DataReservoir.io™ Connector
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Functional Overview

• Transfer data from customer sources into DataReservoir.io™
  - Continuous streaming for online scenarios
  - Data compression and value filtering for optimized bandwidth usage
  - Built-in resiliency to handle downtime and unreliable networks

• Support industry standard protocols OPC/UA
  - Stream historical data from OPC HDA and OPC UA HDA
  - Stream current data from OPC UA DA enabled sources

• Extendable
  - Can be extended to support custom OData and REST API sources
Network and Connectivity
Connectivity Requirements

• Connector to data source
  - OPC UA HDA - both binary (any port) or web service (HTTPS) are supported
  - OPC HDA - local COM or remote DCOM are supported

• Connector to DataReservoir.io™
  - HTTPS - outbound communication to Azure IoT Hub (port 443)
  - HTTPS - outbound communication to Azure Application Insights (port 443)
Firewall Requirements

The following hosts, IPs and ports must be allowed from the site of the DataReservoir Connector to the Internet.

IMPORTANT: to ensure stable and performant connectivity, it is required that communication should not pass through a web proxy.

<table>
<thead>
<tr>
<th>What</th>
<th>DNS</th>
<th>IP (if specific)</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Receiver</td>
<td>reservoir-iot-prod.azure-devices.net</td>
<td>40.118.27.192</td>
<td>443</td>
</tr>
</tbody>
</table>
| ALM Services Service Health Telemetry | dc.services.visualstudio.com  
dc.applicationinsights.microsoft.com | 40.114.241.141  
104.45.136.42  
40.84.189.107  
168.63.242.221 | 443 |
| ALM Services Service Health Telemetry | rt.services.visualstudio.com  
rt.applicationinsights.microsoft.com | 23.96.28.38  
13.92.40.198 | 443 |
System Requirements
System Requirements

DataReservoir.io™ Connector system requirements depend on the amount of data to be transferred. Use the following base line:

- **Per <500 tags, low-frequency up to 10Hz data rate**
  - 1x virtual machine in customer network hosting the connector
  - (If data sources does not support historical access, downtime in streaming is to be expected during OS, software maintenance or network interruptions)

- **Machine specifications:**
  - OS: Windows Server 2016 or 2019 with Microsoft .NET Framework 4.7.2
  - Hardware/virtual machine with 4 cores, 8GB memory
  - Reliable network connectivity, minimum two NICs for dedicated internal and external network traffic is recommended
Deployment Topology
Connector Deployment

DataReservoir.io™ Connector must be deployed with outbound connectivity to data sources and DataReservoir.io™ endpoints. The following illustrations are examples of topologies where Connector is deployed, either close to the data source (Edge), or running in the cloud.
**Edge Deployment Topology**

![Diagram](image)

**Customer network**

- Data Source
  - PI Server
  - OData
  - Databases
  - Etc..

**Customer DMZ**

- AMQP
- HTTPS

**Internet**

**Azure networks**

- DataReservoir APIs
- Storage and processing

- DataReservoir.io™

**Virtual Machine**

- Microsoft Azure
Cloud Deployment Topology

- Data Sources
  - PI Server
  - OData
  - Databases
  - Etc..

- Secure API
  - OPC UA HDA
  - OData
  - REST APIs

Customer network/DMZ

Internet

Azure networks

- DataReservoir APIs
- Storage and processing
- DataReservoir.io™
- Microsoft Azure

HTTPS
Advanced Topologies

DataReservoir.io™ Connector’s primary mode of operation is connecting to history databases over the OPC HDA protocol (classic or UA).

In cases where history databases are not available, a historian middleware should be introduced to ensure that all data can be transferred to DataReservoir in a reliable manner.

The following examples illustrate some topologies with and without history-enabled data sources.
Data Sources without HDA Support
- Historian Middleware

Customer network

Data sources

Virtual machine(s)

Internet

Microsoft Azure

Azure networks

Historian

DataReservoirReceiver

DataReservoir.io™

OPC UA HDA

Connector instance 1

Connector instance 2

Connector instance 2

OPC UA HDA

OPC UA HDA

AMQP HTTPS
Data Sources w. Mixed HDA Support

**Data sources**

1. DA #01
2. HDA #02
3. HDA #03

**Customer network**

- Historian
- Connector instance 1
- Connector instance 2

**Internet**

- OPC UA HDA
- ANQP
- HTTPS

**Azure networks**

- DataReservoir Receiver
  - DataReservoir.io™

**Virtual machine(s)**

- Microsoft Azure