Getac

Getac BIOS Configuration with Windows Management Instrumentation for Tiger Lake Platform

Rev 1.03

Mar 14, 2023

Revision History

Rev	Date	Description
R1.00	2020/10/08	First version
R1.00A	2021/06/08	- Add Product K120G2 - Modify TPMSetupMenu
R1.00B	2021/07/16	- Add Product F110G6
R1.01	2022/07/05	- Modify system policy - Modify F110G6 Device configuration - Add Product X600
R1.02	2022/08/09	- Add FN and Ctrl Key Placement item.
R1.03	2023/03/14	- Add LoadMSFTUEFICA item. - Remove secure boot item

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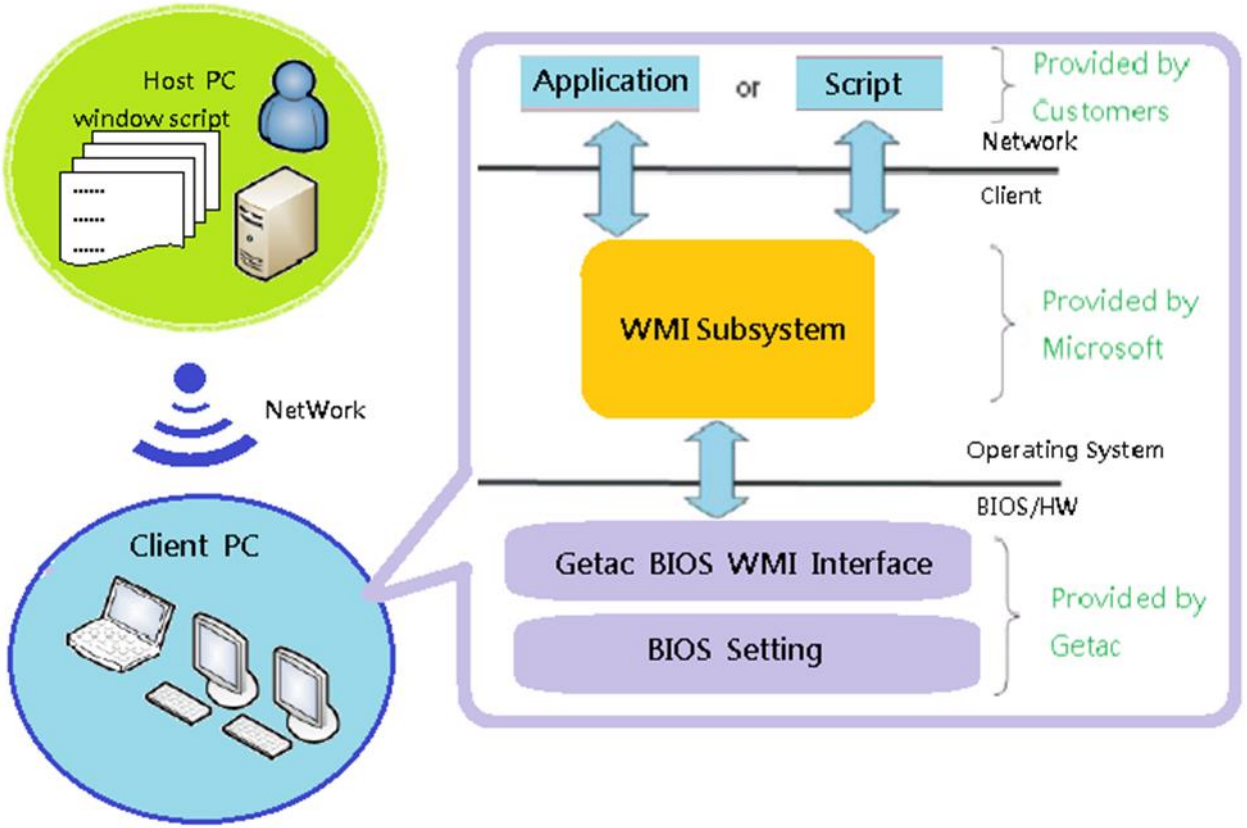
Chapter 1.Introduction

This chapter will introduce the Getac WMI that will provide users the overview.

1.1. Overview

The most of Windows® operating systems provide Windows Management Instrumentation (WMI). Getac BIOS WMI interface can receive the instruction from Operating system and access the BIOS settings. IT administrator can query and set all the BIOS settings (except read only item), recover the BIOS to factory settings, set and change passwords, and modify the boot order in the remote PCs.



1.2. Disclaimer

BIOS setting are related to the WMI instruction and computer device. Getac assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the computers' BIOS and the manual.

Chapter 2.Getac WMI Interface

In this chapter, describes details of how to operate the Getac WMI Interface to access the BIOS settings in remote PCs.

2.1. Configure the BIOS Settings

The following interface accesses the Getac BIOS settings.

Namespace: “\root\WMI”

2.2. Query BIOS User Password Status

User can check if the password is registered by this class.

Class name/Method name: Query_GetacBIOSPassWord

Type: Method
Example: “SUVPW”
Item table:

Page	Item	WMI Item	Attr.
Security	Set Supervisor password	**SUVPW**	R
	Set User password	**USERPW**	R

Return value: “Registered”, “Null”, “Not support”

2.3.Set BIOS User Password

To set Password include Supervisor password and User password by this class. If user wants to set user password, the supervisor password must set before. If the supervisor password is clean, the user password will be clean at the same time.

Class name/Method name: Set_GetacBIOSPassWord
Type: Method
Example: "SUVPW,1e234,AB4567"
Item table:

Page	Item	WMI Item	Attr.	Current PW	New PW
Security	Set Supervisor password	**SUVPW**	W	*note1	*note2/3
	Set User password	**USERPW**	W	*note1	*note2/3

*note1：If the password is not registered, the blank is set to Current PW for password setting.

*note2：If the blank is set to New PW, the current password will be deleted.

*note3：By default, maximum length of password is **10**, except models support "StrongPassword" the maximum length of password can be up to **64** and the minimum length of password is **4.**

Return value: "Success", "Fail", "Not support"

Note：If the WMI item is not provided, the return value will be "Not support"

2.4.Switch to the BIOS Configure Mode

As the BIOS security, users must switch to the BIOS configure mode before access the Getac WMI Interface. If Getac WMI interface receives wrong Supervisor password 3 times, Getac WMI interface will lock itself for security. If the Getac WMI interface is locked, any access will return "Locked". Users can entry BIOS setup utility to unlock.

Class name/Method name: Set_GetacBIOSConfigMode
Type: Method
Example: "1234,SetStart" (if Supervisor password [SUVPW] is 1234.)
Item table:

WMI Item	Description
SUVPW	Supervisor password(*note1)
SetStart	Start of the access mode of BIOS when the supervisor is registered.
SetEnd	End of the access mode of BIOS.

Return value: "Success", "Fail", "Not support" , "Locked"

*note1：By default, maximum length of password is **10**, except models support "StrongPassword" the maximum length of password can be up to **64** and the minimum length of password is **4**.

2.4.1.Load the default BIOS settings

This class name can recover the BIOS to default settings.

Class name: Load_GetacDefaultSettings
Type: Method
Return value: "Success", "Fail", "Locked"

Note: As security-related options, the password is not recovered even if the "load default" is requested.

2.4.2.Query/Change the Getac BIOS Settings

This section contains details on the WMI implementation for Query/Change the Getac BIOS settings.

The queries can be used to retrieve setting values currently set.

Class name/Method name: Query_GetacBIOSSettings
Type: Method
Example: “OSSelect”

Note: If the Query item is not provided, the return value will be “Not support”

To change/set the BIOS settings,
Class name/Method name: Set_GetacBIOSSettings
Type: Method
Example1: “LegacyUSBSupport,Enabled”
Example2 : “BootTypeOrder, HardDisk, USBDisk,USBFloppy ,Network,USBCD”
Return value: “Success”, “Fail”, “Locked”,“Not Support”

Item table:

Page	Item	WMI Item/ Return Item	Attr.	Return/AcceptValues	Def.
Information	Virtual MAC Address **(*Note1)**	**VirtualMAC**	R	**XX-XX-XX-XX-XX-XX**	
Main	OS Select	**OSSelect**	R/W	**”WIN10/11”, “Server 2022”**	Y
	Internal Numlock	**InternalNumlock**	R/W	**“Disabled”,”Enabled”**	Y
	FN and Ctrl Key Placement	**FNCtrlKeyPlacement**	R/W	**“CtrlFN”,” FNCtrl”**	Y
	WMI Version	**WMIVersion**	R	**“0.00”-“9.99”**	Y
Advanced	Wake Up Capability	**AnyKeyWakeup**	R/W	**“Disabled”, ”Enabled”**	Y
		USBWakeup	R/W	**“Disabled”, ”Enabled”**	Y
		HomeButtonWakeup	R/W	**“Disabled”, ”Enabled”**	Y
	Power Button Delay	**PowerButtonDelay**	R/W	**“NoDelay”, ”1sec”, ”2sec”**	Y
	AC Initiation	**ACInitiation**	R/W	**“Disabled”, ”Enabled”**	Y
	Magnetic Sensor	**MagneticSensor**	R/W	**”Enabled”, “Disabled”**	Y
	USB Power-off Charging	**USBPowerOffCharging**	R/W	**“Disabled”, ”Enabled”**	Y
	Screen Tapping for Boot Options	**ScreenTappingforBootOp**	R/W	**“Disabled”, ”Enabled”**	Y
	MAC Address Pass Through	**MACAddressPassThrough**	R/W	**“Disabled”, ”Enabled”**	Y
	VMD setup menu	**VMDMode**	R/W	**“Disabled”, ”Enabled”**	Y
	Active Management Tech. Support **(*Note2)**	**IntelAMTSupport**	R/W	**“Disabled”, ”Enabled”**	Y

Page	Item	WMI Item/ Return Item	Attr.	Return/AcceptValues	Def.
	Active Management Tech. Support **(*Note2)**	**IntelAMTSetupPrompt**	R/W	**“Disabled”, ”Enabled”**	Y
		IntelAMTUSBProvision	R/W	**“Disabled”, ”Enabled”**	Y
	Virtualization Tech.	**IntelVT**	R/W	**“Disabled”, ”Enabled”**	Y
		VTd	R/W	**“Disabled”, ”Enabled”**	Y
	Device Configuration	**WirelessLAN**	R/W	**“Disabled”, ”Enabled”**	Y
		WWAN	R/W	**“Disabled”, ”Enabled”**	Y
		Bluetooth	R/W	**“Disabled”, ”Enabled”**	Y
		MediaCardReader	R/W	**“Disabled”, ”Enabled”**	Y
		SmartCardReader	R/W	**“Disabled”, ”Enabled”**	Y
		RFID	R/W	**“Disabled”, ”Enabled”**	Y
		FingerprintScanner	R/W	**“Disabled”, ”Enabled”**	Y
		FrontWebcam	R/W	**“Disabled”, ”Enabled”**	Y
		RearCamera	R/W	**“Disabled”, ”Enabled”**	Y
		BarcodePM	R/W	**“PowerSaving”, ”QuickStart”**	Y
		Thunderbolt	R/W	**“Disabled”, ”Enabled”**	Y
		SystemUSBPort	R/W	**“Disabled”, ”Enabled”**	Y
		DockingUSBPortSetting	R/W	**“USB2.0”, “USB3.0”**	Y
		InternalMicrophone	R/W	**“Disabled”, ”Enabled”**	Y
		InternalSpeaker	R/W	**“Disabled”, ”Enabled”**	Y
		SerialportCOM2	R/W	**“Disabled”, ”Enabled”**	Y
		COM2Mode	R/W	**“RS232”, “RS422”**	Y
		SerialportCOM3	R/W	**“Disabled”, ”Enabled”**	Y
		COM3Mode	R/W	**“RS232”, “RS422”**	Y
		SerialportCOM4	R/W	**“Disabled”, ”Enabled”**	Y

Page	Item	WMI Item/ Return Item	Attr.	Return/AcceptValues	Def.
		COM4Mode	R/W	**“RS232”, “RS422”**	Y
	PCIe Expansion Configuration x8 **(*Note3)**	**PCIex8ASPM**	R/W	**“Disabled”,”L1”**	Y
		PCIex8Substates	R/W	**“Disabled”,”L1.1”, “L1.1 & L1.2”**	Y
		PCIex8Speed	R/W	**“AUTO”,”Gen1”,”Gen2”,”Gen3”**	Y
		PCIex8Timeout	R/W	**“0”-“65535”**	Y
	PCIe Expansion Configuration x1 **(*Note3)**	**PCIex1ASPM**	R/W	**“Disabled”,”L0s”,”L1”,”L0sL1”,”AUTO”**	Y
		PCIex1Substates	R/W	**“Disabled”,”L1.1”, “L1.1 & L1.2”**	Y
		PCIex1Speed	R/W	**“AUTO”,”Gen1”,”Gen2”,”Gen3”**	Y
		PCIex1Timeout	R/W	**“0”-“65535”**	Y
Security	Password on Boot	**PasswordonBoot**	R/W	**“Disabled”, ”Enabled”**	Y
	StrongPassword	**StrongPassword**	R/W	**“Disabled”, ”Enabled”**	Y
	PasswordConfig	**PasswordConfig**	R/W	**“04”-“64”**	Y
	Secure Boot Configuration **(*Note4)**	**LoadMSFTUEFICA**	R/W	**“Disabled”, ”Enabled”**	Y
	Security Freeze Lock	**SecurityFreezeLock**	R/W	**“Disabled”, ”Enabled”**	Y
	Intel Trusted Execution Technology **(*Note2)**	**IntelTrustedExeTech**	R/W	**“Disabled”, ”Enabled”**	Y
	Boot Type Order **(*Note6)**	**BootTypeOrder**	R/W	**“HardDisk”, ”USBDisk”, “Network”,**	Y

Page	Item	WMI Item/ Return Item	Attr.	Return/AcceptValues	Def.
				“USBCD”, ”CDROM”	
	Boot Device	**HardDiskDrive**	R/W	**“Off”, ”On”**	Y
		USBDiskDrive	R/W	**“Off”, ”On”**	Y
		USBCDDVDDrive	R/W	**“Off”, ”On”**	Y
		NetworkDrive	R/W	**“Off”, ”On”**	
		CDDVDDrive	R/W	**“Off”, ”On”**	

***Note1：It will return virtual MAC address when there is no physical network card in this system.fun**

***Note2：Only AMT SKU systems are supported.**

***Note3：Only PCIe Expansion SKU systems are supported.**

***Note4：Supervisor password is needed. Otherwise, system will return value as “fail”.**

“Disable” option won’t delete MSFT CA Key.

To delete it, please restore to Factory Defaults manually.

Disable bitlocker function before execute LoadMSFTUEFICA. Otherwise, input bitlocker recovery key will be required after LoadMSFTUEFICA.

Note6：

“BootTypeOrder” Individual model return/accept values case		
S410G4	**X600**	**Others**
“HardDisk”, “USBDisk”, “Network”, “USBCD”, “CDROM”	**“HardDisk”, “USBDisk”, “USBCD”, “Network”, “CDROM”**	**“HardDisk”, “USBDisk”, “Network”, “USBCD”**

O = Support
X = Not Support

Appendix A-1.Models Mapping Table

Page	Item	WMI Item/ Return Item	Attr.	S410 G4	K120 G2	F110 G6	X600					
Information	Virtual MAC Address	**VirtualMAC**	R	X	X	O	X					
Main	OS Select	**OSSelect**	R/W	X	X	X	O					
	Internal Numlock	**InternalNumlock**	R/W	O	O	X	O					
	FN and Ctrl Key Placement	**FNCtrlKeyPlacement**	R/W	O	O	O	X					
	WMI Version	**WMIVersion**	R	O	O	O	O					
Advanced	WakeUp Capability	**AnyKeyWakeup**	R/W	X	X	X	O					
		USBWakeup	R/W	X	X	X	O					
		HomeButtonWakeup	R/W	X	O	O	X					
	Power Button Delay	**PowerButtonDelay**	R/W	O	O	O	O					
	AC Initiation	**ACInitiation**	R/W	O	O	O	O					
	Magnetic Sensor	**MagneticSensor**	R/W	O	O	O	X					
	USB Power-off Charging	**USBPowerOffCharging**	R/W	O	O	X	X					
	Screen Tapping for Boot Options	**ScreenTappingforBootOp**	R/W	X	O	O	X					
	MAC Address Pass Through	**MACAddressPassThrough**	R/W	O	O	O	O					
	VMD setup menu	**VMDMode**	R/W	X	X	X	O					
	Active Management Tech. Support	**IntelAMTSupport**	R/W	O	O	O	O					
		IntelAMTSetupPrompt	R/W	O	O	O	O					
		IntelAMTUSBProvision	R/W	O	O	O	O					
	Virtualization Tech. Setup	**IntelVT**	R/W	O	O	O	O					
		VTd	R/W	O	O	O	O					
		WirelessLAN	R/W	O	O	O	O					

Page	Item	WMI Item/ Return Item	Attr.	S410 G4	K120 G2	F110 G6	X600					
	Device Configuration	**WWAN**	R/W	O	O	O	O					
		Bluetooth	R/W	O	O	O	O					
		MediaCardReader	R/W	O	O	O	O					
		SmartCardReader	R/W	O	O	O	O					
		RFID	R/W	X	O	O	O					
		FingerprintScanner	R/W	O	O	O	O					
		FrontWebcam	R/W	O	O	O	O					
		RearCamera	R/W	X	O	O	X					
		BarcodePM	R/W	O	O	O	X					
		Thunderbolt	R/W	O	O	O	O					
		SystemUSBPort	R/W	O	O	O	O					
		DockingUSBPortSetting	R/W	O	O	O	O					
		InternalMicrophone	R/W	O	O	O	O					
		InternalSpeaker	R/W	O	O	O	O					
		SerialportCOM2	R/W	X	X	X	O					
		COM2Mode	R/W	X	X	X	O					
		SerialportCOM3	R/W	X	X	X	O					
		COM3Mode	R/W	X	X	X	O					
		SerialportCOM4	R/W	X	X	X	O					
		COM4Mode	R/W	X	X	X	O					
	PCIe Expansion Configuration x8	**PCIex8ASPM**	R/W	X	X	X	O					
		PCIex8Substates	R/W	X	X	X	O					
		PCIex8Speed	R/W	X	X	X	O					
		PCIex8Timeout	R/W	X	X	X	O					
	PCIe Expansion Configuration x1	**PCIex1ASPM**	R/W	X	X	X	O					
		PCIex1Substates	R/W	X	X	X	O					
		PCIex1Speed	R/W	X	X	X	O					
		PCIex1Timeout	R/W	X	X	X	O					
Security	Password on Boot	**PasswordonBoot**	R/W	O	O	O	O					
	StrongPassword	**StrongPassword**	R/W	O	O	O	O					

Page	Item	WMI Item/ Return Item	Attr.	S410 G4	K120 G2	F110 G6	X600					
	PasswordConfig	**PasswordConfig**	R/W	O	O	O	O					
	Secure Boot Configuration	**LoadMSFTUEFICA**	R/W	O	O	O	X					
	SecurityFreezeLock	**SecurityFreezeLock**	R/W	O	X	X	X					
	Intel Trusted Execution Technology	**IntelTrustedExeTech**	R/W	O	O	O	O					
Boot	Boot Type Order	**BootTypeOrder**	R/W	O	O	O	O					
	Boot Device	**HardDiskDrive**	R/W	O	O	O	O					
		USBDiskDrive	R/W	O	O	O	O					
		USBCDDVDDrive	R/W	O	O	O	O					
		NetworkDrive	R/W	O	O	O	O					
		CDDVDDrive	R/W	O	X	X	O					

Appendix B.VB Script to set the supervisor password

User can set the supervisor password by below VB Script when the supervisor password is not registered and “1” is set.

```
strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" &strComputer& "\root\WMI")

'--------------------------------------------------------------------------------------------------------
' Obtain an instance of the class
' using a key property value.
'--------------------------------------------------------------------------------------------------------
Set objShare = objWMIService.Get("Set_GetacBIOSPassWord.InstanceName='ACPI\PNP0C14\0_0'")

'--------------------------------------------------------------------------------------------------------
' Obtain an InParameters object specific to the method.
'--------------------------------------------------------------------------------------------------------
Set objInParam = objShare.Methods_("Set_GetacBIOSPassWord").inParameters.SpawnInstance_()

'--------------------------------------------------------------------------------------------------------
' Add the input parameters.
'--------------------------------------------------------------------------------------------------------
objInParam.Properties_.Item("DataIn") =    "SUVPW,,1"

'--------------------------------------------------------------------------------------------------------
‘Execute the method and obtain the return status.
' TheOutParameters object in objOutParamsis created by the provider.
'--------------------------------------------------------------------------------------------------------
Set objOutParams = objWMIService.ExecMethod("Set_GetacBIOSPassWord.InstanceName='ACPI\PNP0C14\0_0'",
"Set_GetacBIOSPassWord", objInParam)

'--------------------------------------------------------------------------------------------------------
' ListOutParams
'--------------------------------------------------------------------------------------------------------
Wscript.Echo "Out Parameters: "&objInParam.Properties_.Item("DataIn")
Wscript.echo "DataOut: " &objOutParams.DataOut
```

Appendix C.VB Script to Query the OS Select

User can query the OS select by below VBScript.

```
strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" &strComputer& "\root\WMI")

'--------------------------------------------------------------------------------------------------
' Obtain an instance of the class
' using a key property value.
'--------------------------------------------------------------------------------------------------

Set objShare = objWMIService.Get("Query_GetacBIOSSettings.InstanceName='ACPI\PNP0C14\0_0'")

'--------------------------------------------------------------------------------------------------
' Obtain an InParameters object specificto the method.
'--------------------------------------------------------------------------------------------------
Set objInParam = objShare.Methods_("Query_GetacBIOSSettings"). inParameters.SpawnInstance_()

'--------------------------------------------------------------------------------------------------
' Add the input parameters.
'--------------------------------------------------------------------------------------------------
objInParam.Properties_.Item("DataIn") =    "OSSelect"

'--------------------------------------------------------------------------------------------------
' Execute the method and obtain the return status.
' TheOutParameters object in objOutParams is created by the provider.
'--------------------------------------------------------------------------------------------------
Set objOutParams = objWMIService.ExecMethod("Query_GetacBIOSSettings.InstanceName='ACPI\PNP0C14\0_0'",
"Query_GetacBIOSSettings", objInParam)

'--------------------------------------------------------------------------------------------------
' ListOutParams
'--------------------------------------------------------------------------------------------------
Wscript.Echo "Out Parameters: "&objInParam.Properties_.Item("DataIn")
Wscript.echo "DataOut: " &objOutParams.DataOut
```

Appendix D.VB Script to enable the TPMSupport.
Enable (TPMSupport)

User can enable the TPMSupport by below VBScript after configure mode set.

```
strComputer = "."
Set objWMIService = GetObject("winmgmts:\\" &strComputer& "\root\WMI")

'--------------------------------------------------------------------------------------------------
'As the BIOS security, users must switch to the BIOS configure mode before access the Getac WMI Interface
'See this Spec 2.4. Switch to the BIOS Configure Mode
'--------------------------------------------------------------------------------------------------
Set objShare =objWMIService.Get("Set_GetacBIOSConfigMode.InstanceName='ACPI\PNP0C14\0_0'")
Set objInParam = objShare.Methods_("Set_GetacBIOSConfigMode").inParameters.SpawnInstance_()
objInParam.Properties_.Item("DataIn") = ",SetStart"
Set objOutParams =
objWMIService.ExecMethod("Set_GetacBIOSConfigMode.InstanceName='ACPI\PNP0C14\0_0'","Set_GetacBIOSConfigM
ode", objInParam)

Wscript.echo "Feature: " &objInParam.Properties_.Item("DataIn")
Wscript.echo "DataOut: " &objOutParams.DataOut

'--------------------------------------------------------------------------------------------------
'Add the input parameters, for this this example "TPMSupport,Enabled"
'--------------------------------------------------------------------------------------------------
Set objShare =objWMIService.Get("Set_GetacBIOSSettings.InstanceName='ACPI\PNP0C14\0_0'")
Set objInParam = objShare.Methods_("Set_GetacBIOSSettings").inParameters.SpawnInstance_()
objInParam.Properties_.Item("DataIn") = "TPMSupport,Enabled"
Set objOutParams =
objWMIService.ExecMethod("Set_GetacBIOSSettings.InstanceName='ACPI\PNP0C14\0_0'","Set_GetacBIOSSettings",
objInParam)

Wscript.echo "Feature: " &objInParam.Properties_.Item("DataIn")
Wscript.echo "DataOut: " &objOutParams.DataOut
```

Appendix E.Check Procedure for Remote Access

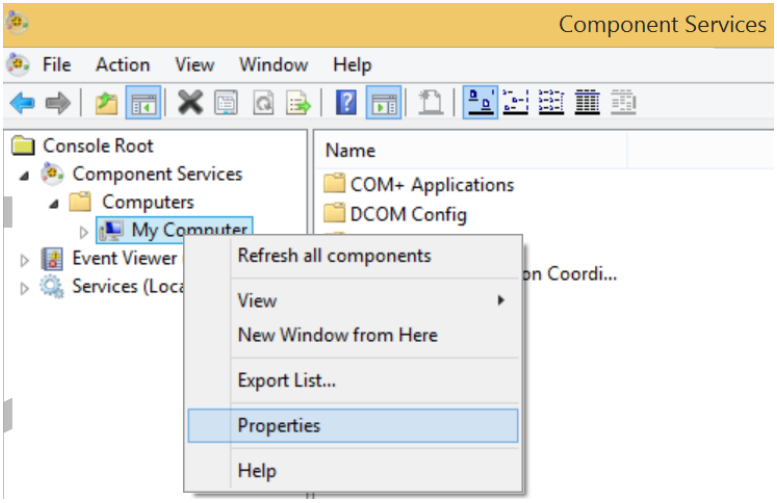
E.1. DCOM permissions

Step 1. Search->**Dcomcnfg**

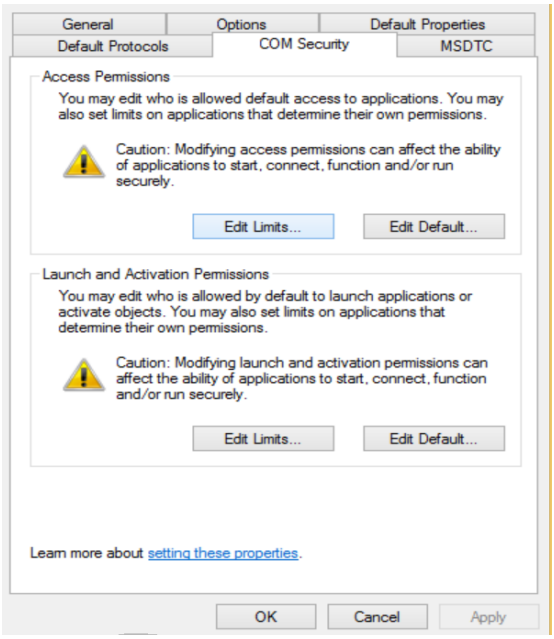
Step 2. Run **Dcomcnfg**

Step 3. Expand **Component Services** ->**Computers** ->**My computer**

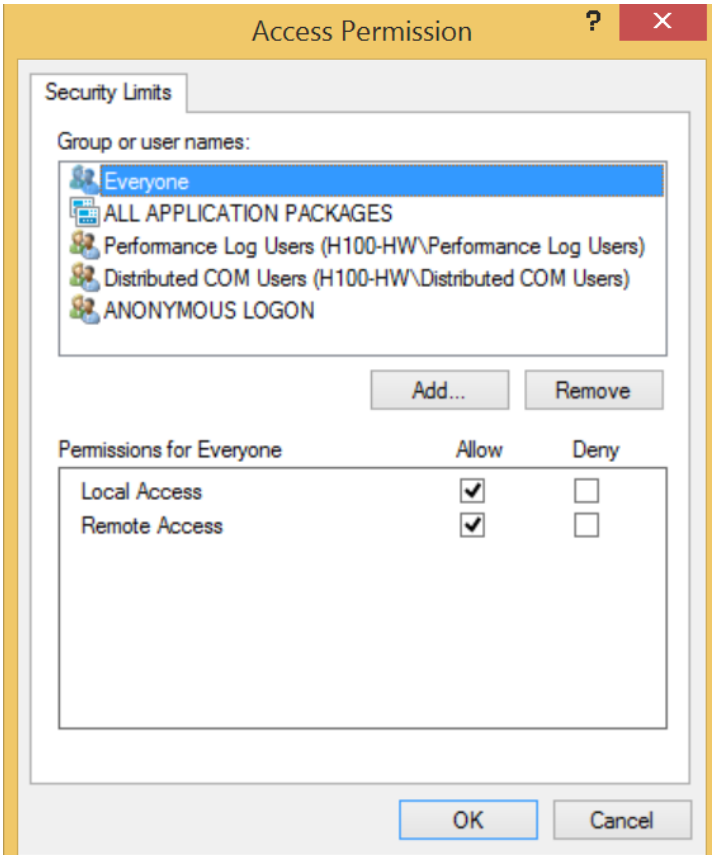
Step 4. Open **My Computer Properties**



Step 5. Go to **COM Security** page.



Step 6. **Entry Access Permissions by click Edit Limits, and ensure Everyone has the Local Activation and Local Launch allow.**

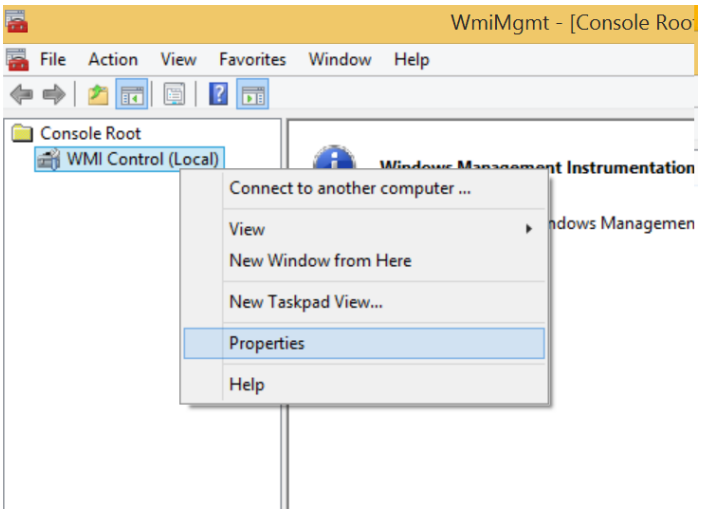


E.2. WMI permissions

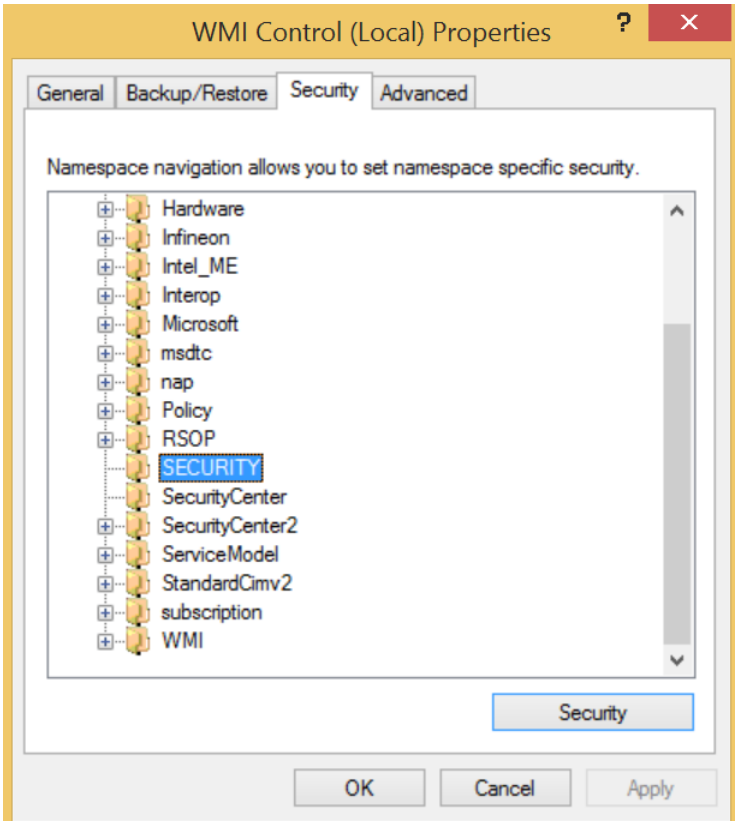
Step 1. Search->**WMImgmt.msc**

Step 2. Run **WMImgmt.msc**

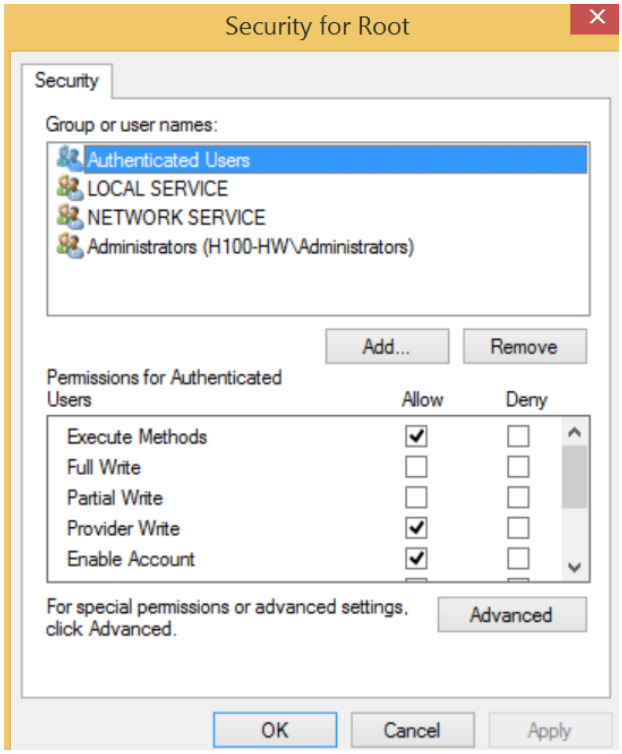
Step 3. Open the **Properties** of WMI control



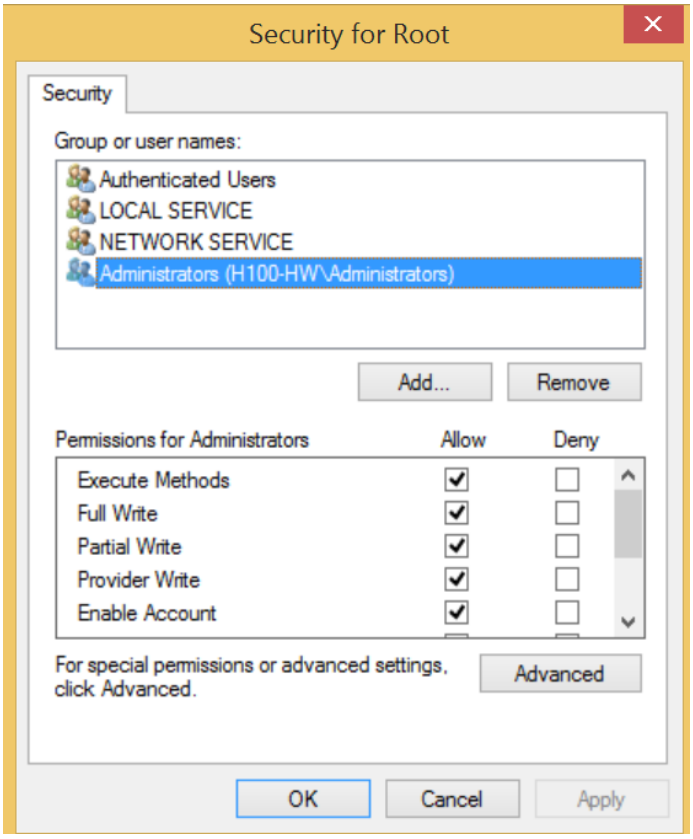
Step 4. Open SECURITY in **Security page** of **WMI Control Properties**



Step 5. Ensure the **Execute Methods**, **Provider Write** and **Enable Account enabled** in **Permission for Authenticated Users**.



Step 6. Ensure all permissions enabled in **Permissions for Administrators**.

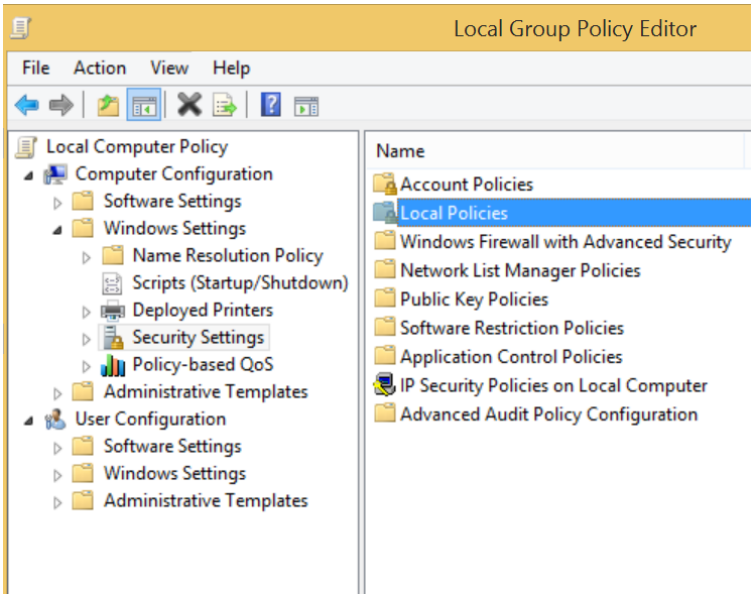


E.3. WMI impersonation Rights

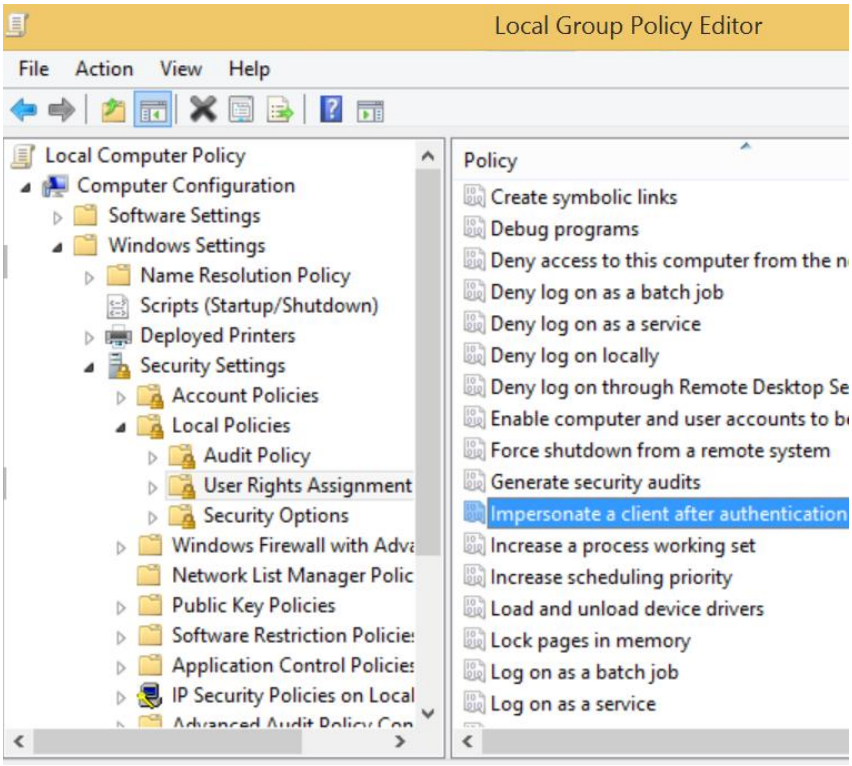
Step 1. Search->**gpedit.msc**

Step 2. Run **gpedit.msc**

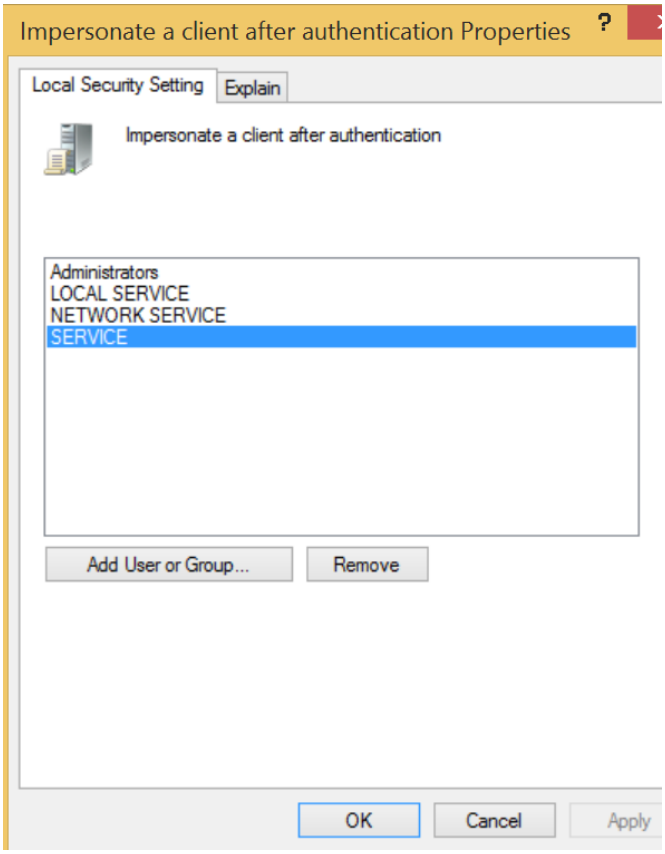
Step 3. Click the **Local Policies** of **Security Settings** in **windows Settings**



Step 4. Open the **Impersonate a client after authentication** in **User Rights Assignment** **of** **Local Policies.**



Step 5. Verify **SERVICE** **granted for** **Impersonate a client after authentication** **in** **Local Security Setting.**

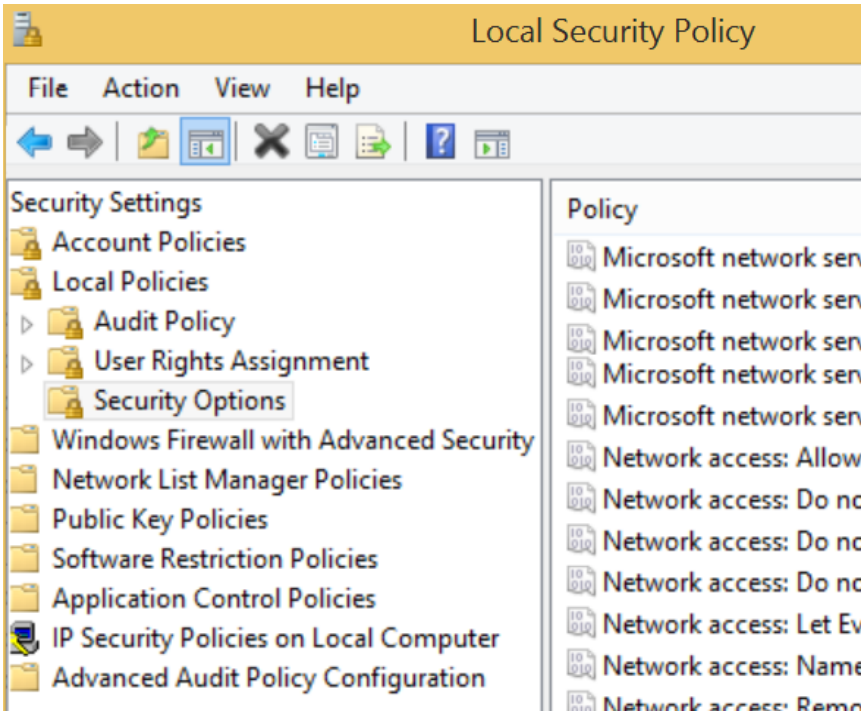


E.4. Network Access

Step 1. Search->**secpol.msc**

Step 2. Run **secpol.msc**

Step 3. Click the **Security Options** of **Local Policies** in **Security Settings**



Step 4. Check the **Security setting** of **Network Access: Sharing and security model for local accounts** is "**Classic**"