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Samsung SDS **EMM**

Configuration Guide for Ipsec settings in Microsoft Windows Server 2016/2019 for Common Criteria Evaluation

Solution version 2.2.5

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SAMSUNG SDS SAMSUNG

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Publisher	Samsung SDS Co., Ltd
Address	125, 35-Gil, Olympic-Ro, Songpa-Gu, Seoul, South Korea.
Email	ems.support@samsung.com
Website	www.samsungsds.com

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PREFACE

This guide describes how to set up IPsec configuration on Microsoft Windows Server 2016 for the mutual authentication among the servers installed in Samsung SDS EMM as the environment for Common Criteria evaluation to MDMPP v4.0. The guide outlines the followings:

1. host to host communication (transport mode)
2. Standalone Machine (not Domain-joined Machine)
3. Settings of Main mode vs Quick mode
4. Select Authentication Methods
   - PSK
   - Not Kerberos
   - Not Certificate (from CA, local)
5. Select Security Method
   - integrity : SHA-256
   - Encryption : AES-CBC 256
   - key exchange : DH Group 14
6. Enable FIPS feature in Microsoft Windows

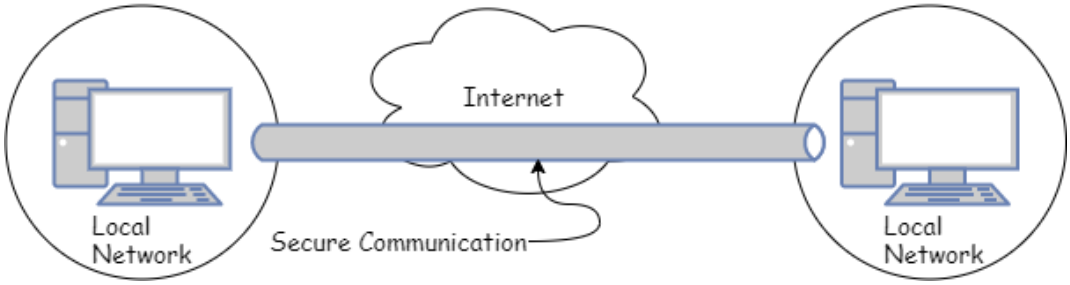
Note: This guides how to set up the IPsec in MS Windows Server 2016/2019 for establishing the secure communication channel between the EMM server and the external server (e.g., DBMS).

Revision History

Solution version	Manual version	Manual revised date	Revised details
2.2.5	2.2.5a	October 2019	Initially published.
2.2.5	2.2.5b	January 2023	Add the settings for Windows Server 2019

☐ Abstract

- This guide shows how to set up the secure communication between the servers in terms of the components of Samsung SDS EMM.



☐ Test environment

- Create 2 of Virtual Machines (hereinafter VM)
  . VM A IP : 10.0.222.54
  . VM B IP : 10.0.222.159

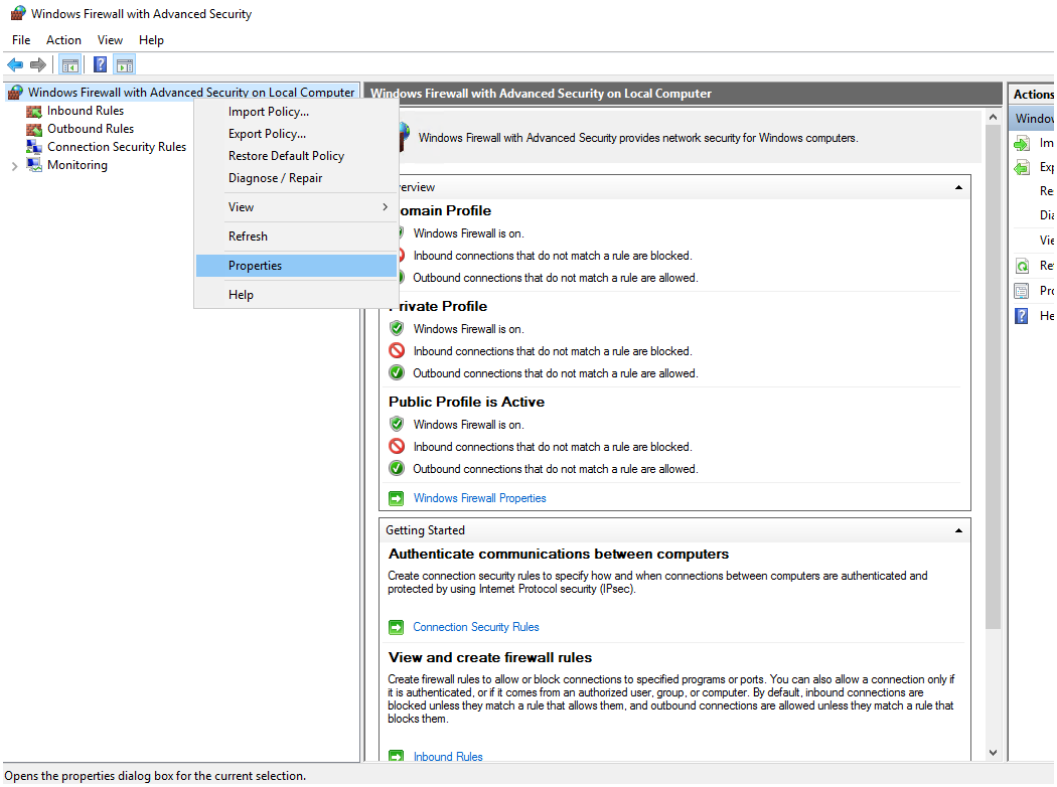
☐ Practice

1. Go to [Control Panel] → [Administrative Tools] →
   [Windows Firewall with Advanced Security]

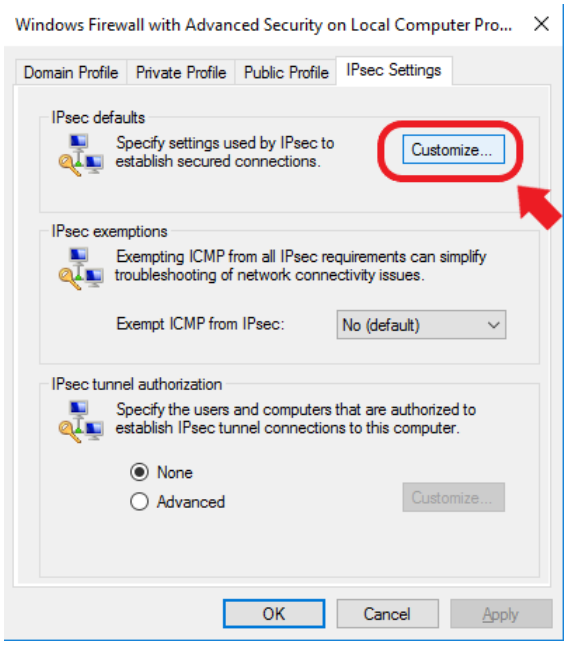
   - In the case of Windows Server 2019, go to [Server Manager] → [Tools] →
   [Windows Defender Firewall with Advanced Security]

2. Click [Properties] while the task bar selected and right-click on
   [Windows Firewall with Advanced Security on Local Computer]

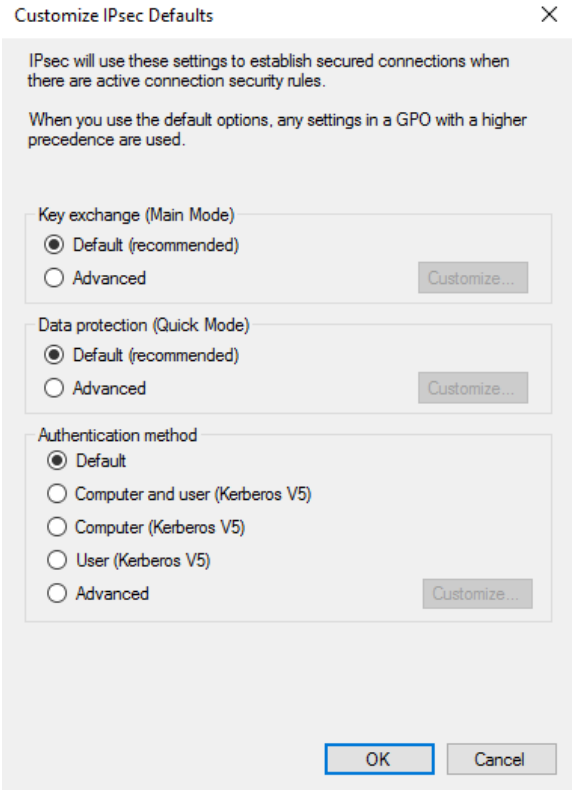
- In the case of Windows Server 2019, click [Properties] while the task bar selected and right-click on
   [Windows Defender Firewall with Advanced Security on Local Computer]



3. Go to [IPsec Settings] → [IPsec defaults], and click [Customize]



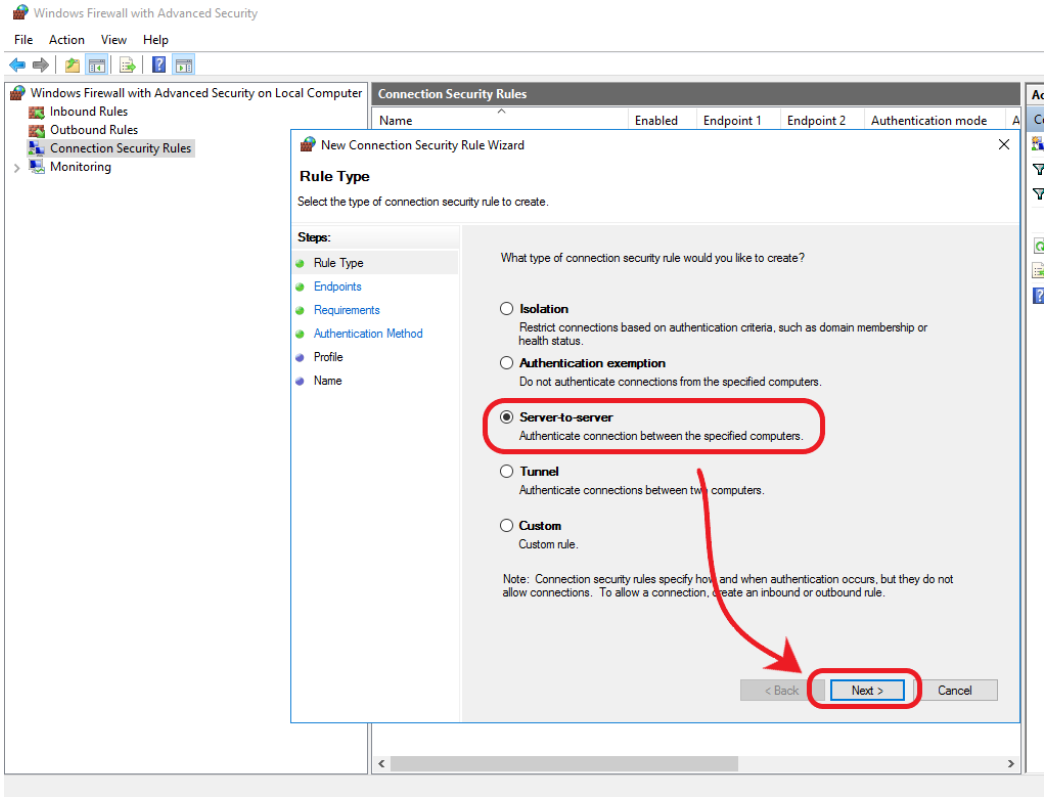
Check the default settings and click OK


Customize IPsec Defaults
IPsec will use these settings to establish secured connections when there are active connection security rules.
When you use the default options, any settings in a GPO with a higher precedence are used.
Key exchange (Main Mode)
Default (recommended)
Advanced
Customize...
Data protection (Quick Mode)
Default (recommended)
Advanced
Customize...
Authentication method
Default
Computer and user (Kerberos V5)
Computer (Kerberos V5)
User (Kerberos V5)
Advanced
Customize...
OK
Cancel

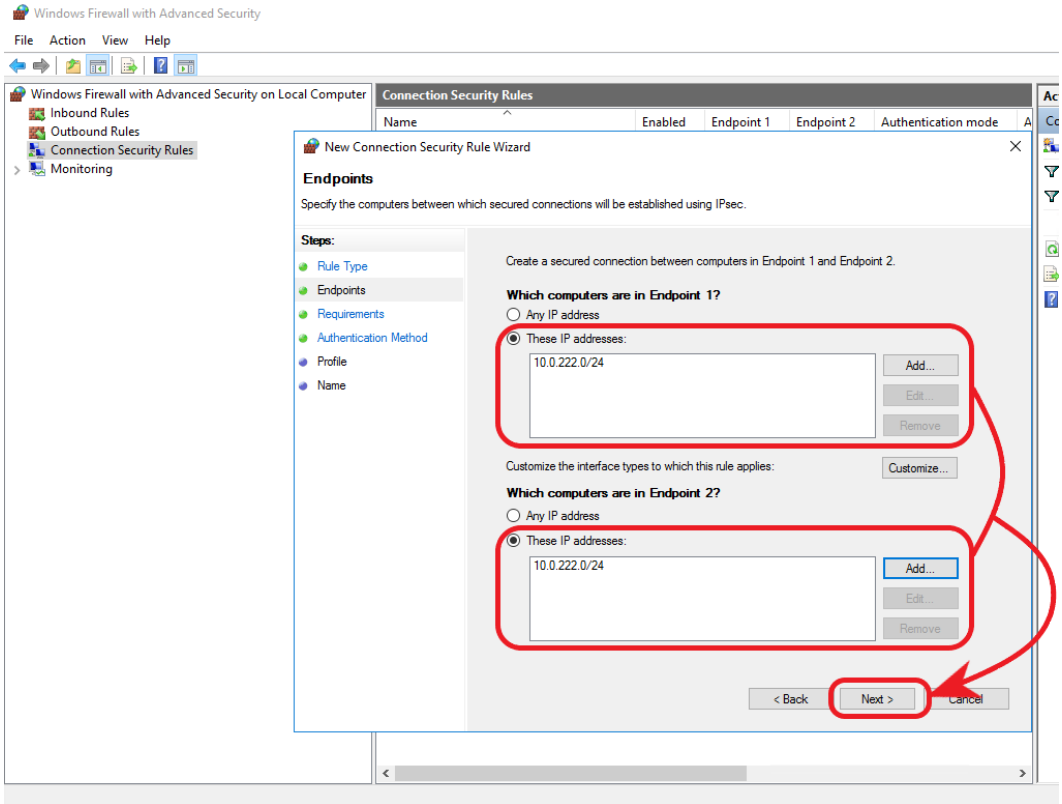
4. Set up the algorithm by referring the 3 modes below for CC evaluation

Key exchange (Main Mode)	. Select [Advanced], and click [Customize...] . Delete the [Security methods], click [Add...] . Click [OK] after setting as * Integrity algorithm : SHA-256 * Encryption algorithm : AES-CBC 256 * Key exchange algorithm : Diffie-Hellman Group 14 . Click [OK]
Data protection (Quick Mode)	. Select [Advanced], and click [Customize...] . Check '√ ' at [Require encryption for all connection security rules that use these settings] . Delete the [Data integrity and encryption], click [Add...] . Select [ESP(recommended)] . Click [OK] after setting as * Integrity algorithm : AES-GMAC 256 * Encryption algorithm : AES-GCM 256 . Click [OK]
Authentication method	. Select [Advanced], and click [Customize...] . Delete the [First authentication methods], click [Add...] . Click [OK] after setting as * Select [Preshared key] and enter the desired value . Click [OK]

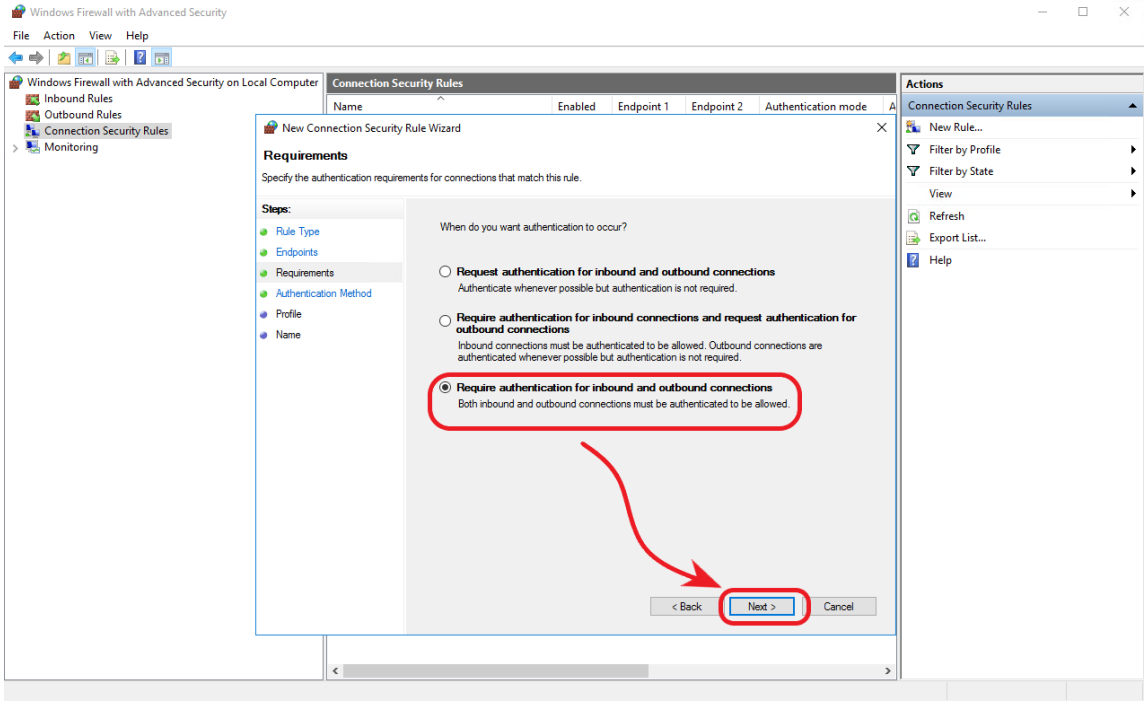
5. Double click [Connection Security Rules],
select [Rule Type] in [New Connection Security Rules Wizard] window,
Select [Rule Type] in Steps, [New Rule...], [Server-to-server] for IPsec setting
. Click [Next]



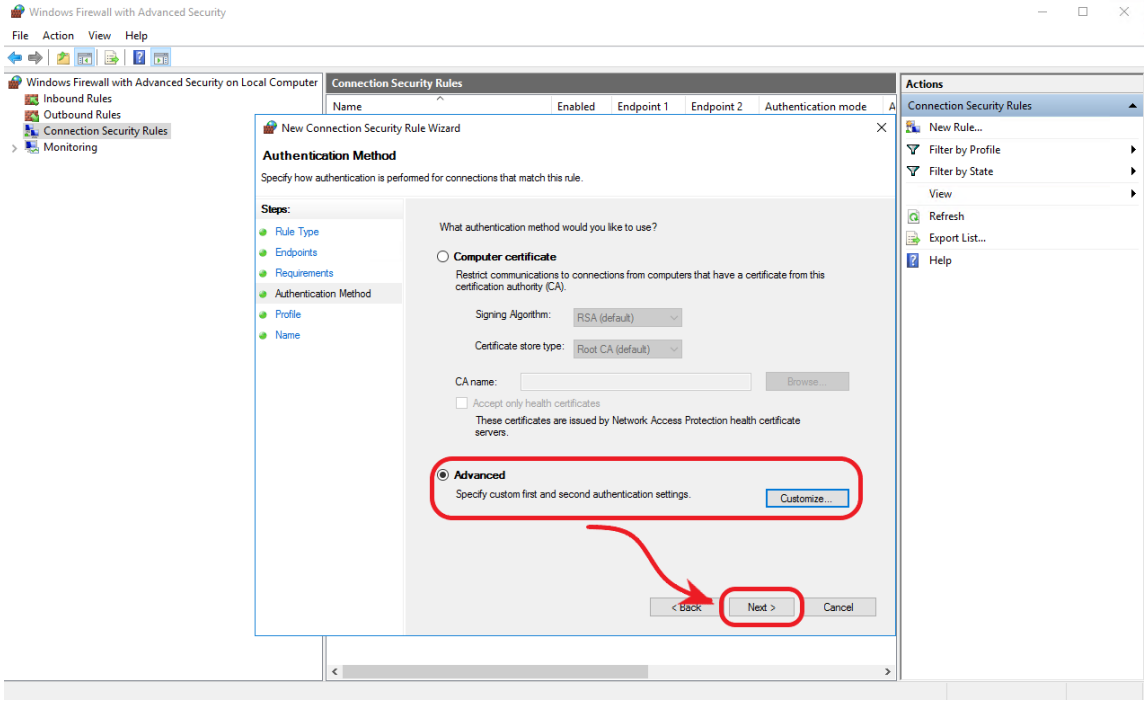
In [Endpoints] steps, a second connection is needed.
Note: This guide shows the setting per subnet. Please set up for respective use.



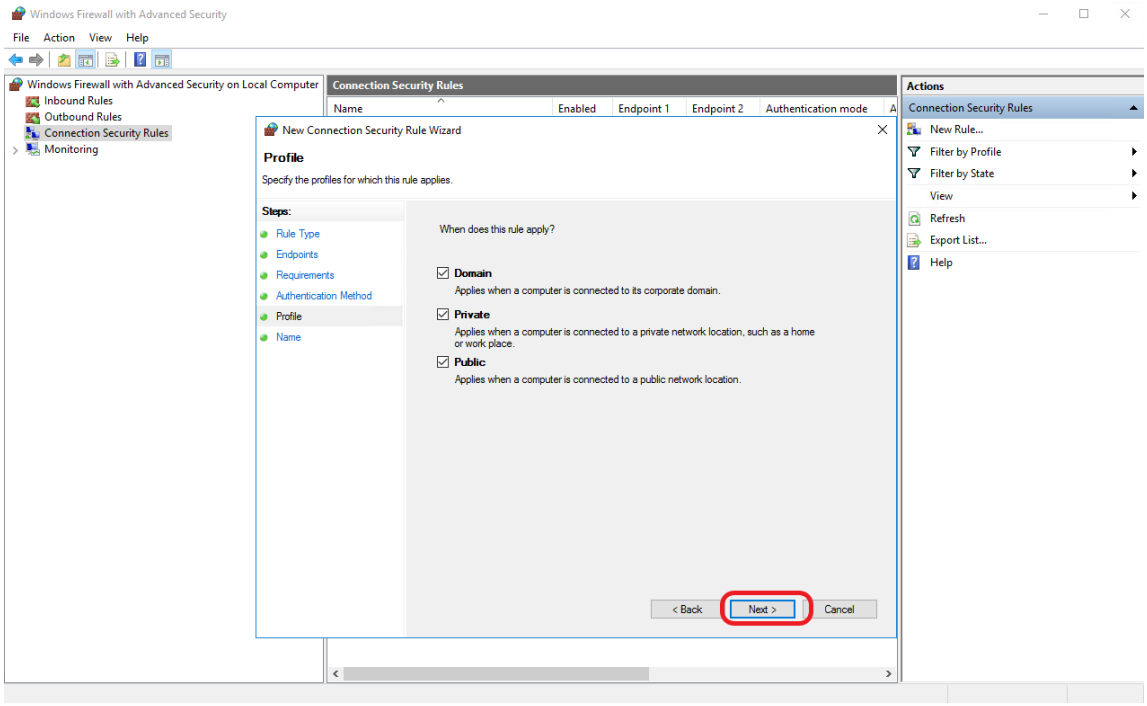
In [Requirements], please refer to the settings as below
Select [Require authentication for inbound and outbound connections], click [Next]



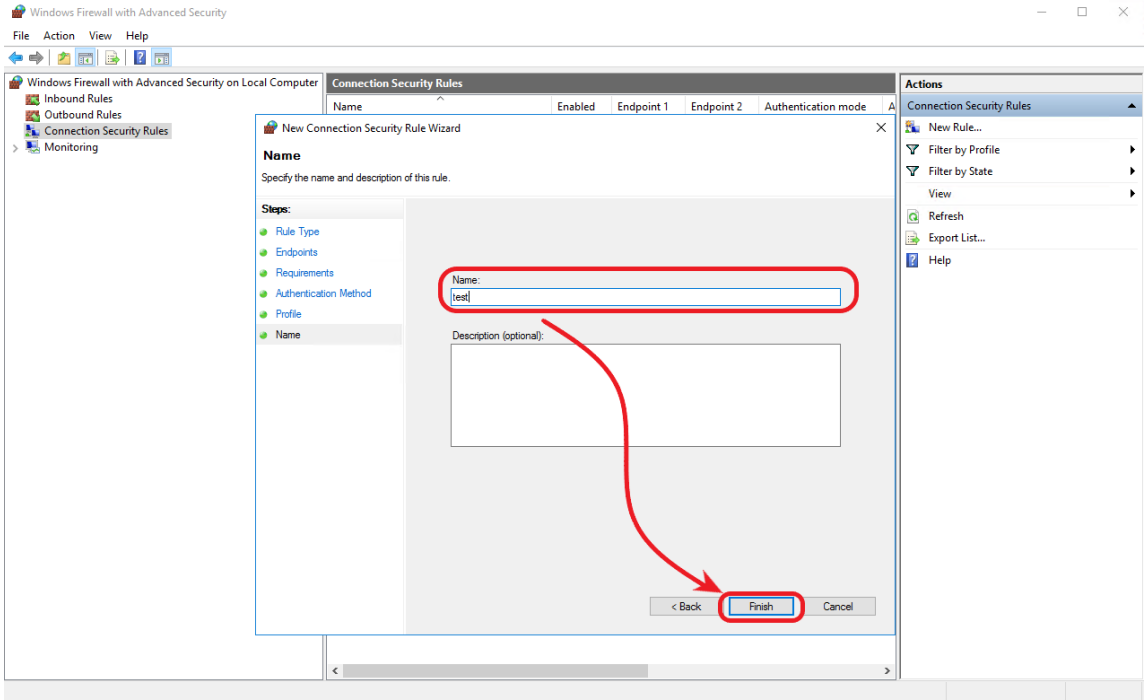
In [Authentication Method], select [Advanced], click [Next]
Note: This guide shows the PSK setting by applying Preshared Key in [Customize].



In [Profile], check '√ ' at Domain, Private and Public and click [Next]



In [Name], please enter the appropriate name (and Description as an option).
Click [Finish].
Note: This setting should be exactly same to each Host.

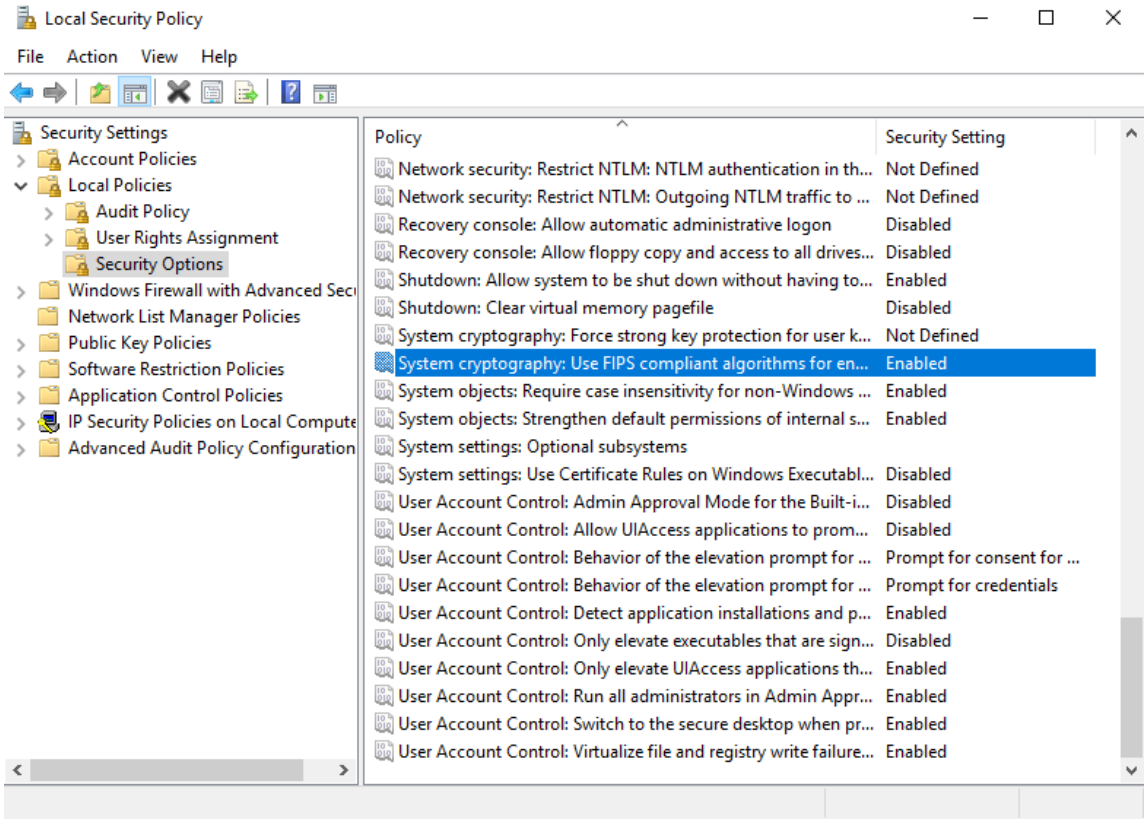


☐ Option) FIPS setting for CC evaluation

1. Go to [Control Panel] → [Administrative Tools] → run [Local Security Policy]

- In the case of Windows Server 2019, go to [Server Manager] → [Tools] →→ run [Local Security Policy]

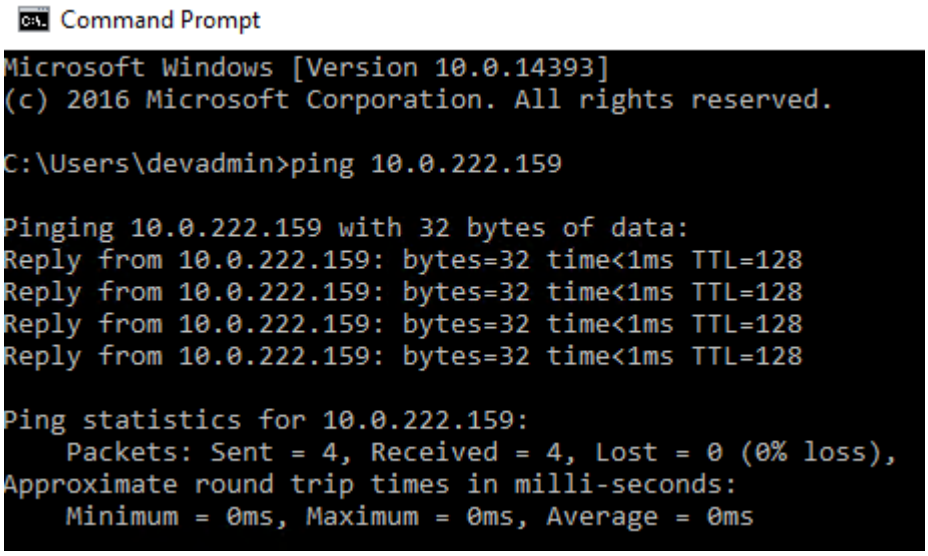
2. Go to [Security Settings] → [Local Policies] → [Security Options] →
Select [System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing] Enabled (please see below)



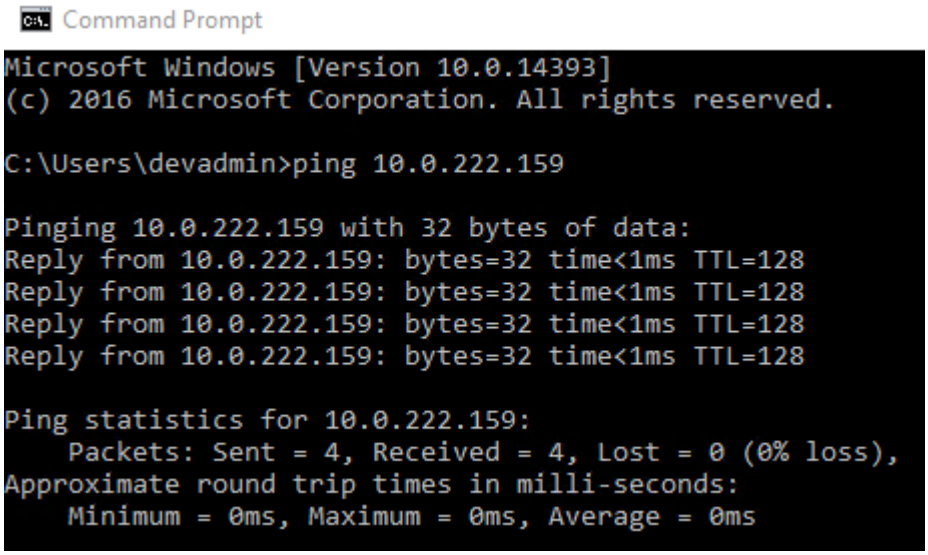
□ Test

1. Run Command prompt by entering [cmd] in search field (magnifier icon at the bottom left of the screen) > test the ping and check the status

Host A

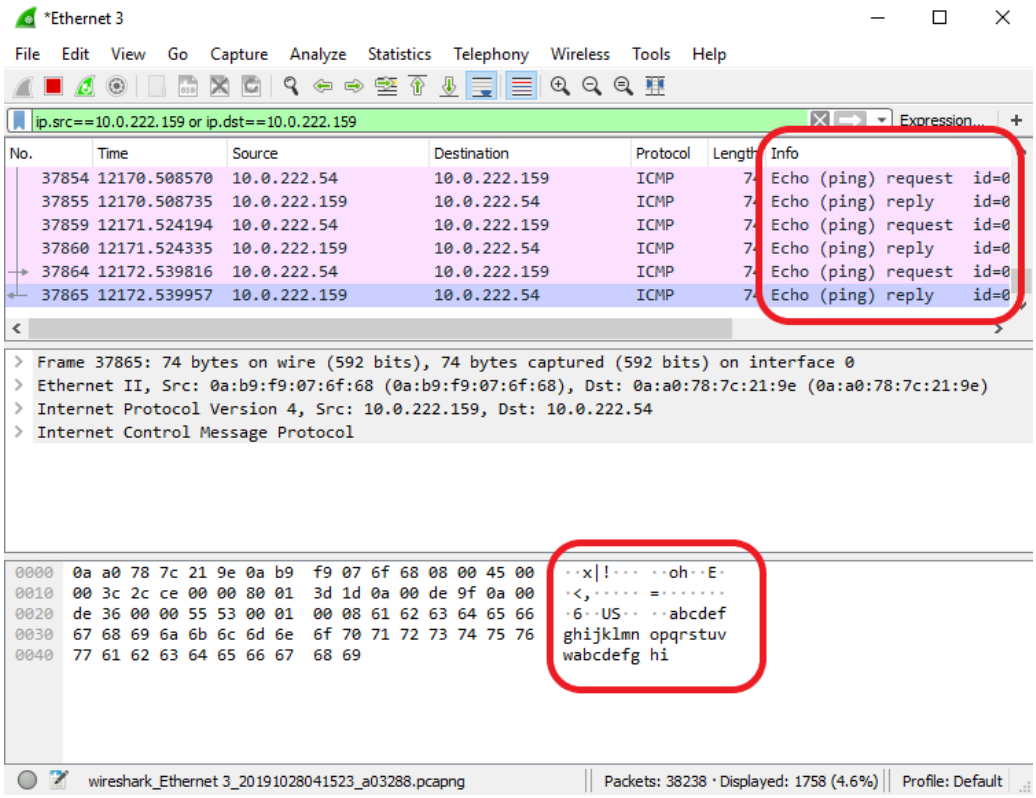


Host B

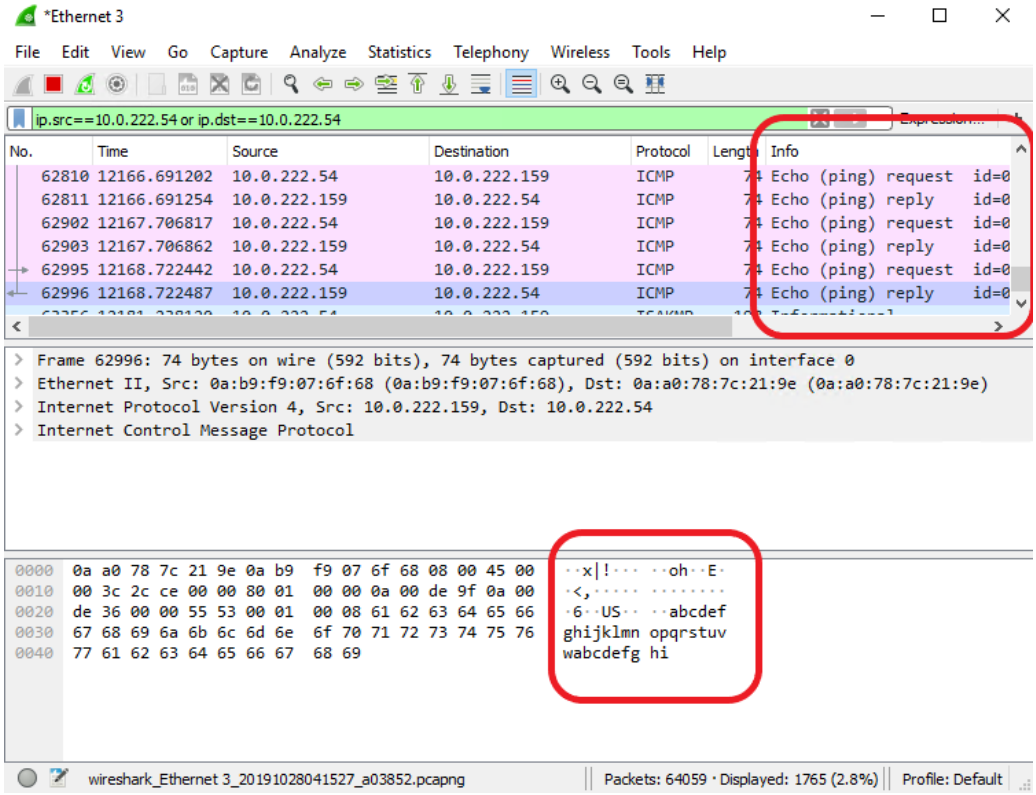


2. Run Packet monitoring by WireShark

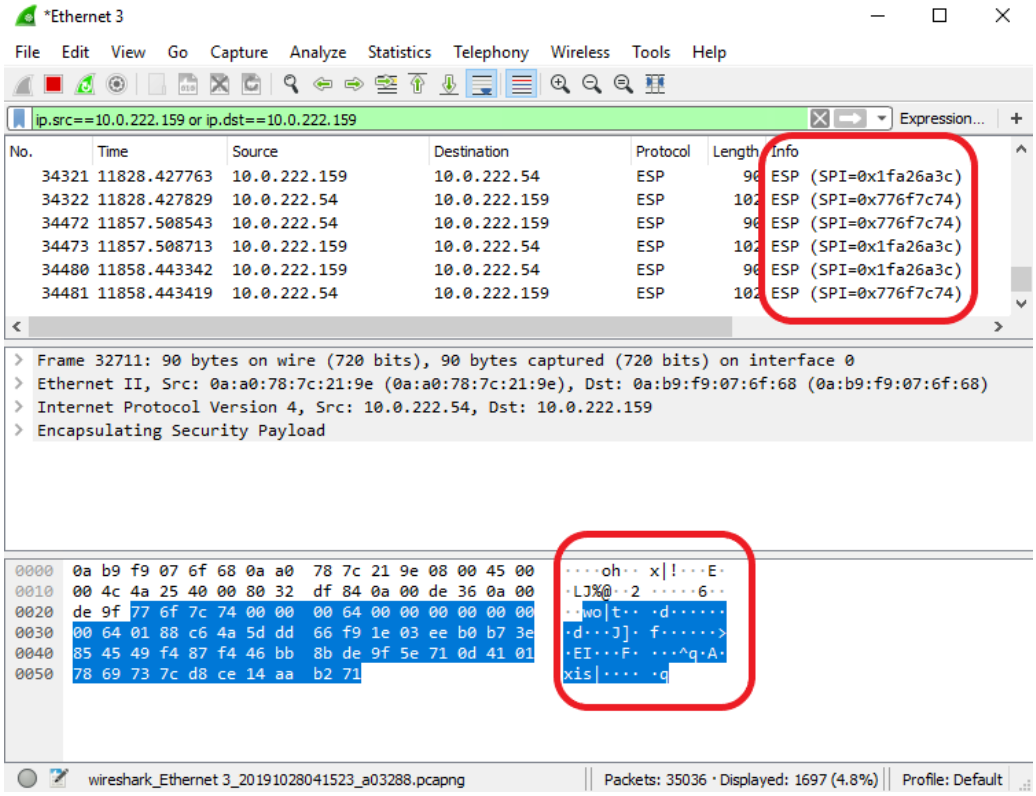
[Before applying IPsec]
Host A



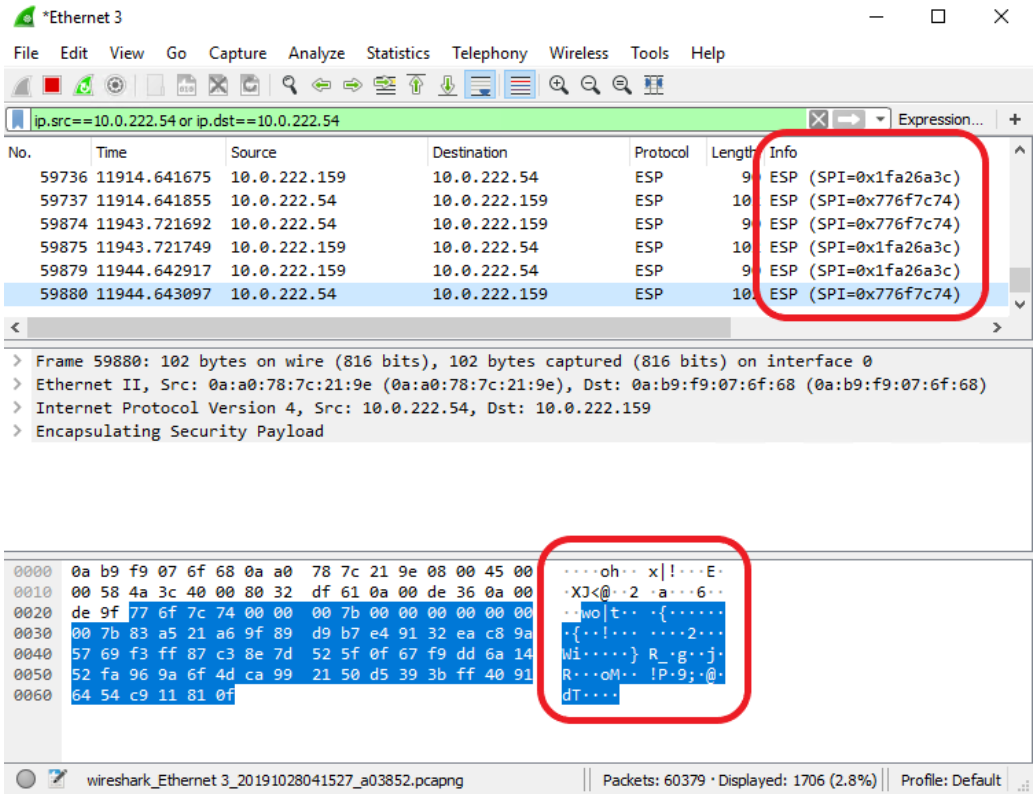
Host B



[After applying IPsec]
The packet shows its encapsulation after applying IPsec as below.
Host A



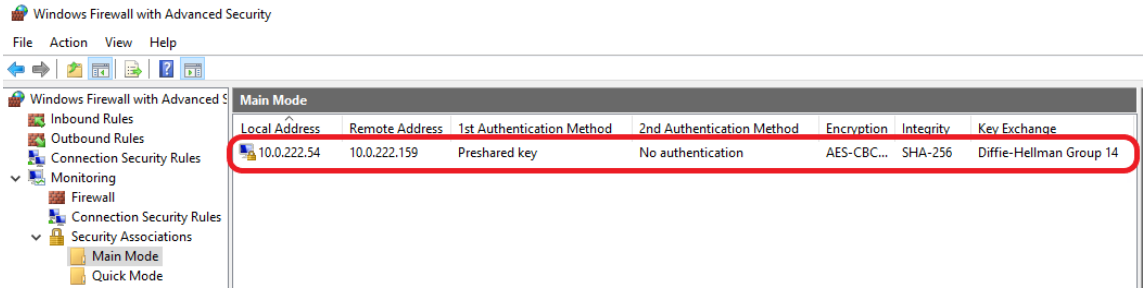
Host B



3. Verify SA

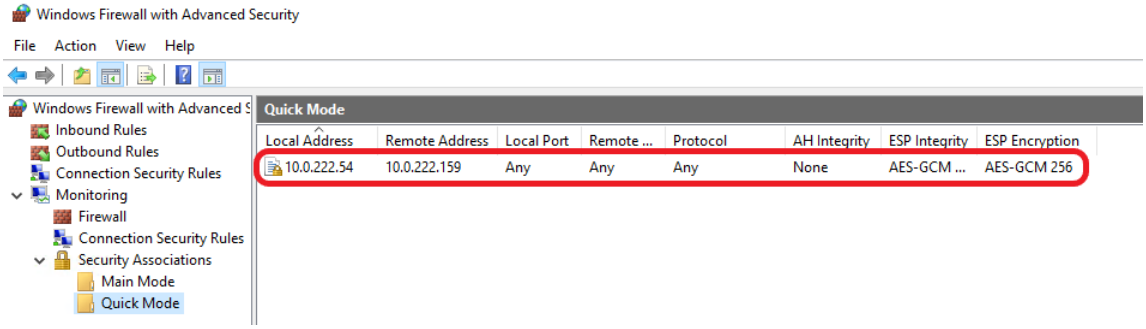
Main mode

Go to [Monitoring] → [Security Associations] → Main Mode



Quick mode

Go to [Monitoring] → [Security Associations] → Main Mode



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