on page 9](#)
- ["Java" on page 10](#)
- ["SQL Database" on page 10](#)
- ["Elasticsearch" on page 11](#)
- ["Active Directory" on page 12](#)
- ["Firewall Access" on page 13](#)
- ["Supported Upgrade Paths" on page 14](#)

## Server Requirements

You can install VDX Analytics on a Windows Server 2012 (or higher) running IIS 8.0 (or higher). We recommend that you use the latest available version of Windows Server. The server must be a member of an Active Directory domain, and VDX Analytics must be installed by a Domain user with local Admin rights.

We recommend that you install VDX Analytics on its own server. The following table lists the minimum requirements and recommendations for the server; however, the requirements depend on the number and size of your integrations. For deployments with more than 1 million components, please contact our IT-Ops Support Team at [itops-support@martellotech.com](mailto:itops-support@martellotech.com).

**Table 1: Server Requirements and Recommendations**

| Component                                             | Minimum Requirement                          | Recommended                                  |
|-------------------------------------------------------|----------------------------------------------|----------------------------------------------|
| Processor                                             | 2 GHz or faster                              | 2 GHz or faster                              |
|                                                       | 4 cores                                      | 6 cores                                      |
| Memory                                                | 16 GB or greater, but not greater than 64 GB | 20 GB or greater, but not greater than 64 GB |
| Available Server Disk Space (Program Files Directory) | 10 GB per integration                        | 50 GB or greater per integration             |
| Available SQL Server Disk Space                       | 100 MB                                       | 200 MB                                       |
| .NET Framework                                        | 4.7.2 or higher                              | 4.7.2 or higher                              |



**Note:** To determine how much memory to assign to Elasticsearch, see the formula listed in ["Allocate Memory" on page 18](#).

## IIS Roles and Features

The VDX Analytics installer can add the roles and features needed for VDX Analytics to function properly.

If you want to install the roles and features manually, add the roles and features listed in the table below to your Windows Server:

**Table 2: Server Requirements and Recommendations**

| Web Server Components  | Type                                                         |
|------------------------|--------------------------------------------------------------|
| <b>Roles</b>           |                                                              |
| Common                 | Default Document                                             |
|                        | Static Content                                               |
| Health and Diagnostics | HTTP Logging. Optional, but recommended for troubleshooting. |
| Security               | Request Filtering                                            |
|                        | Windows Authentication                                       |

| Web Server Components       | Type                                                                                                                                                        |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application Development     | .NET Extensibility 4.5                                                                                                                                      |
|                             | NET 4.5                                                                                                                                                     |
|                             | ISAPI Extensions                                                                                                                                            |
|                             | ISAPI Filters                                                                                                                                               |
|                             | WebSocket Protocol. Optional, but recommended.                                                                                                              |
| Management Tools            | IIS Management Console. We recommend that you install this on all IIS servers so you can manage them from a centralized Microsoft Management Console (MMC). |
| Features                    |                                                                                                                                                             |
| .NET Framework 4.6 Features | .NET Framework 4.6                                                                                                                                          |
|                             | NET 4.5                                                                                                                                                     |
|                             | WCF Services: <ul style="list-style-type: none"> <li>• HTTP Activation</li> </ul>                                                                           |

In addition, ensure that you enable the following:

- Automatic start-up for the Windows Process Activation (WAS).
- World Wide Web Publishing (W3SVC) services.



**Note:** VDX Analytics is installed as a new website with a self-signed certificate running on port 59212. You can change the port using the IIS Management Console under the bindings for the VDX Analytics website.

## Java

VDX Analytics uses Elasticsearch to store the majority of its data. This allows it to retrieve information quickly. Elasticsearch requires Java, which is included in the Elasticsearch installation package. Ensure that you set the environment variable "ES\_JAVA\_HOME" to use the version of Java that is packed with Elasticsearch. You can set the variable at %ProgramFiles%\Elasticsearch\elasticsearch\jdk

## SQL Database

VDX Analytics stores configuration information in a SQL database. We recommend that you use SQL Server 2012 or higher. The server can be a locally running instance

or an instance running in a cluster. VDX Analytics is also compatible with SQL Express.

If you are evaluating the software or wish to use SQL Express, you can download it using the following link: <https://www.microsoft.com/en-us/download/details.aspx?id=55994>.

During the installation, you are prompted to enter the SQL instance and user credentials that have permission to create a database. This same user account is used as the app pool account for VDX Analytics. After the installation is complete, you can adjust the account to a lower privilege level, as long as the account continues to have read/write permissions to the VDX Analytics database.



**Note:** VDX Analytics requires the collation of your SQL instance to be case insensitive.

## Elasticsearch

VDX Analytics requires Elasticsearch version 7.17.0. If Elasticsearch is not already installed, a single-node deployment is installed with VDX Analytics. This single-node deployment is suitable for evaluations; however, as a best practice, we recommend that you deploy an Elasticsearch cluster instead of a single node. You must deploy an Elasticsearch cluster when the number of components from all your integrations exceeds 400,000.

### Cluster Sizing

Follow the recommendations in the table below when you deploy VDX Analytics with an Elasticsearch cluster.

**Table 3: Elasticsearch Cluster Sizing**

| Number of Components     | Number of ES Nodes | VDX Analytics/ES Master Node | Date Node 1                                | Data Node 2                                |
|--------------------------|--------------------|------------------------------|--------------------------------------------|--------------------------------------------|
| Less than 400,000        | 3                  | vCPU: 6 cores<br>RAM: 24 GB  | vCPU: 8 cores<br>RAM: 24 GB<br>SSD drives  | vCPU: 8 cores<br>RAM: 24 GB<br>SSD drives  |
| 400,000 to 1 million     | 3                  | vCPU: 8 cores<br>RAM: 32 GB  | vCPU: 8 cores<br>RAM: 32 GB<br>SSD drives  | vCPU: 8 cores<br>RAM: 32 GB<br>SSD drives  |
| 1 million to 3.5 million | 3                  | vCPU: 8 cores<br>RAM: 32 GB  | vCPU: 10 cores<br>RAM: 40 GB<br>SSD drives | vCPU: 10 cores<br>RAM: 40 GB<br>SSD drives |

For deployments with more than 3.5 million components, please contact our IT-Ops Support Team at [itops-support@martellotech.com](mailto:itops-support@martellotech.com).

## Active Directory

By default, VDX Analytics queries the Global Catalog for available domain controllers and works with users and groups from all the domains in the forest.

To allow a user to target a specific Active Directory domain controller, you must edit the `Web.config` file. Add the following lines to the `<appSettings>` section:

```
<add key="ad.dc" value="" />
<add key="ad.user" value="" />
<add key="ad.password" value="" />
<add key="ad.domains" value="*" />

<add key="ad.scan_trusted_domains" value="false" />
<add key="ad.ignore_token_groups" value="true" />
```

If you use default values, the application reverts to the current Active Directory Forest settings.

```
<add key="ad.dc" value="<empty or Domain Controller>" />
<add key="ad.domains" value="<*> or domains to query, separated by
comma"> />
```

The parameter `scan_trusted_domains` tells VDX Analytics to look for trusted domains in AD and is by default set to false.

The parameter `ignore_token_groups` tells VDX Analytics to ignore retrieving AD User groups by token groups. It is true by default.

These two parameters can make VDX Analytics slow if they are enabled.

## Firewall Access

By default, VDX Analytics is installed as a website running under port 59212. You can change the port number if you wish.

Each integration has its own requirements for access. Your firewall rules for outbound traffic must allow VDX Analytics to communicate with the integrated system.

The following table lists the ports used by each monitoring system or ITSM that integrates with VDX Analytics. Some systems allow you to customize the port.

**Table 4: Ports Required by Integrated Systems**

| Monitoring System or ITSM                   | Port                                                                                                        |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Amazon Web Services (AWS)                   | 80 and 443                                                                                                  |
| AppDynamics                                 | 443                                                                                                         |
| Broadcom DX APM                             | 8081                                                                                                        |
| Cherwell                                    | 80 or 443                                                                                                   |
| Cisco Prime                                 | 80 or 443                                                                                                   |
| Derdack Enterprise Alert                    | 80 (default) configurable by the VDX Analytics administrator using the following format:<br><server>:<port> |
| Ivanti Service Management (Powered by HEAT) | Service Management: 443<br>Cloud instance: 443<br>On-Premises: 80 or 443                                    |
| Jira Software                               | 443 (Default)                                                                                               |
| Microsoft Azure                             | 443                                                                                                         |
| Microsoft Office 365                        | 443                                                                                                         |

| Monitoring System or ITSM        | Port                                                                                                                                                           |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Nagios Core and XI               | 443 or configured in the URL                                                                                                                                   |
| PowerShell                       | No ports are needed. The PowerShell integration runs on the VDX Analytics web server or on the Windows Server that a VDX Analytics Remote Agent is running on. |
| PRTG                             | Customizable port                                                                                                                                              |
| ServiceNow                       | 443                                                                                                                                                            |
| SolarWinds                       | 17778                                                                                                                                                          |
| Splunk                           | 8000 and 8089                                                                                                                                                  |
| System Center Operations Manager | 5724                                                                                                                                                           |
| TopDesk                          | 443                                                                                                                                                            |
| Vantage DX Monitoring            | On-premises deployments: 80 (default but configurable) and 8080 (required for API access)<br>Cloud-based deployments: 443 and 8443 (required for API access)   |
| VMware vCenter                   | 443                                                                                                                                                            |
| WhatsUp Gold                     | 1433 (Default SQL server port)                                                                                                                                 |
| Zabbix                           | 80 (Default)                                                                                                                                                   |

## Supported Upgrade Paths

You can upgrade to VDX Analytics 3.5.0 from Release 2.10 or 2.11.

# Installation Process

When you install VDX Analytics, the process that you follow depends on whether you are deploying VDX Analytics with an Elasticsearch cluster, or with a single Elasticsearch node. The following table lists the tasks for each type of deployment. Complete the tasks in the order listed for your deployment.

| Task                                                                                                                                                                                                                                                                                                                                                   | Description                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Deploy VDX Analytics with an Elasticsearch Cluster</b>                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                 |
| <a href="#">"Configure Elasticsearch " on page 17</a> <ul style="list-style-type: none"> <li>• <a href="#">"Set up the Cluster" on page 17</a></li> <li>• <a href="#">"Allocate Memory " on page 18</a></li> <li>• <a href="#">"Test the Configuration" on page 19</a></li> <li>• <a href="#">"Configure the Index Template" on page 20</a></li> </ul> | Configure the Elasticsearch cluster on Windows servers. Complete all of the tasks in this chapter before you install VDX Analytics and connect it to the Elasticsearch cluster. |
| <a href="#">"Install VDX Analytics" on page 22</a>                                                                                                                                                                                                                                                                                                     | Install a new instance of VDX Analytics.                                                                                                                                        |
| <a href="#">"Configure Connections" on page 25</a>                                                                                                                                                                                                                                                                                                     | Configure the connection strings in VDX Analytics with the IP addresses of the data nodes in the Elasticsearch cluster.                                                         |
| <a href="#">"Install Remote Agents" on page 26</a>                                                                                                                                                                                                                                                                                                     | Optional. Install a remote agent only if the source system is not accessible from the VDX Analytics web server.                                                                 |
| <a href="#">"Add a License Key" on page 26</a>                                                                                                                                                                                                                                                                                                         | Activate the license.                                                                                                                                                           |
| <b>Deploy VDX Analytics with a Single Elasticsearch Node</b>                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                 |

| Task                                               | Description                                                                                                     |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <a href="#">"Install VDX Analytics" on page 22</a> | Install a new instance of VDX Analytics.                                                                        |
| <a href="#">"Install Remote Agents" on page 26</a> | Optional. Install a remote agent only if the source system is not accessible from the VDX Analytics web server. |
| <a href="#">"Add a License Key" on page 26</a>     | Activate the license.                                                                                           |
| <a href="#">"Allocate Memory " on page 18</a>      | Assign additional memory in Elasticsearch.                                                                      |

# Configure Elasticsearch

Complete the tasks in the table below to configure an Elasticsearch cluster on Windows servers. Ensure that you complete these tasks before you connect VDX Analytics to the Elasticsearch cluster.

If you are using Linux servers, contact our support team for more information.

| Task                                                      | Description                                                                                           |
|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| <a href="#">"Set up the Cluster" on page 17</a>           | Install Elasticsearch and configure the names and IP addresses of the nodes.                          |
| <a href="#">"Allocate Memory " on page 18</a>             | Assign additional memory to Elasticsearch.                                                            |
| <a href="#">"Test the Configuration" on page 19</a>       | Verify that you can connect to each node in the cluster, and that the cluster is properly configured. |
| <a href="#">"Configure the Index Template" on page 20</a> | Create a template for the Elasticsearch index.                                                        |



**Note:**

In an Elasticsearch cluster, each node must be able to accept connections from the other nodes in the cluster. For this reason, we recommend that you enable authentication using X-Pack, which is pre-installed with Elasticsearch. For information about X-Pack, see the following URL:

<https://www.elastic.co/what-is/open-x-pack>

## Set up the Cluster

Use this procedure to install Elasticsearch and configure the names and IP addresses of the nodes. This procedure is for deploying Elasticsearch on

Windows servers. If you are using Linux servers, contact our support team for more information.

### Before you Begin

Ensure that you have the following software available:

- **Elasticsearch 7.17.0**—The `Elasticsearch-7.17.0.exe` is included in the VDX Analytics installer file.
- **Notepad++**—To edit configuration files. You can also use Notepad running in administrator mode.

1. Run the `Elasticsearch-7.17.0.exe` on each node in the cluster. We recommend that you install the file on the SSD drive because all data will be stored in the installation location.

2. To create the cluster, edit the `Elasticsearch.yml` file on each node in the cluster.

If this is a new installation, the default location of the file is

```
%programfiles%\Elasticsearch\elasticsearch\config\elasticsearch.yml.
```

If this is an upgrade, the default location of the file is

```
%programfiles%\Savision\Elasticsearch\elasticsearch\config\elasticsearch.yml.
```

Configure the following parameters:

- `cluster.name`—This parameter is located in the Cluster section of the file. Assign a name for your cluster that will be used on all nodes.
  - `node.name`—This parameter is located in the Node section of the file. Assign a unique name for each node in the cluster.
  - `network.host`—This parameter needs to be set to bind the cluster to an external IP address. We recommend using 0.0.0.0 and enabling authentication using X-Pack security.
3. Optional. If you want to integrate more than 64 source systems with VDX Analytics, add the following parameter to the `Elasticsearch.yml` file on each node in the cluster, and then restart the service:
    - `http.max_initial_line_length: 128kb`

### Next Steps

- ["Allocate Memory " on page 18](#)

## Allocate Memory

The amount of memory allocated to Elasticsearch is set automatically when you install it. The memory allocation is set using heap space values. Use this procedure to adjust the heap space values to the recommended levels for VDX Analytics.

### Before you Begin

Ensure that you have Notepad++ to edit configuration files. You can also use Notepad running in administrator mode.

Whether you are deploying a single node or an Elasticsearch cluster, you need to determine the amount of heap space to assign.

- **Single nodes or data nodes**—Use the following formula:  
Total (Total Windows memory - 4 GB for Windows processes) / 2. Round down the total. For example, if the server has 40 GB of memory, the calculation is  $40 - 4 = 36$ .  $36 / 2 = 18$ . The heap space required is 18 GB.
- **Master node**—No calculation is needed. This node requires 4 GB.

1. Open the `jvm.options` file on each node.  
The file is located where you installed Elasticsearch. The default location is:  
Program  
Files\Elasticsearch\elasticsearch\config\jvm.options.d\jvm.options.
2. Edit the following parameters on each node:
  - `XmsXXg`—This parameter represents the initial size of total heap space. For example, the default value is 2 GB and is represented as `# -Xms2g`.
  - `XmxXXg`—This parameter represents the maximum size of total heap space. For example, the default value is 2 GB and is represented as `# -Xmx2g`.

Allocate 4GB to the master node, and allocate the amount you calculated for the data nodes. Ensure that you set the same value for both parameters.
3. After you have changed the values, save the file.
4. From **Services**, stop and restart the `Elasticsearch` service.

### Next Steps

If you are deploying VDX Analytics with an Elasticsearch cluster, proceed to ["Test the Configuration" on page 19](#).

If you are deploying VDX Analytics with a single Elasticsearch node, no further steps are needed.

## Test the Configuration

Use this procedure to verify that you can connect to each node in the cluster, and that the cluster is properly configured.

1. Open a browser and ensure that you can connect to each node in the cluster at `http://<IP_Address>:9200/_nodes`.  
The first line of this file reports the number of nodes and cluster name.
2. Verify that the node name and the cluster name are set. For example:  
`{"_nodes":{"total":5,"successful":5,"failed":0},"cluster_name":"My-cluster","nodes":`

### Next Steps

- ["Configure the Index Template" on page 20](#)

## Configure the Index Template

Use this procedure to create a template for the Elasticsearch index.

### Before you Begin

Ensure that you have Curl to run the scripts in this procedure. It is available at the following URL:

<https://curl.haxx.se/download.html>

1. Open up a Windows administrator command prompt and change the folder to `c:\curl\bin`.
2. Run the following four commands and ensure that after each one, you receive the acknowledgement: `true`.

```
curl -XPUT "localhost:9200/_template/template_async_alerts?pretty" -H "Content-Type: application/json" -d '{"index_patterns":["savisioniq_alerts_*"], "settings":{"index":{"number_of_shards": 5, "number_of_replicas": 1, "translog":{"durability": "async"}}}}'
```

```
curl -XPUT "localhost:9200/_template/template_async_components?pretty" -H "Content-Type: application/json" -d '{"index_patterns":["savisioniq_components_*"], "settings":{"index":{"number_of_shards": 5, "number_of_replicas": 1, "translog":{"durability": "async"}}}}'
```

```
curl -XPUT "localhost:9200/_template/template_async_relationships?pretty" -H "Content-Type: application/json" -d '{"index_patterns":["savisioniq_component_relationships_*"], "settings":{"index":{"number_of_shards": 5, "number_of_replicas": 1, "translog":{"durability": "async"}}}}'
```

```
curl -XPUT "localhost:9200/_template/template_async_incidents?pretty" -H "Content-Type: application/json" -d '{"index_patterns":["savisioniq_incidents_*"], "settings":{"index":{"number_of_shards": 5, "number_of_replicas": 1, "translog":{"durability": "async"}}}}'
```

### Next Steps

- ["Install VDX Analytics" on page 22](#)



# Install or Upgrade Vantage DX Analytics

Use the procedures in this section to install or upgrade VDX Analytics.

## Before you Begin

- Ensure that your system meets all the prerequisites listed in "Planning " on page 8.
- Download the installation package from our website at: <https://www.martellotech.com/downloads>

The installation package contains the following installers:

- Vantage DX Analytics-3.5.0.exe
- Vantage DX Analytics Agent-3.5.0.exe
- Elasticsearch-7.17.0.exe

After you download the installation package, complete the following tasks:

| Task                                                                                                                                                                   | Description                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Choose one of the following options: <ul style="list-style-type: none"><li>• "Install VDX Analytics" on page 22</li><li>• "Upgrade VDX Analytics" on page 23</li></ul> | Install a new instance of VDX Analytics, or upgrade an existing instance.                                                                                                                                                 |
| "Configure Connections" on page 25                                                                                                                                     | Use this procedure only if you are deploying VDX Analytics in an Elasticsearch cluster. This procedure sets the connection strings in VDX Analytics with the IP addresses of the data nodes in the Elasticsearch cluster. |

| Task                                               | Description                                                                                                     |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <a href="#">"Install Remote Agents" on page 26</a> | Optional. Install a remote agent only if the source system is not accessible from the VDX Analytics web server. |
| <a href="#">"Add a License Key" on page 26</a>     | Activate the license.                                                                                           |

## Install VDX Analytics

Use the following procedure to install VDX Analytics. You must be a domain user with local administration privileges to complete this procedure.

If you are deploying VDX Analytics with an Elasticsearch cluster, perform this procedure on the master node.

### Before you Begin

VDX Analytics needs to access information that is stored on the SQL server. You can use a full SQL server, or you can use SQL Server Express. Before you begin, ensure that you have the server instance and the credentials for the SQL server that is used to store this metadata.

- For an SQL server, the default instance name is <SQL Server host name or IP Address>. The non-default instance name is <SQL Server host name or IP Address>\<instance name>.
- For SQL Server Express, the default instance name is <SQL Server host name or IP Address>\SQLExpress. The non-default instance name is <SQL Server host name or IP Address>\<instance name>.

If you do not have a full SQL server, the VDX Analytics installer provides a link to SQL Server Express. If you are using this option, ensure that you record the connection string that SQL Express generates; you will need this connection string during the installation process. The connection string uses the following format: <machine\_name>\SQLExpress. Ensure that Windows updates are installed and there are no pending reboots.

1. Right-click the Vantage DX Analytics-3.5.0.0.exe file and select **Run As Administrator**.
2. Click **Next** at the welcome screen.
3. Click on **I accept the agreement** and then click **Next**.
4. Optional. Select **Enable Google Analytics** to help us understand how we can improve the application. Click **Next**.
5. On the **Connect to SQL Server** page, enter the SQL server instance as well as the credentials of a user that has rights to create the database.



**Note:**

If you do not have a SQL Server, you can click on **Install SQL**



**Server Express** to install the express version of SQL Server. This option is useful if you have a small environment or would like to use VDX Analytics for demonstration or evaluation purposes. When you choose this option, you can de-select the following features: SQL Server Replication and SQL Client Connectivity SDK.

6. Click **Verify**. When the credentials are verified, click **Next**.
7. Select the destination where you want to install VDX Analytics and click **Next**.
8. Optional. Click on **Create a desktop shortcut** and click **Next**.
9. If Elasticsearch is not already installed on this server, the Elasticsearch installer launches. When the Welcome to the Elasticsearch Setup Wizard displays, click **Next**.
10. Click **I accept the agreement** and click **Next**.
11. Select the destination where you want to install Elasticsearch and click **Next**.
12. When the Elasticsearch installation is complete, click **Finish**.  
VDX Analytics continues its installation. It verifies the IIS Roles and Features and adds any requirements that are missing.
13. When the installation is complete, click **Finish**.  
VDX Analytics launches.

### Next Steps

To complete the installation, perform the following procedures:

- Optional. Perform the procedure ["Install Remote Agents" on page 26](#) only if the source system is not accessible from the VDX Analytics web server.
- To activate the installation, perform the procedure ["Add a License Key" on page 26](#)

## Upgrade VDX Analytics

Use the information in this section to perform the following tasks:

- ["Understand the Upgrade Process" on page 23](#)
- ["Upgrade the Software" on page 24](#)

### Understand the Upgrade Process

The VDX Analytics installer supports an in-place upgrade. If you made manual changes to the `web.config` file, those changes are preserved during an in-place upgrade. If you choose to uninstall and reinstall the software, instead of performing an in-place upgrade, any manual changes that you made in the `web.config` file are lost when you install the new version. In addition, uninstalling and reinstalling the software will not remove any data from the SQL server and Elasticsearch data stores.

This release of VDX Analytics requires Elasticsearch version 7.17.0. The VDX Analytics installer package contains an installer for Elasticsearch that upgrades an Elasticsearch node. If Elasticsearch is installed on the same machine as VDX Analytics, the VDX Analytics installer executes the Elasticsearch installer automatically. In the case of an Elasticsearch cluster, you must execute the Elasticsearch installer on all Elasticsearch nodes before you install VDX Analytics.

When you are upgrading to release 3.5.0, VDX Analytics re-indexes all savisioniq\_\* indices in Elasticsearch after the installation. This process can take several hours. During that time, the indices being processed are not accessible and no data from those indices is visible in VDX Analytics.

## Upgrade the Software

Use the following procedure to upgrade VDX Analytics.

### Before you Begin

- Backup any PowerShell scripts from the PSScripts folder.
  - Stop the app pool. The app pool automatically restarts after the upgrade is complete.
  - View the current binding information on the VDX Analytics website, making note of ports, SSL certificates, and host name information. You may need to restore some of these settings after the upgrade.
  - Ensure that you have upgraded the .NET version to 4.7.2.
1. Right-click the `Vantage DX Analytics-3.5.0.exe` file and select **Run As Administrator**.
  2. Click **Next** at the welcome screen.
  3. Click on **I accept the agreement** and then click **Next**.
  4. Optional. Select **Enable Google Analytics** to help us understand how we can improve the application. Click **Next**.
  5. Select the destination where you want to install VDX Analytics and click **Next**.
  6. Optional. Click on **Create a desktop shortcut** and click **Next**.  
VDX Analytics continues its installation. It verifies the IIS Roles and Features and adds any requirements that are missing.
  7. When the installation is complete, click **Finish**.  
VDX Analytics launches.

### Next Steps

To complete the upgrade, perform the following procedures:

- Optional. Perform the procedure ["Install Remote Agents" on page 26](#) only if the source system is not accessible from the VDX Analytics web server.
- To activate the installation, perform the procedure ["Add a License Key" on page 26](#)
- If you previously configured an integration with Microsoft Teams CQD, select **Settings > Integrations** and re-save the integration.

## Configure Connections

Perform this procedure only if you are deploying VDX Analytics with an Elasticsearch cluster. This procedure explains how to configure the connections between nodes in the cluster. Perform this procedure on the server where VDX Analytics is installed.

### Before you Begin

Ensure that you have Notepad++ to edit configuration files. You can also use Notepad running in administrator mode.

1. Open the `web.config` file.

If this is a new installation, the default location for this file is

```
%programfiles%/Martello/Martello iQ/web.config
```

If this is an upgrade, the default location depends on the version you installed initially. For upgrades from release 2.10, the default location is

```
%programfiles%/Savision/Savision iQ/web.config. For upgrades from release 2.11, the default location is %programfiles%/Martello/Martello iQ/web.config.
```

2. In the `connectionStrings` section, edit the "defaultElasticSearchConnection" settings to include the IP addresses of the data nodes as shown in the following example:

```
<connectionStrings>
<clear />
<add name="defaultSqlConnection" connectionString="Data Source=SV-IQ-IG\SQLEXPRESS; Initial Catalog=Savision_iQ; Integrated Security=true; Connection Timeout=30" providerName="System.Data.SqlClient" />
<add name="defaultElasticSearchConnection" connectionString="Nodes=http://10.20.6.31:9200,http://10.20.6.33:9200" />
<add name="elmah" connectionString="data source=~\Logs/ErrorLog.db" />
</connectionStrings>
```

If you have enabled authentication using X-Pack, ensure that you include the username and password when you edit the connection strings, as shown in the following example:

```
<add name="defaultElasticSearchConnection" connectionString="Nodes=http://10.20.6.31:9200,http://10.20.6.33:9200, Username=user; Password=secret" />
```

## Install Remote Agents

When you install VDX Analytics, it will install an agent locally on the server. For most installations the local agent is all that is needed. In some cases, you may need to install a remote agent to access certain systems you want VDX Analytics to integrate with. For example, you need to install a remote agent when the source system is not accessible from the VDX Analytics web server.

The remote agent installs as a Windows service.

1. From the remote computer, open your browser and log into VDX Analytics.
2. From the main menu, select **Settings >Agents**.
3. Click the **Download Agent** icon in the bottom corner of the page.  
The AgentInstaller.zip file downloads.
4. Extract the files.  
There are two files: `Martello Vantage DX Analytics Agent-<version>.exe` and `Setup.cmd`.
5. Choose one of the following options:
  - Double-click the `Setup.cmd` to launch the installer with the VDX Analytics web server URL pre-populated.
  - Right-click on `Martello Vantage DX Analytics Agent-<version>.exe` and select **Run As Administrator**.
6. Click **Next** on the welcome screen.
7. Select **I accept the agreement** and click **Next**.
8. If you did not use the `Setup.cmd` file, enter the URL of the VDX Analytics web server.
9. Enter your VDX Analytics Administrator credentials and click **Verify**.
10. Enter the destination where you want to install the agent and click **Next**.
11. Click **Finish** when the installation is complete.  
After a few moments, the remote agent is listed as an available agent in VDX Analytics.

## Add a License Key

After you purchase a license, the support team sends you an email with the license key attached in a text file. Use this procedure to activate the license.

1. From the main menu, select **Settings**.
2. Click the **Licensing** tab.
3. Click the **Add License** button.
4. Paste your license key in the dialog box and click **Activate**.

# Configure Integrations

Use the information in this section to complete the following tasks:

- Collect the information that you need for your integrations; review ["Required Information" on page 27](#)
- ["Add an Integration" on page 27](#)

## Add an Integration

Use this procedure to integrate a monitoring system with VDX Analytics.

### Before you Begin

For a list of the information required by each integration, see ["Required Information" on page 27](#).

1. From the main menu, select **Settings**.  
The Integrations tab displays the currently installed integrations.
2. Click the **Add** button at the bottom of the page.
3. Select a monitoring system from the dialog box.
4. Enter the information required for the monitoring system.
5. Click **Save**.

## Required Information

Before you add an integration, ensure that you have all of the information required to access the monitoring system. The information required varies depending on the monitoring system that you are connecting to.

The user permissions in the source system are important, because those permissions determine the access that VDX Analytics has to the source system. If the user in the source system does not have sufficient permissions, some data may not be visible in VDX Analytics and some functionality—such as the ability to close an alert—may not work.

Use the links below to find a list of the information required for each integration.

- "Amazon Web Services " on page 28
- "AppDynamics" on page 29
- "AudioCodes" on page 1
- "Azure" on page 30
- "Azure Application Insights" on page 31
- "BMC Remedy IT Service Management Suite" on page 32
- "Broadcom DX Application Performance Management" on page 33
- "Cherwell" on page 34
- "Cisco Prime" on page 34
- "Derdack Enterprise Alert" on page 35
- "Email Notification" on page 36
- "Google Cloud Platform" on page 36
- "Icinga2" on page 37
- "Ivanti Service Management" on page 38
- "Jira Software" on page 39
- "Martello API" on page 39
- "Martello Vantage DX Monitoring" on page 40
- "Microsoft Call Quality Dashboard" on page 41
- "Microsoft 365" on page 46
- "Microsoft System Center Operations Manager " on page 45
- "Mitel Performance Analytics" on page 48
- "Nagios Core and Xi" on page 48
- "PowerShell" on page 51
- "Provance" on page 52
- "PRTG Network Monitor" on page 53
- "ServiceNow" on page 54
- "SolarWinds" on page 54
- "Splunk" on page 55
- "TOPdesk" on page 56
- "VMware vCenter" on page 57
- "WhatsUp Gold" on page 58
- "Zabbix" on page 58

## Amazon Web Services

You must configure permissions in Amazon Web Services (AWS) before you can integrate it with VDX Analytics. The permissions must be assigned to the account that is used to access VDX Analytics. To assign these permissions, Martello provides a permissions policy that you can copy into AWS. For instructions, see the following Knowledge Base article: <https://support.martellotech.com/knowledgeBase/9521026>

Configure the following properties when you integrate AWS with VDX Analytics:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote Agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Region             | The region determines the URL used.                                                                                                                                 |
| Access Key         | —                                                                                                                                                                   |
| Secret Access Key  | —                                                                                                                                                                   |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                        |

## AppDynamics

Configure the following properties when you integrate AppDynamics with VDX Analytics:

| Property                      | Description                                                                                                                                                         |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                        | Read-only. The name of the source system.                                                                                                                           |
| Agent                         | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                          | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL                           | Required.                                                                                                                                                           |
| Tenant Account Name           | The AppDynamics tenant account name.                                                                                                                                |
| Username                      | A user in the account                                                                                                                                               |
| Password                      | The password for the account.                                                                                                                                       |
| Collect infrastructure events | Select the checkbox to enable.                                                                                                                                      |

| Property                                                    | Description                                                                                  |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Collect application events                                  | Select the checkbox to enable.                                                               |
| Collect policy violation events                             | Select the checkbox to enable.                                                               |
| Calculate service availability health by worse case roll-up | Select the checkbox to enable.                                                               |
| Discovery Interval                                          | How often the objects are loaded from the integrated system. The default is 3600 seconds.    |
| Operation Interval                                          | How often health states, alerts, and/or incidents are collected. The default is 120 seconds. |

### Optional Event Types

In VDX Analytics, you can select which events are collected. To simplify the types of events in VDX Analytics, we define three types:

- Infrastructure
- Application
- Policy violation

You can read more details about event types on the [AppDynamics Events Reference](#) page.

## Azure

### Before you Begin

Before VDX Analytics can integrate with Microsoft Azure, you must complete setup tasks in Azure. For more information, see the following Martello Knowledge Base article:

<https://support.martellotech.com/knowledgeBase/9443244>

Configure the following properties when you integrate Microsoft Azure with VDX Analytics:

| Property          | Description                                                                  |
|-------------------|------------------------------------------------------------------------------|
| Azure Environment | Port 443                                                                     |
| Tenant ID         | Use the information provided in the Tenant ID properties in Microsoft Azure. |

| Property           | Description                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Subscription ID    | Use the information provided in the enterprise application in Microsoft Azure. If you have multiple subscriptions, you can enter all of the IDs in this field, separated by commas. If you want to integrate all of your Azure subscriptions, you can leave this field blank and VDX Analytics will automatically integrate all of the subscriptions that are available in your tenant at the time of the integration. |
| Client ID          | Use the information provided in the application registration in Microsoft Azure.                                                                                                                                                                                                                                                                                                                                       |
| Client Secret      | This information is part of the application registration in Microsoft Azure.                                                                                                                                                                                                                                                                                                                                           |
| Agents             | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it.                                                                                                                                                                                                                                                    |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                                                                                                                                                                                                                                                                 |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                                                                                                              |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                                                                                                                                                                                                           |

## Azure Application Insights

You must complete setup tasks in Azure Monitor before you can integrate Azure Application Insights with VDX Analytics. For more information, see the following Martello Knowledge Base article:

<https://support.martellotech.com/knowledgeBase/9362697>

Configure the following properties in Azure Monitor when you integrate Azure Application Insights with VDX Analytics:

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                           |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |

| Property           | Description                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                                                                                                                                                                                                                                                               |
| Tenant ID          | Use the information provided in the Tenant ID properties in Azure Monitor.                                                                                                                                                                                                                                                                                                                                           |
| Client ID          | Use the information provided in the application registration in Azure Monitor.                                                                                                                                                                                                                                                                                                                                       |
| Client Secret Key  | This information is part of the application registration in Azure Monitor.                                                                                                                                                                                                                                                                                                                                           |
| Subscription IDs   | Use the information provided in the enterprise application in Azure Monitor. If you have multiple subscriptions, you can enter all of the IDs in this field, separated by commas. If you want to integrate all of your Azure subscriptions, you can leave this field blank and VDX Analytics will automatically integrate all of the subscriptions that are available in your tenant at the time of the integration. |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                                                                                                            |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                                                                                                                                                                                                         |

## BMC Remedy IT Service Management Suite

Configure the following properties when you integrate BMC Remedy with VDX Analytics:

| Property               | Description                                                                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                 | Read-only. The name of the source system.                                                                                                                           |
| Agent                  | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                   | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL to Mid-Tier Server | The server that facilitates the web console and the REST API.                                                                                                       |

| Property                              | Description                                                                                                                                   |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| URL to Action Request (AR) System API | The server that facilitates the web services. You must enable the API in your BMC Remedy environment.                                         |
| AR Server Name                        | Find the name using the registry key<br>HKLM\SOFTWARE\Remedy\ARServer\ServerNameList                                                          |
| Dataset ID                            | The BMC Remedy environment includes multiple datasets. To collect information from more than one dataset, enter the IDs separated by a comma. |
| Username                              | A user in the account                                                                                                                         |
| Password                              | The password for the account.                                                                                                                 |
| Discovery Interval                    | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                     |
| Operation Interval                    | How often incidents are collected. The default is 120 seconds.                                                                                |

## Broadcom DX Application Performance Management

Configure the following properties when you integrate Broadcom DX Application Performance Management (DX AMP) with VDX Analytics:

| Property           | Description                                                                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                                  |
| Agent              | Select a server that will communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                     |
| URL                | The URL to the rest API endpoint. Port 8081 is the default.                                                                                                                |
| Username           | A user in the account                                                                                                                                                      |
| Password           | The password for the account.                                                                                                                                              |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                  |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                               |

## Cherwell

Configure the following properties when you integrate Cherwell with VDX Analytics:

| Property            | Description                                                                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source              | Read-only. The name of the source system.                                                                                                                           |
| Agents              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL                 | Default ports are 80 for HTTP or 443 HTTPS.                                                                                                                         |
| Authentication Mode | OAuth2 authentication is not currently available.                                                                                                                   |
| Client ID           | Refer to the Cherwell website to obtain a Client ID for VDX Analytics.<br><a href="https://cherwellsupport.com/">https://cherwellsupport.com/</a>                   |
| Username            | A user in the account                                                                                                                                               |
| Password            | The password for the account.                                                                                                                                       |
| Discovery Interval  | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval  | How often incidents are collected. The default is 120 seconds.                                                                                                      |



**Note:** Due to a limitation of the Cherwell API, the timezone of the VDX Analytics Server/Agent must be the same as the Cherwell server.

## Cisco Prime

Configure the following properties when you integrate Cisco Prime with VDX Analytics:

| Property | Description                               |
|----------|-------------------------------------------|
| Source   | Read-only. The name of the source system. |

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL                | —                                                                                                                                                                   |
| Username           | A user in the account                                                                                                                                               |
| Password           | The password for the account.                                                                                                                                       |
| API Version        | Use the highest version available for your Cisco Prime version.                                                                                                     |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                        |

## Derdack Enterprise Alert

Configure the following properties when you integrate Derdack Enterprise Alert with VDX Analytics:

| Property     | Description                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source       | Read-only. The name of the source system.                                                                                                                           |
| Agent        | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name         | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Server       | The hostname, FQDN or IP address of the Derdack server.                                                                                                             |
| Use SSL      | Optional.                                                                                                                                                           |
| Username     | A user in the account.                                                                                                                                              |
| Password     | The password for the user.                                                                                                                                          |
| Response URL | URL that can be used to navigate from Derdack Enterprise Alert to VDX Analytics.                                                                                    |

## Email Notification

Configure the following properties when you integrate Email Notification with VDX Analytics:

| Property            | Description                                                                                                                                                         |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source              | Read-only. The name of the source system.                                                                                                                           |
| Agent               | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| From Email          | The sending email address.                                                                                                                                          |
| SMTP Server         | The address of the SMTP server.                                                                                                                                     |
| Port                | The port to access the server                                                                                                                                       |
| Username            | The username for the email account.                                                                                                                                 |
| Password            | The password for the account.                                                                                                                                       |
| Enable SSL          | Optional.                                                                                                                                                           |
| Send emails as HTML | Optional.                                                                                                                                                           |

## Google Cloud Platform

You must complete setup tasks on Google Cloud Platform (GCP) before you can integrate it with VDX Analytics. For more information, see the following Martello Knowledge Base article:

<https://support.martellotech.com/knowledgeBase/9362640>.

Configure the following properties when you integrate GCP with VDX Analytics:

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                           |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |

| Property                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integration file          | <p>Select the JSON file that you stored on the VDX Analytics server.</p> <p>If you do not see the file in the drop-down list, ensure that you copied it to the correct folder, and then refresh VDX Analytics in your browser:</p> <p>If this is a new installation, the path is %Install Path%\Martello\Martello<br/>iQ\Integrations\GoogleCloudCompute</p> <p>If this is an upgrade, the path is %Install Path%\Savision\Savision<br/>iQ\Integrations\GoogleCloudCompute</p> |
| Webhook Listener URL      | <p>Enter the URL, including the port number, of the Webhook Listener in the following format:<br/>http://&lt;Server&gt;:&lt;Port&gt;</p> <p>Example: https://webhook.martello.com:59213</p>                                                                                                                                                                                                                                                                                    |
| Webhook Listener Username | Enter the same Username that you specified during the Webhook Listener setup.                                                                                                                                                                                                                                                                                                                                                                                                  |
| Webhook Listener Password | Enter the same Password that you specified during the Webhook Listener setup.                                                                                                                                                                                                                                                                                                                                                                                                  |
| Discovery Interval        | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                                                                                                                                                                      |
| Operation Interval        | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                                                                                                                                                                                                                                                                   |

## Icinga2

Configure the following properties when you integrate Icinga2 with VDX Analytics:

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                           |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |

| Property                  | Description                                                                                  |
|---------------------------|----------------------------------------------------------------------------------------------|
| Server                    | The server Icinga2 is installed on.                                                          |
| Port                      | The port to access the server.                                                               |
| Secure Connection (HTTPS) | Select the checkbox to use HTTPS.                                                            |
| Username                  | A user in the account                                                                        |
| Password                  | The password for the account.                                                                |
| Base URL                  | The URL used to open the Icinga2 web console from VDX Analytics.                             |
| Host URL                  | URL used to retrieve the data.                                                               |
| Service URL               | URL that is used to navigate from VDX Analytics to Icinga2 from a service component.         |
| Host Group URL            | URL that is used to navigate from VDX Analytics to Icinga2 from a host component.            |
| Service Group URL         | URL that is used to navigate from VDX Analytics to Icinga2 from a service group component.   |
| Discovery Interval        | How often the objects are loaded from the integrated system. The default is 3600 seconds.    |
| Operation Interval        | How often health states, alerts, and/or incidents are collected. The default is 120 seconds. |

## Ivanti Service Management

Configure the following properties when you integrate Ivanti Service Management with VDX Analytics:

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                           |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL      | Include the port access to the instance, typically 80 or 443.                                                                                                       |

| Property           | Description                                                                               |
|--------------------|-------------------------------------------------------------------------------------------|
| Username           | A user in the account.                                                                    |
| Password           | The password for the account.                                                             |
| On-Premises        | Optional.                                                                                 |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds. |
| Operation Interval | How often incidents are collected. The default is 120 seconds.                            |

## Jira Software

Configure the following properties when you integrate Jira Software with VDX Analytics:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL                | The default port is 8080.                                                                                                                                           |
| Type               | VDX Analytics supports Jira on-premises.                                                                                                                            |
| Username           | A user in the account                                                                                                                                               |
| Password           | The password for the account.                                                                                                                                       |
| Operation Interval | How often incidents are collected. The default is 120 seconds.                                                                                                      |

## Martello API

This entry is not an active integration. It uses an API endpoint on the Elasticsearch server to push data into VDX Analytics. This approach allows you to use the same filters that are used for the data from other integrations.

Configure the following properties when you integrate the Martello API with VDX Analytics:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                        |

For more information about the API, refer to the *Vantage DX Analytics REST API Guide*, available on the Martello documentation site at the following URL:

<https://martellotech.com/documentation/vantage-dx/>



**Note:** This is not an active integration. This approach uses an API endpoint on the Elasticsearch server to push data into VDX Analytics.

## Martello Vantage DX Monitoring

If you are integrating Martello Vantage DX Monitoring 2.1 with VDX Analytics, ensure that you enable the Vantage DX Monitoring API using the instructions provided in the following Knowledge Base article:

<https://help.gizmo.gsx.com/knowledge-base/how-to/how-to-enable-the-gizmo-api/>

If you are using Martello Vantage DX Monitoring 2.2 or higher, you do not need to enable the API; it is enabled by default.

Configure the following properties when you integrate Vantage DX Monitoring with VDX Analytics:

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                           |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |

| Property           | Description                                                                                                                                                                                                                                                                                                                |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Server URL         | <p>URL of the Vantage DX Monitoring instance API.</p> <p>For Vantage DX Monitoring 2.1 integrations, an example URL is <code>http://&lt;servername&gt;:8080/api/v1/robotmanager</code>.</p> <p>For Vantage DX Monitoring 2.2 and higher, an example URL is <code>http://&lt;servername&gt;/api/v1/robotmanager</code>.</p> |
| <Domain\>User Name | Administrative credentials for the account.                                                                                                                                                                                                                                                                                |
| Password           | The password for the account.                                                                                                                                                                                                                                                                                              |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                  |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                                                                                                               |

## Microsoft Call Quality Dashboard

Configure the following properties when you integrate Microsoft Teams with VDX Analytics to monitor remote users:

| Property                                    | Description                                                                                                                                                         |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                                      | Read-only. The name of the source system.                                                                                                                           |
| Agent                                       | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                                        | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Azure Login Name                            | The Microsoft 365 account that VDX Analytics can use to access the CQD.                                                                                             |
| Azure Login Password                        | The password for the Microsoft 365 account.                                                                                                                         |
| Days to Look Back in Call Quality Dashboard | The number of days of data from the CQD to display in VDX Analytics.                                                                                                |

| Property                              | Description                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hours to Look Back for Health Status  | The number of hours used to calculate the health status of objects. By default, the health status is calculated over 7 days; however, you can edit this value if you want to calculate the health status over a different period of time. For example, you can calculate the health status based on the past 24 hours but continue to display call quality data for the last 7 days. |
| Display TimeZone                      | Data collected by the Microsoft CQD is stored in UTC. You can use this setting to have VDX Analytics convert from UTC to another time zone.                                                                                                                                                                                                                                          |
| Localize call times based on location | Select the checkbox to show calls in the local timezone of the participant. When you select this option, the local time is shown for each endpoint in the call. VDX Analytics uses the geolocation to determine the local timezone. If geolocation information is not available, the timezone defaults to UTC.                                                                       |
| Poor Call Warning Ratio (%)           | The threshold used by VDX Analytics to trigger a warning about the health status of a user device. Use this field to specify the percentage of poor calls that must occur during the time period used to calculate health status. The time period is set in the Hours to Look Back for Health Status field. By default, the call warning ratio is 20%.                               |
| Poor Call Critical Ratio (%)          | The threshold used by VDX Analytics to trigger a critical alert about the health status of a user device. Use this field to specify the percentage of poor calls that must occur during the time period used to calculate health status. The time period is set in the Hours to Look Back for Health Status field. By default, the call critical ratio is 30%.                       |

| Property                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Jitter Threshold          | <p>Set the jitter threshold to use.</p> <p>Jitter indicates the size of the buffer that is needed to store packets before they are reconstructed in the correct order. Jitter can cause delays in calls and is an indicator of congestion of the network.</p> <p>Jitter is averaged over 15-second intervals for the duration of the call. Microsoft classifies call quality as poor when the average exceeds 30ms. By default, VDX Analytics raises an alert when jitter exceeds the 30ms threshold, but you can use this field to change the threshold that triggers an alert.</p>                      |
| Round Trip Time Threshold | <p>Set the round trip time (RTT) threshold to use.</p> <p>RTT is the time in milliseconds that it takes a data packet to travel from point A to B and return. It is determined by the physical distance between the two points, the speed of transmission, and the overhead taken by the routers in between.</p> <p>RTT is averaged over 15-second intervals for the duration of the call. A value over 500ms can cause poor call quality. By default, VDX Analytics raises an alert when RTT exceeds the 500ms threshold, but you can use this field to change the threshold that triggers an alert.</p> |
| Packet Loss Threshold     | <p>Set the packet loss threshold to use.</p> <p>The number of packets lost in a 15-second interval. Packet loss is calculated as a percentage. For example, if 1000 packets are sent in a 15-second interval and 50 are lost, the packet loss rate is 5%.</p> <p>By default, VDX Analytics raises an alert when packet loss exceeds the 10% threshold, but you can use this field to change the threshold that triggers an alert.</p>                                                                                                                                                                     |

| Property                             | Description                                                                                                                                                                                                                                                                         |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Data Query Time (in minutes) | The maximum time allowed for a single CQD query. In deployments where there are 25,000 or more users, we recommend that you set this to 120 minutes to limit the amount of data that is returned for each CQD call.                                                                 |
| Data Window Incremental Minutes      | The amount of time the CQD query will look back from the last call that was loaded into the database. We recommend that you set this to 60 minutes to ensure that all data is captured. In deployments where there are 25,000 or more users, you can set this as low as 30 minutes. |
| Use Incremental Sync Start           | Select this option if you do not want VDX Analytics to retrieve historical data but prefer to retrieve data beginning from the day of the integration.                                                                                                                              |
| Anonymize Data                       | Select this option if you do not want to show identifiable information for your users, such as names, email addresses, and IP addresses. User information displays as number strings.                                                                                               |
| Disable Caller Resolution            | Select this option if you do not want to show identifiable information about call recipients. When you choose this option, VDX Analytics displays the name of the user who placed a call, but does not show the name of the call recipient.                                         |
| Randomize Names                      | Select this option if you do not want to show identifiable information for your users, such as names and email addresses. VDX Analytics displays randomly generated names instead of real user names.                                                                               |

| Property                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Add Calls as Separate Components | <p>Select this option if you want each call to display as a separate component in VDX Analytics.</p> <div style="border: 1px solid black; padding: 10px; background-color: #f0f0f0;">  <p><b>Warning:</b> This option significantly increases the amount of data that VDX Analytics retrieves and stores. If you select this option, it may impact the performance of VDX Analytics.</p> </div> |
| Discovery Interval               | The interval for collecting components and relationships from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                                                                                                                                                |
| Operation Interval               | The interval for collecting alerts, incidents, and component health states. The default is 120 seconds.                                                                                                                                                                                                                                                                                                                                                                          |

## Microsoft System Center Operations Manager

Configure the following properties when you integrate Microsoft System Center Operations Manager (SCOM) with VDX Analytics:

| Property          | Description                                                                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source            | Read-only. The name of the source system.                                                                                                                           |
| Agent             | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name              | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Management Server | Port 5724.                                                                                                                                                          |
| Username          | A SCOM username.                                                                                                                                                    |
| Password          | The password for the SCOM account.                                                                                                                                  |
| URL               | Optional. URL to Live Maps Portal.                                                                                                                                  |

| Property                                        | Description                                                                                  |
|-------------------------------------------------|----------------------------------------------------------------------------------------------|
| Load component states directly from SQL Server? | Select the checkbox to enable this function.                                                 |
| Load relationships per object?                  | Select the checkbox to enable this function.                                                 |
| Discovery Interval                              | How often the objects are loaded from the integrated system. The default is 3600 seconds.    |
| Operation Interval                              | How often health states, alerts, and/or incidents are collected. The default is 120 seconds. |

## Microsoft 365

Use the information in this section to configure an integration with Microsoft 365.



**Note:** Service incidents and events from Microsoft 365 display as alerts in VDX Analytics. The health state and alert severity is based on the service incident status.

### Before you Begin

You must register an application in the Azure Active Directory so that VDX Analytics can connect with the Microsoft Graph API and collect data from it. The Microsoft Graph API must have the following permissions:

- Organization.Read.All
- Reports.Read.All
- ServiceHealth.Read.All
- TeamworkDevice.Read.All (optional, for data collection from Teams meeting room devices)

The tenant administrator needs to consent to the application permissions. For information about how to perform these steps, see the following Knowledge Base article:

<https://support.martellotech.com/knowledgeBase/15513875>

Configure the following properties when you integrate Microsoft 365 with VDX Analytics:

| Property | Description                               |
|----------|-------------------------------------------|
| Source   | Read-only. The name of the source system. |

| Property              | Description                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent                 | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it.                                                                                                                                                                               |
| Name                  | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                                                                                                                                                                                            |
| Tenant ID             | Required. For information about how to find your Microsoft tenant GUID, see <a href="https://docs.microsoft.com/en-us/onedrive/find-your-office-365-tenant-id">https://docs.microsoft.com/en-us/onedrive/find-your-office-365-tenant-id</a> .                                                                                                     |
| Client ID             | The Application (Client) ID from the above Azure Application registration.                                                                                                                                                                                                                                                                        |
| Client Secret Key     | The Client Secret associated with the Azure Application registration. The Client Secret can have an expiry date configured; if your Client Secret has an expiry date, you will need to regenerate it and update the integration when it expires.                                                                                                  |
| Collect Teams Devices | Optional. Select this checkbox to collect information about the following Teams meeting room devices: <ul style="list-style-type: none"> <li>• Teams Room devices</li> <li>• Surface Hub devices</li> <li>• Teams Panel devices</li> <li>• Collaboration Bar devices</li> <li>• Teams Display devices</li> <li>• Touch Console devices</li> </ul> |
| Collect IP Phones     | Optional. Select this checkbox to collect information about the following Teams meeting room IP Phone devices: <ul style="list-style-type: none"> <li>• IP Phone devices</li> <li>• Low-Cost Phone devices</li> <li>• SIP devices</li> </ul>                                                                                                      |
| Discovery Interval    | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                                         |
| Operation Interval    | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                                                                                                                                      |

## Mitel Performance Analytics

Configure the following properties when you integrate Mitel Performance Analytics (MPA) with VDX Analytics:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| MPA URL            | The URL of the MPA instance.                                                                                                                                        |
| Login              | The email address used to access the account.                                                                                                                       |
| Password           | The password for the account.                                                                                                                                       |
| Container GUID     | Optional. The GUID of the container in MPA.                                                                                                                         |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                        |

## Nagios Core and Xi

### Before you Begin

The Nagios integration supports two modes. Select one of the following modes and complete the prerequisites before you add the integration in VDX Analytics:

- ["Nagios Core API Mode" on page 50](#): VDX Analytics pulls data from Nagios using the JSON API shipped with Nagios since release 4.0.7.
- ["Martello API Mode" on page 51](#): VDX Analytics communicates with Nagios using the custom CGI endpoint shipped with VDX Analytics.

The Nagios integration allows VDX Analytics to interface with the majority of the current Nagios distributions, such as Nagios Core, Nagios XI, Icinga, Check\_MK, Shinken.



**Tip:** For Nagios Core and Xi, you must install the CGI script if you want to use the Acknowledge Alerts feature. For the other Nagios forks, like Shinken or Check\_MK, the Martello API Mode—

including the installation of the CGI scripts—is required. The CGI scripts require the LiveStatus module to be installed.

Configure the following properties when you integrate Nagios Core and Xi with VDX Analytics:

| Property                   | Description                                                                                                                                                         |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                     | Read-only. The name of the source system.                                                                                                                           |
| Agent                      | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                       | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Nagios API                 | Choose one of the APIs.                                                                                                                                             |
| Server                     | The server Nagios is installed on.                                                                                                                                  |
| Port                       | The port to access the server.                                                                                                                                      |
| Secure Connection (HTTPS)  | Optional.                                                                                                                                                           |
| Username                   | The username used to authenticate with Nagios.                                                                                                                      |
| Password                   | Password used to authenticate with Nagios.                                                                                                                          |
| VDX Analytics Endpoint URL | URL used to retrieve the data when you choose the Martello API mode.                                                                                                |
| Base URL                   | The URL used to open the Nagios web console from VDX Analytics.                                                                                                     |
| Host URL                   | URL used to retrieve the data when you choose the Martello API mode.                                                                                                |
| Service URL                | URL that is used to navigate from VDX Analytics to Nagios from a service component.                                                                                 |
| Host Group URL             | URL that is used to navigate from VDX Analytics to Nagios from a host component.                                                                                    |
| Service Group URL          | URL that is used to navigate from VDX Analytics to Nagios from a service group component.                                                                           |

| Property           | Description                                                                                            |
|--------------------|--------------------------------------------------------------------------------------------------------|
| Discovery Interval | Required. How often the objects are loaded from the integrated system. The default is 3600 seconds.    |
| Operation Interval | Required. How often health states, alerts, and/or incidents are collected. The default is 120 seconds. |

### Nagios Core API Mode

Core API mode has the following requirements:

- Nagios Core 4.0.7 and up
- Python 2.7+ with modules cgi, cgitb, JSON installed
- Nagios must be configured to allow external commands. In your `nagios.cfg`, ensure the following settings have the required values:
  - `check_external_commands = 1` to enabled external commands.
  - `command_check_interval = -1` to check for external commands as often as possible.
- Restart Nagios after you make the changes listed above.

### CGI Script Installation

Copy the `savisioniq.cgi` script located in the VDX Analytics installation folder. If this is a new installation, the directory is `%programfiles%\Martello iQ\Integrations\Nagios\Core Api\savisioniq.cgi`. If this is an upgrade, the directory is `%programfiles%\Savision iQ\Integrations\Nagios\Core Api\savisioniq.cgi`. Copy the script into the Nagios `cgi-bin` folder. On Nagios Core 4 and up the folder is `/usr/local/nagios/sbin`. Other Nagios installations maybe different.

Make sure that the `savisioniq.cgi` CGI Script is executable and associated with the user and group that is allowed to run Nagios. On Nagios Core 4 the user and group are **nagios**.

```
sudo chmod +x /usr/local/nagios/sbin/savisioniq.cgi
```

```
sudo chown nagios:nagios /usr/local/nagios/sbin/savisioniq.cgi
```

### Configuration

Open the `savisioniq.cgi` script with an editor and change the following parameters to match your current Nagios configuration:

- **command\_file** has to be set to the same value as **command\_file** in your `nagios.cfg` (by default `/usr/local/nagios/var/rw/nagios.cmd`).
- **status\_file** has to be set to the same value as **status\_file** in your `nagios.cfg`.

## Martello API Mode

Martello API mode has the following requirements:

- Python 2.7+ with modules `cgi`, `cgitb`, `JSON` installed.
- Any Nagios distribution that supports `MK_LiveStatus`.

If `MK_Livestatus` is not installed, you can install it manually. Refer to this article for more information: [http://mathias-kettner.com/checkmk\\_livestatus.html](http://mathias-kettner.com/checkmk_livestatus.html).

The recommended `MK_LiveStatus` version is 1.4.0p34

## CGI Script Installation

Copy the `savisioniq.cgi` script and the `livestatus.py` module from the VDX Analytics installation folder. If this is a new installation, the directory is `%programfiles%\Martello iQ\Integrations\Nagios\Savision Api`. If this is an upgrade, the directory is `%programfiles%\Savision iQ\Integrations\Nagios\Savision Api`. Copy the script and the module into the Nagios `cgi-bin` folder. On Nagios Core 4 and up the folder is `/usr/local/nagios/sbin`. Other Nagios installations may be different.

Make sure that the `savisioniq.cgi` CGI Script is executable and associated to the user and group that is allowed to run Nagios. On Nagios Core 4 the user and group are **nagios**.

```
sudo chmod +x /usr/local/nagios/sbin/savisioniq.cgi
```

```
sudo chown nagios:nagios /usr/local/nagios/sbin/savisioniq.cgi
```

## Configuration

Enable the LiveStatus TCP Unix socket. By default, it is set to localhost, port 6557.

Open the `savisioniq.cgi` script with an editor and find the LiveStatus connection properties and change them to match your current LiveStatus configuration:

```
cmk_livestatus_nagios_server = "localhost"
```

```
cmk_livestatus_tcp_port = 6557
```

## PowerShell

Configure the following properties when you integrate PowerShell with VDX Analytics:

| Property | Description                               |
|----------|-------------------------------------------|
| Source   | Read-only. The name of the source system. |

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Username | The username for the account that is authorized to run the PowerShell script as required.                                                                           |
| Password | The password for the account that is authorized to run the PowerShell script as required.                                                                           |
| Script   | Select a PowerShell script from the drop-down menu. Scripts are available in the menu after you copy them to the <b>VDX Analytics &gt; PSScripts</b> folder.        |

## Providence

You must complete setup tasks in Providence before you can integrate it with VDX Analytics. For more information, see the following Martello Knowledge Base article:

<https://support.martellotech.com/knowledgeBase/15220588>

Configure the following properties when you integrate Providence with VDX Analytics:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL                | The URL of the Providence instance.                                                                                                                                 |
| Tenant ID          | The Azure AD tenant where the Providence application is registered. Registering the application allows it to connect to Dynamics 365.                               |
| Application ID     | Also known as the client ID, this is the ID of the Dynamics 365 application.                                                                                        |
| Application Secret | The secret of the Dynamics 365 application.                                                                                                                         |

| Property           | Description                                                    |
|--------------------|----------------------------------------------------------------|
| Operation Interval | How often incidents are collected. The default is 120 seconds. |

## PRTG Network Monitor

Configure the following properties when you integrate PRTG Network Monitor with VDX Analytics:

| Property                                            | Description                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                                              | Read-only. The name of the source system.                                                                                                                                                                                                                                                                                                            |
| Agent                                               | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it.                                                                                                                                                                                  |
| Name                                                | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                                                                                                                                                                                               |
| URL                                                 | Default ports are 80 or 443.                                                                                                                                                                                                                                                                                                                         |
| Username                                            | The login name of a PRTG administrator user.                                                                                                                                                                                                                                                                                                         |
| Password                                            | The password for a PRTG administrator user.                                                                                                                                                                                                                                                                                                          |
| Roll-up worst sensor state to components and groups | Optional. By default, PRTG does not roll-up the worst sensor state. When you enable this option, VDX Analytics calculates the states of the devices and groups based on the worst state of the related sensors.                                                                                                                                      |
| Minimum number of items per request                 | This field controls the requests that VDX Analytics sends to PRTG. The default value is 2000 items per request. You can set the value higher to have the PRTG server send larger, less frequent responses to VDX Analytics. If the request times out before the PRTG server can respond with the number of requested items, you can lower the value. |
| Request delay in milliseconds                       | The interval between requests sent from VDX Analytics to the PRTG server. The default value is 1000 milliseconds.                                                                                                                                                                                                                                    |
| Discovery Interval                                  | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                                                                                                                                            |
| Operation Interval                                  | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                                                                                                                                         |

## ServiceNow

### Before you Begin

Configure your ServiceNow instance to work with VDX Analytics:

- Install the VDX Analytics ServiceNow app in your instance of ServiceNow.
- Create a user with the following roles:
  - x\_savis\_iq.Martello iQ Role
  - itil
  - itil\_admin
  - personalize\_choices
- Specify port 443 for Port Access to the Instance.
- Install the VDX Analytics application from the ServiceNow app store at <https://store.servicenow.com/>.

Configure the following properties in VDX Analytics when you add the ServiceNow integration:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| Instance Address   | Use port 443 to connect to your ServiceNow instance.                                                                                                                |
| Username           | Enter the credentials for the user you created.                                                                                                                     |
| Password           | The password for the user.                                                                                                                                          |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval | How often incidents are collected. The default is 120 seconds.                                                                                                      |

## SolarWinds

Configure the following properties when you integrate SolarWinds with VDX Analytics:

| Property           | Description                                                                                                                                                                                                                         |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it.                                                                 |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                                                                              |
| Server Name        | Port 17778 access to the SolarWinds Server.                                                                                                                                                                                         |
| Connection Type    | Possible values are HTTPS or NET TCP. If you choose NET TCP, set the FQDN of the SolarWinds server in the web.config file or in the Savision.UnityiQ.Agent.exe.config file in the case the integration is hosted by a remote agent. |
| Username           | Administrative credentials for the account.                                                                                                                                                                                         |
| Password           | The password for the account.                                                                                                                                                                                                       |
| URL                | URL to Orion.                                                                                                                                                                                                                       |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                                                                           |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                                                                        |



**Note:** We use the SolarWinds Information Service (SWIS) to load data from SolarWinds Orion:  
<https://github.com/solarwinds/OrionSDK/wiki/About-SWIS>

## Splunk

Configure the following properties when you integrate Splunk with VDX Analytics:

| Property | Description                                                                                                                                                         |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                           |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |

| Property                          | Description                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------------------|
| Name                              | Provide a name for the integration; this name displays on the VDX Analytics interface.       |
| Management URL with a port        | Default Port: 8089                                                                           |
| Web URL with a port               | Default Port: 8000                                                                           |
| Username                          | The user of the account.                                                                     |
| Password                          | The password for the account.                                                                |
| To add default Splunk alert rules | Check to enable.                                                                             |
| Discovery Interval                | How often the objects are loaded from the integrated system. The default is 3600 seconds.    |
| Operation Interval                | How often health states, alerts, and/or incidents are collected. The default is 120 seconds. |

## TOPdesk

Configure the following properties when you integrate TOPdesk with VDX Analytics:

| Property | Description                                                                                                                                                                                                                                                                                                                                                       |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source   | Read-only. The name of the source system.                                                                                                                                                                                                                                                                                                                         |
| Agent    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it.                                                                                                                                                                                               |
| Name     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                                                                                                                                                                                                                            |
| URL      | Default ports are 80 or 443.                                                                                                                                                                                                                                                                                                                                      |
| Username | <p>Choose one of the following options for authentication:</p> <ul style="list-style-type: none"> <li>• Use an operator account that has privileges to access the API. The account cannot be an administrator account.</li> <li>• Use an application password.</li> </ul> <p>Martello recommends that you use an application password for better performance.</p> |

| Property                               | Description                                                                                                                                                                         |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Password                               | The password for the Operator account or the application password. If you are using an application password, ensure that you select <b>Using application-based authentication</b> . |
| Mandatory Fields for Incident Creation | Use the drop-down list to select the mandatory fields to include when VDX Analytics creates an incident in TOPdesk.                                                                 |
| Using application-based authentication | Select the checkbox if you are using an application password instead of an operator account.                                                                                        |
| Load asset data                        | Select the checkbox to enable.                                                                                                                                                      |
| Cache asset data                       | Select the checkbox to enable.                                                                                                                                                      |
| Discovery Interval                     | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                                           |
| Operation Interval                     | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                                        |

## VMware vCenter

Configure the following properties when you integrate VMware vCenter with VDX Analytics:

| Property                 | Description                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                   | Read-only. The name of the source system.                                                                                                                           |
| Agent                    | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                     | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| vCenter Server           | Port 443 access to your vCenter Server.                                                                                                                             |
| Username                 | A user in the account                                                                                                                                               |
| Password                 | The password for the account.                                                                                                                                       |
| Use Single Sign-on (SSO) | Optional.                                                                                                                                                           |
| SSO Endpoint override    | Configure the URL to the SSO endpoint.                                                                                                                              |

| Property            | Description                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------|
| vSphere Client Type | Select which web client is used to navigate from VDX Analytics to VMware vCenter.            |
| vSphere Client URL  | The URL to the VMware vCenter web client.                                                    |
| Discovery Interval  | How often the objects are loaded from the integrated system. The default is 3600 seconds.    |
| Operation Interval  | How often health states, alerts, and/or incidents are collected. The default is 120 seconds. |

## WhatsUp Gold

Configure the following properties when you integrate WhatsUp Gold with VDX Analytics:

| Property               | Description                                                                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source                 | Read-only. The name of the source system.                                                                                                                           |
| Agent                  | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name                   | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| SQL Server             | SQL Server instance the WhatsUp database is on.                                                                                                                     |
| Use SQL Authentication | Optional.                                                                                                                                                           |
| User                   | Enter a user that has read permissions on the WhatsUp database.                                                                                                     |
| Password               | The password for the user account.                                                                                                                                  |
| Console URL            | URL to the web console of WhatsUp Gold. This URL is used to navigate from VDX Analytics to WhatsUp Gold.                                                            |
| Discovery Interval     | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval     | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                        |

## Zabbix

Configure the following properties when you integrate Zabbix with VDX Analytics:

| Property           | Description                                                                                                                                                         |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Source             | Read-only. The name of the source system.                                                                                                                           |
| Agent              | Select a server to communicate with the source system. This can be the VDX Analytics web server or a machine that has a VDX Analytics Remote agent installed on it. |
| Name               | Provide a name for the integration; this name displays on the VDX Analytics interface.                                                                              |
| URL                | URL to the endpoint where <code>api_jsonrpc.php</code> is located.                                                                                                  |
| Username           | A user in the account                                                                                                                                               |
| Password           | The password for the account.                                                                                                                                       |
| Discovery Interval | How often the objects are loaded from the integrated system. The default is 3600 seconds.                                                                           |
| Operation Interval | How often health states, alerts, and/or incidents are collected. The default is 120 seconds.                                                                        |



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