

"The Authentication key is invalid or empty" after disabling public network access for Data Factory

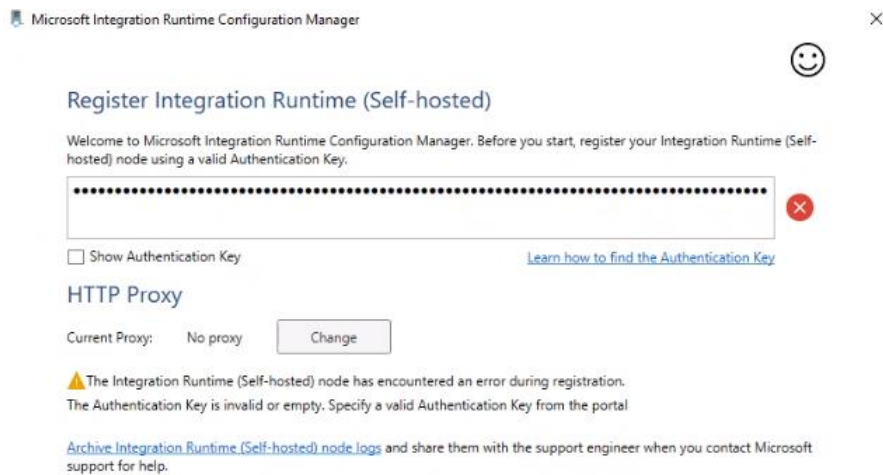
Last updated by | Jackie Huang | Jan 4, 2022 at 12:24 AM PST

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Issue

Self Hosted integration runtime throwing error "The Authentication key is invalid or empty" after disabling public network access for Data Factory.



Root Cause

Disabling public connectivity and establishing a private endpoint. But it still doesn't seem to be connecting, most likely the DNS resolution issue. The DNS name of ADF is resolving to a public IP even after created a DNS record in Azure Private Link.

Steps to verify the cause

1. Check whether the Customer has created Azure VM in the same VNET as Data Factory private endpoint.
2. a) Psping or Ping from Azure VM to Data Factory FQDN it resolved to a public IP. Command: - psping.exe <dataFactoryName>.<region>.datafactory.azure.net:443 (Replace ADF name and region)

Note: - 443 is not required but PSPING command requires a port to be specified.

Or

- b) Command: - ping <dataFactoryName>.<region>.datafactory.azure.net (Replace ADF name and region)

3. Both the above commands would resolve to a ADF public IP based on region specified.

```
C:\Users\M9600211\Downloads\PSTools>psping.exe au -pe 20.42.64.0:443

PsPing v2.10 - PsPing - ping, latency, bandwidth measurement utility
Copyright (C) 2012-2016 Mark Russinovich
Sysinternals - www.sysinternals.com

TCP connect to 20.42.64.0:443:
5 iterations (warmup 1) ping test:
Connecting to 20.42.64.0:443 (warmup): from 10.0.0.119:65216: 84.88ms
Connecting to 20.42.64.0:443 : from 10.0.0.119:65216: 82.67ms
Connecting to 20.42.64.0:443 : from 10.0.0.119:65216: 81.27ms
Connecting to 20.42.64.0:443 : from 10.0.0.119:65216: 82.82ms
Connecting to 20.42.64.0:443 : from 10.0.0.119:65216: 78.99ms

TCP connect statistics for 20.42.64.0:443:
Sent = 4, Received = 4, Lost = 0 (0% loss),
Minimum = 78.99ms, Maximum = 82.82ms, Average = 81.44ms
```

Resolution

(before using the resolution, kindly perform the step to verify if the cause)

If the response of above command resolved network connection to a public IP and not a private IP as below (xx.xx.xx.0 is a public IP, verified from "Service Tags" file for public cloud)

```
C:\Users\M9600211\Downloads\PSTools>psping.exe au -pe 20.42.64.0:443

PsPing v2.10 - PsPing - ping, latency, bandwidth measurement utility
Copyright (C) 2012-2016 Mark Russinovich
Sysinternals - www.sysinternals.com

TCP connect to 20.42.64.0:443:
```

Then ask customer to follow the document [Azure Private Link for Azure Data Factory](#) to configure the private DNS zone/server to resolve DF FQDN to private IP address. This is same for all service which support private link.

If customer does not want to configure the private DNS zone/server as public document required, then this is temp workaround for customer. However, we recommend our customer to leverage the custom DNS as long term solution.

1. Change the host file in windows and map private IP (ADF Private endpoint) to ADF FQDN
 - o In Azure VM, navigate to path "C:\Windows\System32\drivers\etc\hosts" and open the host file in a text editor like Notepad (ADMIN MODE REQUIRED).
 - o Add a line at the end as shown below, where "10.3.0.9" is private IP i.e. ADF Private endpoint and "[xxx-xx-test.eastus.datafactory.azure.net](#)" is FQDN for ADF. Save and close the host file after making the above changes.

*hosts - Notepad

```
File Edit Format View Help
# Copyright (c) 1993-2009 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
# 10.0.0.1        rhino.acme.com    # source server
# 10.0.0.1        x.acme.com       # x client host

# localhost name resolution is handled within DNS itself.
# 127.0.0.1      localhost
# ::1            localhost

10.3.0.9         xxx-xx-test.eastus.datafactory.azure.net
```

2. Rerun the same commands given above and the response will contain a private IP i.e. customer's ADF Private endpoint.

```
C:\Users\M9600211\Downloads\PSTools>psping.exe s.datafactory.azure.net:443

PsPing v2.10 - PsPing - ping, latency, bandwidth measurement utility
Copyright (C) 2012-2016 Mark Russinovich
Sysinternals - www.sysinternals.com

TCP connect to [redacted]
Iterations (warmup 1), ping tests:
```

3. Try registering the SHIR again and it should succeed.

How to find private IP for ADF private endpoint and validate private DNS zone is configured,

1. In Azure portal under the resource group where customer created ADF PE, a private link resource will be created with name "privatelink.datafactory.azure.net" which contains private IP with respective ADF FQDN

privatelink.datafactory.azure.net

Private DNS zone

Search (Ctrl+I)

+ Record set → Move ▾ Delete zone Refresh

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Virtual network links

Properties

Locks

Monitoring

Alerts

Metrics

Automation

Essentials

Resource group (change) : ligeng-swiftn

Subscription (change) : ADMS_Test_Engineering_IR

Subscription ID : [redacted]

Tags (change) : Click here to add tags

You can search for record sets that have been loaded on this page. If you don't see what you're looking for, you can try scrolling to allow more record sets to load.

Search record sets

Name	Type	TTL	Value
@	SOA	3600	Email: [redacted]-host.microsoft.com Host: azureprivatedns.net Refresh: 3600 Retry: 300 Expire: 2419200 Minimum TTL: 10 Serial number: 1
ligengswitzerlandnorth.switzerlandnorth	A	10	10.0.0.7
ligeng0828wcu.westcentralus	A	10	10.0.0.6

2. In Virtual network links page, make sure Virtual Network used by private endpoint is added,

privatelink.datafactory.azure.net | Virtual network links

Private DNS zone

Search (Ctrl+I)

+ Add Refresh

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Virtual network links

Search virtual network links

Link Name	Link status	Virtual network
da6phr6dzjx66	Completed	ligengpewcu

3. Click the linked under Virtual Network, and click Private Endpoints to see all PE, click the PE used by specified DF

Dashboard > ligengpewcu

ligengpewcu | Private endpoints

Virtual network

Search (Ctrl+/)

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Address space

Connected devices

Subnets

DDoS protection

Firewall

Security

DNS servers

Peerings

Service endpoints

Private endpoints

Properties

Name ↑↓	Subnet ↑↓	Resource Group ↑↓
ligengwcu1232fsdaf	default	ligeng-swiftn
ffffffffffffdasfas	default	ligengwu
ligengwcupe012	default	ligeng0828wcu
ligengtemppe	default	ligeng-temp

4. You should see below information,

Dashboard > ligengpewcu >

ligengwcupe012

Private endpoint

Search (Ctrl+/)

Delete Refresh

Overview

Activity log

Access control (IAM)

Tags

Settings

DNS configuration

Properties

Locks

Monitoring

Metrics

Essentials

Resource group (change)

Location

Subscription (change)

Subscription ID

Provisioning state

Tags (change)

Virtual network/subnet

Network interface

Private link resource

Target sub-resource

Connection status

Request/Response

If user have configured private DNS zone and the DF FQDN is still not resolved to private IP address, work with network team on this.

Reference

120101424005318