

FQDN by DNS

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Issue occurrence scenarios:

1. Any ADF connector issue that needs a DNS resolution.
2. Intermittent Linked service connection (ex: can't connect to Snowflake private link from ADF linked service).
3. SHIR hosting more than 1 node, slave node trying to communicate with the master node it also uses FQDN (Fully qualified Domain name) issue.

Edit linked service

Snowflake [Learn more](#)

Name *
ls_snowflake_01

Description

Connect via integration runtime *
integrationRuntimeVM

The credentials are stored in the machines of self-hosted integration runtime if you don't choose to store them in Azure Key Vault.

Connection string Azure Key Vault

Account name *
ba28612.west-europe.privatelink

User name *
SRVACCT_DEV_ESG_DEVLOAD_01

Password Azure Key Vault

AKV linked service *
ls_az_keyvault

Secret name *
ESG-SFLK-ADF-PW

☒ Edit

Secret version
Latest version

☐ Edit

Database *
DB_DEV_ESG_DEVLOA

Warehouse *

Error details

Error code ConnectionTimedOut

Details Failed to get response from server. It is possible that the request takes too long. Please retry and contact Microsoft support if the issue persists. Activity ID: b2cd0c8a-80b1-4384-9c3e-c1abf60303ea

Troubleshooting steps:

Check with cx where the Self Hosted Integration Runtime (SHIR) VM landing, is it landing on the Azure or onprem and get the IP address or name of the VM.

VM landing on Azure:

1. If the VM landing on Azure, get the details like VM Name and navigate to VM, check if there are any customized DNS servers configured on the VM by cx.
2. How to reach to SHIR VM: Team need to open the customer subscription where the VM is and go to Microsoft/compute - Virtual Machines - and press on the link that points to the Virtual Network where the resource lands.
3. How to check the customized DNS servers: As shown below, there are multiple DNS servers configured on the VNet and this is a customized configuration.
 - Here VN-M01-DEV-N01-S04 is the Virtual Network hosting the VM(londocdev1), and below highlighted are DNS servers that are linked to the Virtual Network and these are not azure provided.

VN-M01-DEV-N01-S04
Microsoft.Network/VirtualNetworks

Properties Subnets Peerings

Properties

Resource Id	/subscriptions/8e8641c7-3c2d-4c42-b858-fd5bbb972ed/resourceGroups/RG-SITENET-M01-DEV-S04-01/providers/Microsoft.Network/virtualNetworks/VN-M01-DEV-N01-S04
Name	VN-M01-DEV-N01-S04
Location	northeurope
Edge Zone	N/A
Resource Group	rg-sitenet-m01-dev-s04-01
Resource Guid	f49ba5a0b3-4f48-b77d-10d9a1094cb4
Full Name	VN-M01-DEV-N01-S04
Created Time	09/01/2020 12:47:30
Last Modified Time	07/17/2022 12:15:39
Last Operation Id	3a0287de-bc9d-4f05-b022-1da20e67a5b9
Last Operation Type	Microsoft.WindowsAzure.Networking.Nip.Frontend.Operations.Csm.PutSubnetOperation
Provisioning State	Succeeded
Address Prefixes	10.109.128.0/17
VNet Id	f49ba5a0b3-4f48-b77d-10d9a1094cb4
VNet Peerings	1
Contains Accelerated Networking VMs	N/A
Enable DDoS Protection	False
DDoS Protection Plan	N/A
DNS Servers	10.108.2.4, 10.108.2.5, 10.107.2.4, 10.107.2.5, 10.105.120.69, 10.105.70.68, 10.205.84.68, 10.205.80.68, 10.205.76.68, 10.205.72.68, 172.26.4.206, 192.168.25.207, 192.168.25.208
DNS Name Servers	N/A

- Please don't touch those DNS servers, as we don't know whether they are Linux based, Windows based servers.
- Only check if all the above DNS servers are getting resolved to respective domain name by performing nslookup as shown below one at a time. All the DNS servers should resolve correctly to their domain name and should not throw error as shown below.

```
C:\Users\kbanil>nslookup www.tsfs.pt 10.108.2.4
DNS request timed out.
    timeout was 2 seconds.
Server:    UnKnown
Address:   10.108.2.4
```

- If any error on any of the DNS server, please follow the below steps of how to solve the DNS server resolving issue.

Steps to solve the DNS server resolving issue:

- In order to resolve the DNS server resolving issue as a workaround, please map all the DNS servers shown below in the host file.
- Host file path: C:\Windows\System32\drivers\etc

This PC > Local Disk (C:) > Windows > System32 > drivers > etc

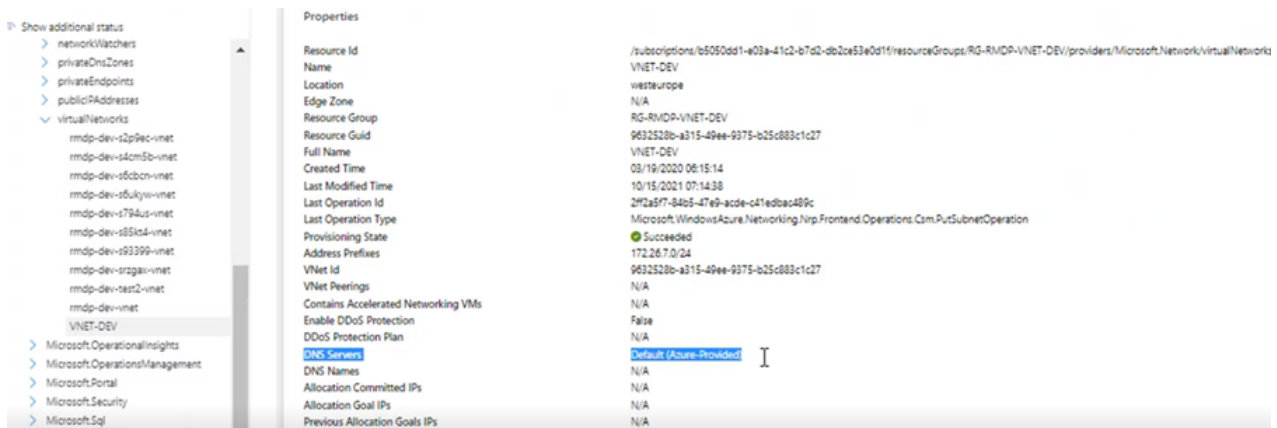
Name	Date modified	Type	Size
hosts	12/7/2019 2:42 PM	File	1 KB
lmhosts.sam	6/5/2021 5:38 PM	SAM File	4 KB
networks	12/7/2019 2:42 PM	File	1 KB
protocol	12/7/2019 2:42 PM	File	2 KB
services	12/7/2019 2:42 PM	File	18 KB

- Manually map the IP address to the FQDN as shown below in the host file, by doing this, when we perform ping on the FQDN name it will read from the host file and by-pass the dns server:

```
51.136.123.234 ucand-ottpre.labs.gvp.telefonica.com
51.136.123.234 msplayreadyrm.labs.gvp.telefonica.com
10.6.0.5 dbserver122.privatelink.database.windows.net
10.6.0.5 dbserver122.database.windows.net
```

- If the DNS servers are Azure provided as shown below in screenshot, if this is the case, we can open a collaboration task with Azure Network team to investigate the issue.

- **Azure provided DNS servers:**



VM landing on OnPrem

1. If the SHIR hosted VM is on cx on-premises, perform `ipconfig /all` on the VM, to get the IP address and the list of DNS servers configured to the VM(as show below) it may be one or many DNS servers configured.

```
C:\Users\kbanil>ipconfig /all
```

```
Wireless LAN adapter Wi-Fi:
Connection-specific DNS Suffix . : home
Description . . . . . : Intel(R) Wi-Fi 6 AX201 160MHz
Physical Address. . . . . : C8-34-8E-33-58-28
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . : Yes
Link-local IPv6 Address . . . . : fe80::7595:a2f:b987:87a3%19(Preferred)
IPv4 Address. . . . . : 192.168.1.254(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Friday, July 15, 2022 9:09:56 AM
Lease Expires . . . . . : Friday, July 15, 2022 10:40:06 AM
Default Gateway . . . . . : 192.168.1.1
DHCP Server . . . . . : 192.168.1.1
DHCPv6 IAID . . . . . : 113783950
DHCPv6 Client DUID. . . . . : 02-01-00-01-35-CB-3A-0F-C8-34-8E-33-58-28
DNS Servers . . . . . : 192.168.1.1
NetBIOS over Tcpip. . . . . : Enabled
```

2. Also we can try running the command- `ipconfig /all | findstr "DNS Servers"` to find all the DNS servers configured to VM

```
C:\Users\kbanil>ipconfig /all | findstr "DNS Servers"
DNS Suffix Search List. . . . . : fareast.corp.microsoft.com
Connection-specific DNS Suffix . :
Connection-specific DNS Suffix . :
Connection-specific DNS Suffix . :
Connection-specific DNS Suffix . :
Connection-specific DNS Suffix . : corp.microsoft.com
DNS Servers . . . . . : 10.50.50.50
Connection-specific DNS Suffix . :
Connection-specific DNS Suffix . :
```

3. Check if the DNS servers are getting resolved to the respective domain name by performing `nslookup` as shown below. All the DNS servers should resolve correctly to their domain name as shown below.

```
C:\Users\kbanil>nslookup www.tsfs.pt 10.50.50.50
Server: cussclsa0f5b01--commoncorp2-ip3.network.microsoft.com
Address: 10.50.50.50

Non-authoritative answer:
Name: few-prv-ag01.globalnoticias.pt
Addresses: 148.69.168.39
           148.69.168.38
           148.69.168.40
           148.69.168.41
Aliases: www.tsfs.pt
          few-prv-01.globalnoticias.pt
```

4. If any error, please perform the below steps of adding the FQDN and IP address to the host file.

- Host file path: C:\Windows\System32\drivers\etc

This PC > Local Disk (C:) > Windows > System32 > drivers > etc

Name	Date modified	Type	Size
hosts	12/7/2019 2:42 PM	File	1 KB
lmhosts.sam	6/5/2021 5:38 PM	SAM File	4 KB
networks	12/7/2019 2:42 PM	File	1 KB
protocol	12/7/2019 2:42 PM	File	2 KB
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- Manually map the IP address to the FQDN as shown below in the host file, by doing this, when we perform ping on the FQDN name it will read from the host file and by-pass the dns server:

```
51.136.123.234 ucand-ottpre.labs.gvp.telefonica.com
51.136.123.234 msplayreadydrm.labs.gvp.telefonica.com
10.6.0.5 dbserver122.privatelink.database.windows.net
10.6.0.5 dbserver122.database.windows.net
```

Conclusion:

Once we add all the DNS servers on the host file, operating system will bypass the DNS query by reading the host file and any intermittent Linked service connectivity issue or any connectors issue that has the endpoints from ADF side should resolve.

Note1: This should resolve the ADF connectivity issues related to DNS not resolving but will not resolve nslookup query. Even after adding the DNS servers on the host file, you will get the same error when you try the nslookup query as shown below, nslookup uses a query against the DNS server and not the host file this is the expected output. Unless Network team adds the proper configuration of DNS in their network channel.

Note2: After adding the DNS servers onto the host file, troubleshooting team can run **ping FQDN name**, ping gets the name FQDN from the host file like ex: dbserver122.database.windows.net that should resolve the IP address correctly.

```
C:\Users\kbanil>ping dbserver122.database.windows.net
```

```
51.136.123.234 ucand-ottpre.labs.gvp.telefonica.com
51.136.123.234 msplayreadydrm.labs.gvp.telefonica.com
10.6.0.5 dbserver122.privatelink.database.windows.net
10.6.0.5 dbserver122.database.windows.net
```

```
C:\Users\jocamilo>ping abc.com

Pinging abc.com [13.225.244.107] with 32 bytes of data:
Reply from 13.225.244.107: bytes=32 time=24ms TTL=246
Reply from 13.225.244.107: bytes=32 time=15ms TTL=246
Reply from 13.225.244.107: bytes=32 time=17ms TTL=246
Reply from 13.225.244.107: bytes=32 time=16ms TTL=246
```

Note3: This is a workaround solution from ADF point of view, and for a permanent fix, we can request cx to check with their networking team to see why these DNS are not getting resolved (if they are using custom DNS) or open a collaboration task to the Azure Networking team (in case they use Azure provided DNS).

How good have you found this content?

