

LENOVO DOCK MANAGER APPLICATION

User Manual

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1 Introduction

Dock Manager is designed for Lenovo Enterprise customers who are using Lenovo Dock Devices to: aid with updating the firmware of their Lenovo Dock Devices, run automatic firmware check and download, and provide user friendly prompts for update execution upon firmware download completion. This document demonstrates the transitions within screens along with the actions on how to interact with the application.

2 Screen Definitions

In the proceeding sections, different screens are stated along with their respective functionalities. The Dock Manager App currently has 2 existing screens: Dock Device Information Screen and Update History Screen; it also supports system tray behavior and a help button on the title bar for accessibility.

2.1 Dock Device Information Screen

The Dock Device Information Screen allows the users to view the information about their dock hardware. The screen also shows the latest firmware version released and allow users to update the firmware manually.

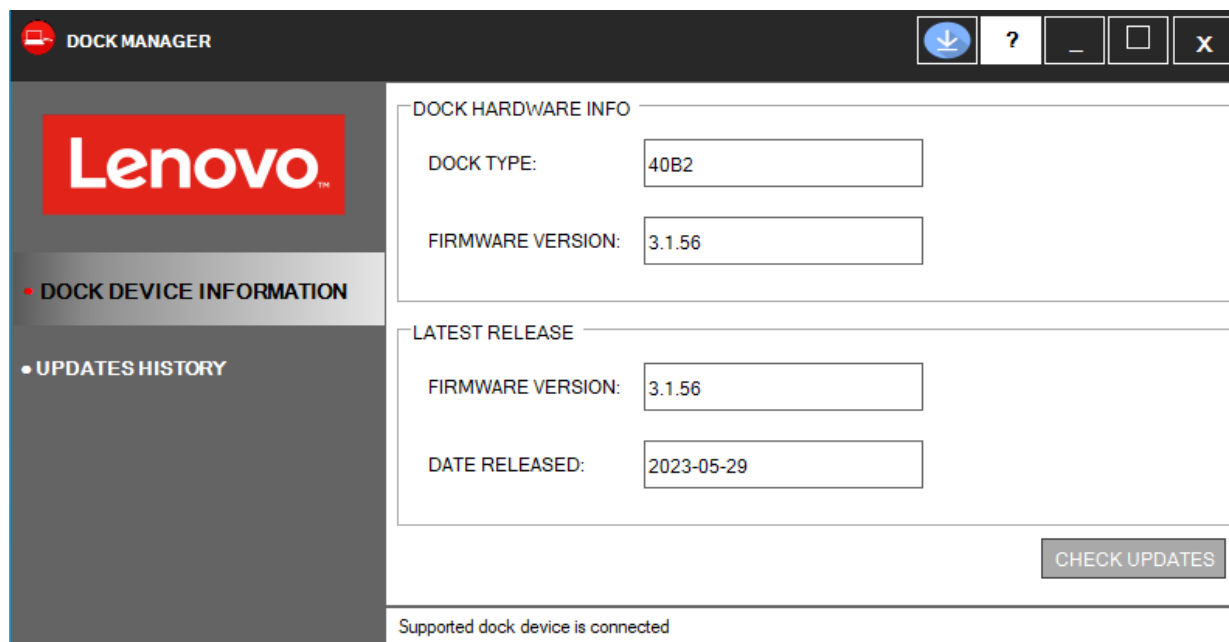


Figure 1. Dock Device Information Screen.

【Check Updates】 button – upon click, will check firmware based on the latest update version.

2.2 Update History Screen

The Updates History screen shows all the history of firmware updates executed by the user. History information are also shown through WMI in order for IT Managers to query the list.

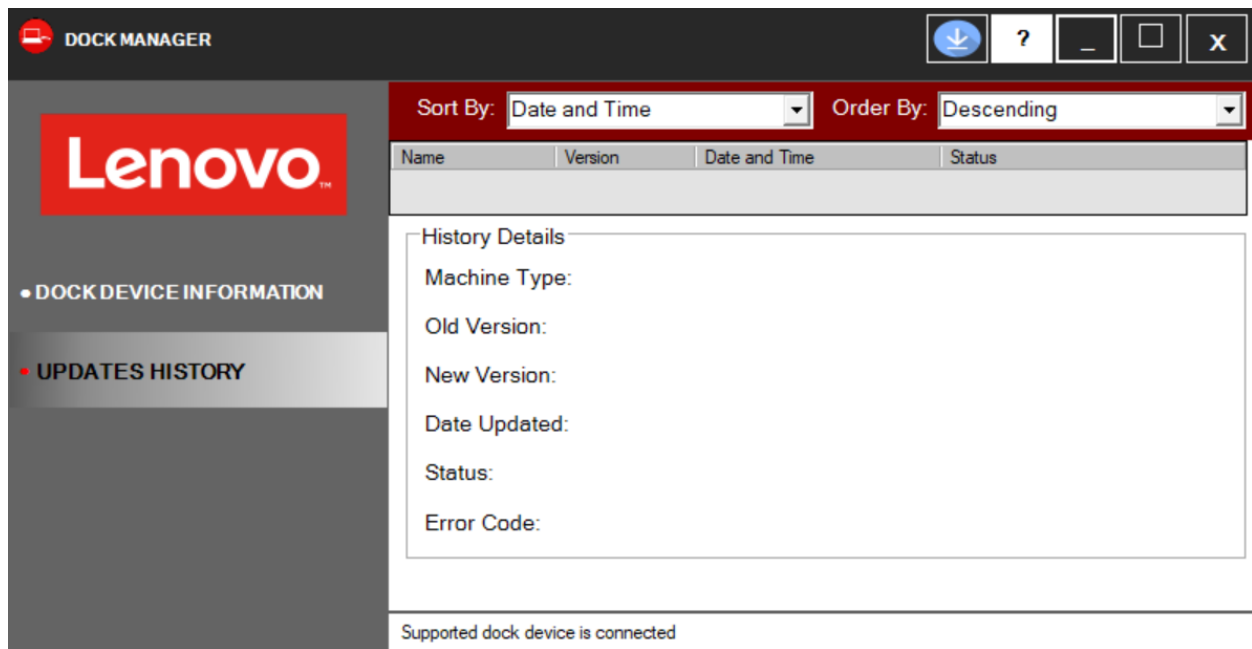


Figure 2. Update History Screen.

NOTE:

The Error Code here is from the dock firmware update process. Each dock has its own list of independent error codes, and the error codes may change with each dock firmware update.

2.3 System Tray Behavior

The system tray provides a convenient way to: open the Dock Manager Application when minimized, click help to access the User Manual, and click about to open the about page.

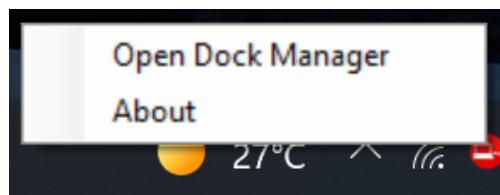


Figure 3. System Tray Help Menu

【Open Dock Manager】 button – upon click, will maximize the Dock Manager application.

【About】 button – upon click, will show the about page.

2.4 Title Bar Help Button

The title bar help button is an in-app method to access the: the About section to open the about page.



Figure 4. Title bar Help Button Menu

【About】 button – upon click, will show the about page.

2.5 Title Bar Download Button

The title bar download button is used to allow end user to check and download new software version.

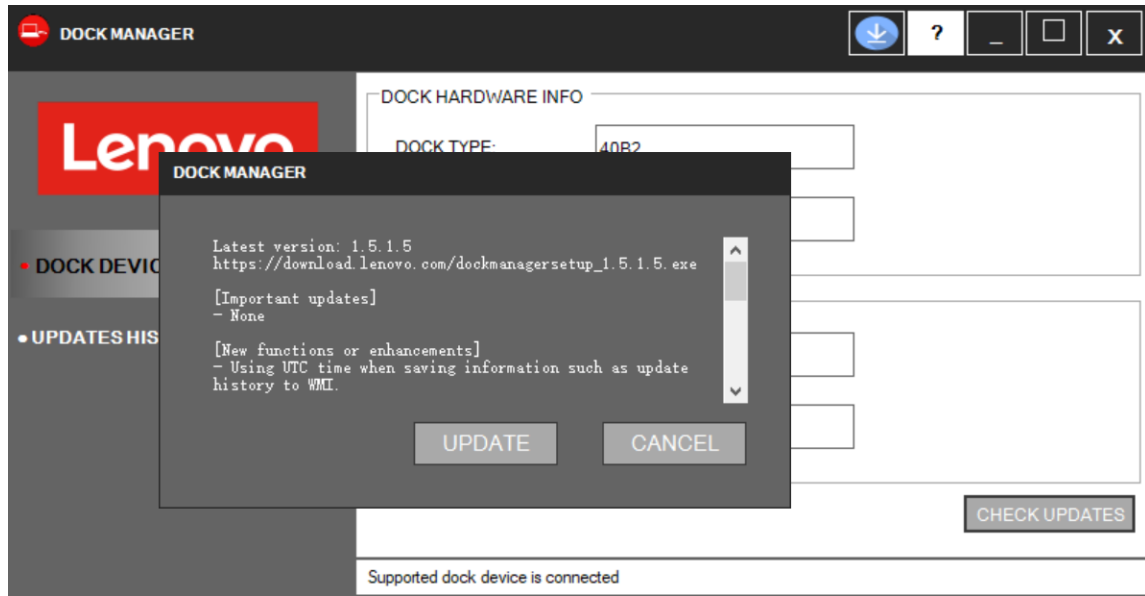


Figure 5.1. Click the download button in the title bar.

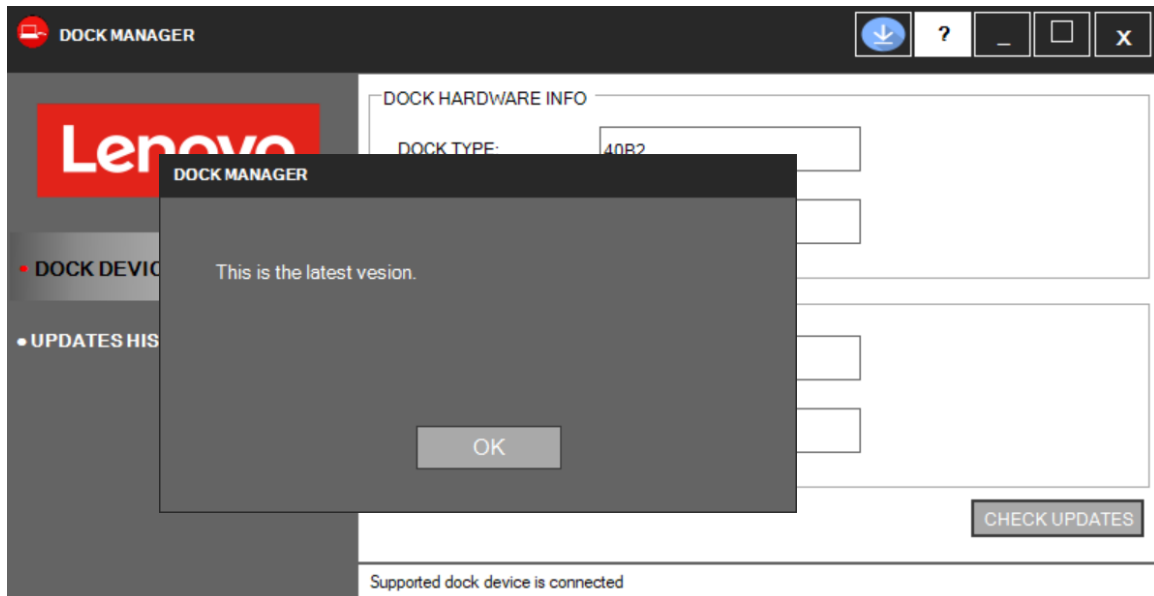


Figure 5.2. Click the download button in the title bar.

【Download】 button – upon click, a window will pop up to show whether there is a newer version on the server. And if there is a newer version, end user can update the software by clicking the UPDATE button in pop up window.

Note:

The download button can be hidden. Please refer to chapter 6.7 method ii.

3 Disable UI when installing

When installing with "DockManagerSetup_X.X.X.X.exe /verysilent/noicons/noui" command, there will not be any icon, even tray icon and it will not show any window except the pop-up window prompting user to choose whether to start the firmware upgrade.

4 WMI Queries

This section provides WMI queries to access WMI classes via PowerShell; created by the Dock Manager Application and Service. The WMI classes created include: *Dock Device* for the attached devices; *DockDeviceUSB* for USB device attached on the dock; *DockDeviceDisplay* for display device also attached on the dock; and *DockManager* for the Update History.

4.1 DockDevice Class

DockDevice Class is created when a supported dock is attached. Properties query-able inside the class include: Machine Type, Serial Number and Firmware Version.

```
GENUS           : 2
CLASS           : DockDevice
SUPERCLASS      : 
DYNASTY         : DockDevice
RELPATH         : DockDevice.InstanceId="3844",ProcessId="c36c20ba-bf1c-498f-8cf6-55e28814e0d6"
PROPERTY_COUNT  : 7
DERIVATION      : {}
SERVER          : WANGXX40X2KORGN
NAMESPACE       : root\Lenovo\Dock_Manager
PATH            : \\WANGXX40X2KORGN\root\Lenovo\Dock_Manager:DockDevice.InstanceId="3844",ProcessId="c36c20ba-bf1c-498f-8cf6-55e28814e0d6"
DockId          : 3CE1A1C41E68
FWVersion       : v1.0.1.2
InstanceId      : 3844
MACAddress       : 3CE1A1C41E68
MachineType     : 40AV
ProcessId       : c36c20ba-bf1c-498f-8cf6-55e28814e0d6
SerialNumber    : 
PSComputerName  : WANGXX40X2KORGN
```

Figure 6. Dock Device Class

NOTE:

For following docks, serial number cannot be displayed, only their MAC address will be displayed.

- ThinkPad Thunderbolt 3 Essential Dock
- ThinkPad Thunderbolt 3 Workstation Dock / ThinkPad Thunderbolt 3 Dock Gen 2
- ThinkPad USB-C Dock Gen 2
- ThinkPad Hybrid USB-C with USB-A Dock
- ThinkPad Thunderbolt 3 Dock
- ThinkPad USB-C Dock

For following docks, both serial number and MAC addresss can be displayed.

- ThinkPad Universal USB-C Dock
- ThinkPad Universal Thunderbolt 4 Dock
- ThinkPad Universal USB-C Smart Dock
- ThinkPad Universal Thunderbolt 4 Smart Dock
- Lenovo USB-C Dock (Windows Only)
- ThinkPad Universal USB-C Dock v2

4.1.1 PowerShell Query

- Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockDevice" |
Format-List -Property MachineType,MacAddress,SerialNumber,FWVersion
 - Sample Result:

```
MachineType : 40AV
MacAddress  : 3CE1A1C41E68
SerialNumber :
FWVersion   : v1.0.1.2
```

Figure 7. DockDevice Sample Query Result

4.2 DockDeviceUSB Class

DockDeviceUSB class is created when a USB device is inserted in a supported dock. Properties query-able inside the class include: Device Type, USB PID, USB VID, and USB Device Manufacturer Name.

```
GENUS : 2
CLASS : DockDeviceUSB
SUPERCLASS :
DYNASTY : DockDeviceUSB
RELPATH : DockDeviceUSB.InstanceId="4220",ProcessId="c36c20ba-bf1c-498f-8cf6-55e28814e0d6"
PROPERTY_COUNT : 9
DERIVATION : 0
SERVER : WANGXX40X2KORGN
NAMESPACE : root\Lenovo\Dock_Manager
PATH : \\WANGXX40X2KORGN\root\Lenovo\Dock_Manager:DockDeviceUSB.InstanceId="4220",ProcessId="c36c20ba-bf1c-498f-8cf6-55e28814e0d6"
DeviceType : USB
DockId : 3CE1A1C41E68
InstanceId : 4220
MacAddress : 3CE1A1C41E68
ProcessId : c36c20ba-bf1c-498f-8cf6-55e28814e0d6
SerialNumber :
USB_PID : PID_6544
USB_VID : VID_0930
USBDeviceMFGName : Kingston
PSCoordinateName : WANGXX40X2KORGN
```

Figure 8. DockDeviceUSB Class

4.2.1 PowerShell Query

- Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockDeviceUSB " | Format-List -Property DeviceType,USB_PID,USB_VID,USBDeviceMFGName,SerialNumber,MacAddress
 - Sample Result:

```
DeviceType : USB
USB_PID : PID_6544
USB_VID : VID_0930
USBDeviceMFGName : Kingston
SerialNumber :
MacAddress : 3CE1A1C41E68
```

Figure 8.1 DockDeviceUSB Sample Query Result

4.3 DockDeviceDisplayPort Class

DockDeviceDisplayPort class is created when a display device is inserted in a supported dock. Properties query-able inside the class include: Monitor EDID, Monitor Manufacturer Name, and Monitor Model Name.

```
GENUS : 2
CLASS : DockDeviceDisplayPort
SUPERCLASS :
DYNASTY : DockDeviceDisplayPort
RELPATH : DockDeviceDisplayPort.InstanceId="4221",ProcessId="c36c20ba-bf1c-498f-8cf6-55e28814e0d6"
PROPERTY_COUNT : 9
DERIVATION : 0
SERVER : WANGXX40X2KORGN
NAMESPACE : root\Lenovo\Dock_Manager
PATH : \\WANGXX40X2KORGN\root\Lenovo\Dock_Manager:DockDeviceDisplayPort.InstanceId="4221",ProcessId="c36c20ba-bf1c-498f-8cf6-55e28814e0d6"
DeviceID : DISPLAY\LEN66C2\4429F2C3658&@UID224795
DockId : 3CE1A1C41E68
InstanceId : 4221
MacAddress : 3CE1A1C41E68
MonitorEDID : 0, 255, 255, 255, 255, 255, 0, 48, 174, 194, 102, 51, 48, 48, 32, 30, 1, 3, 128, 80, 34, 120, 46, 111, 229, 173, 80, 72, 163, 39, 11, 80, 84, 173, 207, 0, 129, 128, 129, 138, 129, 0, 149, 0, 169, 192, 179, 0, 209, 192, 209, 207, 2, 58, 128, 24, 113, 56, 45, 64, 88, 44, 69, 0, 86, 80, 33, 0, 0, 30, 0, 0, 0, 255, 0, 48, 48, 48, 48, 48, 48, 51, 10, 32, 32, 32, 32, 0, 0, 0, 253, 0, 48, 144, 30, 180, 34, 0, 10, 32, 32, 32, 32, 32, 0, 0, 0, 252, 0, 71, 50, 55, 45, 50, 45, 10, 32, 32, 32, 32, 32, 1, 85
MonitorMFGName : (Standard monitor types)
MonitorModelName : Generic PnP Monitor
ProcessId : c36c20ba-bf1c-498f-8cf6-55e28814e0d6
SerialNumber :
PSCoordinateName : WANGXX40X2KORGN
```

Figure 9. DockDeviceDisplayPort Class

4.3.1 PowerShell Query

- Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockDeviceDisplayPort" | Format-List -Property MonitorEDID,MonitorMFGName,MonitorModelName
- Sample Result:

```
MonitorEDID      : 0, 255, 255, 255, 255, 255, 255, 0, 48, 174, 194, 102, 51, 48, 48, 48, 32, 30, 1, 3, 128, 60, 34, 120, 46, 111, 229, 173, 80, 72, 163, 39, 11, 80, 84, 173, 207, 0, 129, 128, 129, 138, 129, 0, 149, 0, 169, 192, 179, 0, 209, 192, 209, 207, 2, 58, 128, 24, 113, 56, 45, 64, 88, 44, 69, 0, 86, 80, 33, 0, 0, 30, 0, 0, 0, 255, 0, 48, 48, 48, 48, 48, 48, 51, 10, 32, 32, 32, 32, 0, 0, 0, 253, 0, 48, 144, 30, 180, 34, 0, 10, 32, 32, 32, 32, 0, 0, 0, 252, 0, 71, 50, 55, 45, 50, 48, 10, 32, 32, 32, 32, 32, 32, 1, 85
MonitorMFGName   : (Standard monitor types)
MonitorModelName : Generic PnP Monitor
```

Figure 10. DockDeviceDisplayPort Sample Query Result

4.4 DockManager Class

DockManager class is created when user performs an update on through the Dock Manager Application. Properties query-able inside the class include: Dock ID, Firmware Update Date, New Version, Old Version, and Update Status.

```
_GENUS           : 2
_CLASS           : DockManager
_SUPERCLASS      : 
_DYNASTY         : DockManager
_RELPATH         : DockManager.InstanceId="3869",ProcessId="77f99424-9270-49da-87f9-9d0c981e3cfc"
_PROPERTY_COUNT  : 10
_DERIVATION      : {}
_SERVER          : LAPTOP-SKHV3TM
_NAMESPACE       : root\Lenovo\Dock_Manager
__PATH           : \\LAPTOP-SKHV3TM\root\Lenovo\Dock_Manager:DockManager.InstanceId="3869",ProcessId="77f99424-9270-49da-87f9-9d0c981e3cfc"
DockId           : 1S40AVZQZ0005Q
FWUpdateDate     : 8/20/2020 12:05:10 PM
InstanceId       : 3869
MACAddress       : 3CE1A1C2427E
MachineType      : 40AV
NewVersion       : v1.0.1.2
OldVersion       : v1.0.1.1
ProcessId        : 77f99424-9270-49da-87f9-9d0c981e3cfc
SerialNumber     : 
UpdateStatus     : True
PSComputerName   : LAPTOP-SKHV3TM
```

Figure 11. DockManager Class

4.4.1 PowerShell Query All Update History

- Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockManager" | Format-List -Property DockId,FWUpdateDate,NewVersion,OldVersion,UpdateStatus
- Sample Result:

```
MACAddress      : 3CE1A1C2427E
SerialNumber    : 
DockId          : 3CE1A1C2427E
FWUpdateDate    : 8/20/2020 12:05:10 PM
NewVersion      : v1.0.1.2
OldVersion      : v1.0.1.1
UpdateStatus    : True
```

Figure 11.1 DockManager Sample Query Result

4.4.2 PowerShell Query Specific Dock's Update History

- Select a DockId of a specific dock. (Example: '1S40AVZQZ0005Q')

- Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockManager WHERE DockId='1S4oAVZQZ0005Q'" | Format-List -Property DockId,FWUpdateDate,NewVersion,OldVersion,UpdateStatus

4.5 DockInfo Class

DockInfo is a newly WMI information being managed by DockManager application. Properties that can be queried inside the class include: MacAddress, SerialNumber, Date, Machine Type, FW Version, Last Update on, Last Update from, Latest FW, Available FW version, array of USB Devices Info, and array of display devices info.

```

GENUS      : 2
CLASS      : DockInfo
SUPERCLASS :
DYNASTY    : DockInfo
RELPATH    : DockInfo.InstanceId="3840",ProcessId="7ba38f45-ed70-4e71-88a2-e280785f7c4f"
PROPERTY_COUNT : 13
DERIVATION : 0
SERVER     : WANGXX40-2K0RGN
NAMESPACE : root\Lenovo\Dock_Manager
PATH       : \\WANGXX40-2K0RGN\root\Lenovo\Dock_Manager:DockInfo.InstanceId="3840",ProcessId="7ba38f45-ed70-4e71-88a2-e280785f7c4f"
AvailableFWVersion : 3.0.73
Date            : 2022/4/18 18:08:18
DisplayDevices  : {(Standard monitor types)}
DockId         : 11AD1D0A9CD53B103E330B00
FWVersion      : 3.0.73
InstanceId     : 3840
LastUpdateOn   : 2022/4/18 18:16:08
LatestFirmwareFlag : False
MACAddress     :
MachineType    : 40AY
ProcessId      : 7ba38f45-ed70-4e71-88a2-e280785f7c4f
SerialNumber   : 11AD1D0A9CD53B103E330B00
USBDevices     : {(Standard keyboards), Microsoft, (Standard keyboards), (Standard keyboards)}
PSComputerName : WANGXX40-2K0RGN

```

Figure 12. DockInfo Class

4.5.1 PowerShell Query (Truncated DockInfo List)

- To get the DockInfo instances along with the truncated usb and display devices:

```
Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockInfo" | Sort-Object
{$_.Date -as [datetime]} -Descending | Format-List -Property
AvailableFWVersion,Date,DisplayDevices,FWVersion,LastUpdateOn,LatestFirmwareFlag,MACAddress,Machi
neType,SerialNumber,USBDevices
```

```

AvailableFWVersion : 3.0.73
Date              : 2022/4/18 18:08:18
DisplayDevices    : {(Standard monitor types)}
FWVersion        : 3.0.73
LastUpdateOn     : 2022/4/18 18:16:08
LatestFirmwareFlag : False
MACAddress       :
MachineType      : 40AY
SerialNumber     : 11AD1D0A9CD53B103E330B00
USBDevices       : {(Standard keyboards), Microsoft, (Standard keyboards), (Standard keyboards)}

```

Figure 12.1 DockInfo Sample Query Result

4.5.2 PowerShell Query

- To get the DockInfo instances along with the usb and display devices:

```
$infos = Get-WmiObject -Namespace "root\Lenovo\Dock_Manager" -Query "SELECT * FROM DockInfo" |
Sort-Object {$_.Date -as [datetime]} -Descending | Select-Object
foreach ($info in $infos) {
```

```

Select-Object -InputObject $info -Property
AvailableFWVersion,Date,FWVersion,LastUpdateOn,LatestFirmwareFlag,MACAddress,MachineType,SerialNu
mber;
For ($i=0;$i -lt $info.DisplayDevices.Length;$i++) {
    Write-Host 'Display'($i+1);
    Select-Object -InputObject $info.DisplayDevices[$i] -Property
DeviceID,DockType,MACAddress,MonitorEDID,MonitorMFGName,MonitorModelName,SerialNumber;
}
For ($i=0;$i -lt $info.USBDevices.Length;$i++) {
    Write-Host 'USB'($i+1);
    Select-Object -InputObject $info.USBDevices[$i] -Property
MACAddress,SerialNumber,DeviceType,USB_PID,USB_VID,USBDeviceMFGName;
}
}

```

```

AvailableFWVersion : 3.0.73
Date               : 2022/4/18 18:08:18
FWVersion          : 3.0.73
LastUpdateOn       : 2022/4/18 18:16:08
LatestFirmwareFlag : False
MACAddress         :
MachineType        : 40AY
SerialNumber       : 11AD1D0A9CD53B103E330B00

Display 1
DeviceID           : DISPLAY\LEN66C2\4&29F2C365&0&UID224795
DockType           :
MACAddress         :
MonitorEDID        : 0, 255, 255, 255, 255, 255, 0, 48, 174, 194, 102, 51, 48, 48, 48, 32, 30, 1, 3, 128, 60, 34, 120, 46, 111, 229, 173, 80, 72, 163, 39, 11, 80, 84, 173, 207, 0, 129, 128, 1
29, 138, 129, 0, 149, 0, 169, 192, 179, 0, 209, 192, 209, 207, 2, 58, 128, 24, 113, 56, 45, 64, 88, 44, 69, 0, 86, 80, 33, 0, 0, 30, 0, 0, 0, 255, 0, 48, 48, 48, 48, 48, 48, 5
1, 10, 32, 32, 32, 32, 0, 0, 0, 253, 0, 48, 144, 30, 180, 34, 0, 10, 32, 32, 32, 32, 32, 32, 0, 0, 0, 252, 0, 71, 50, 55, 45, 50, 48, 10, 32, 32, 32, 32, 32, 1, 85
MonitorMFGName     : (Standard monitor types)
MonitorModelName   : Generic PnP Monitor
SerialNumber       : 11AD1D0A9CD53B103E330B00

USB 1
MACAddress         :
SerialNumber       : 11AD1D0A9CD53B103E330B00
DeviceType         : Keyboard
USB_PID            : PID_6091
USB_VID            : VID_17EF
USBDeviceMFGName   : (Standard keyboards)

```

Figure 12.2 DockInfo Sample Query Result

5 Firmware Download and Update Behavior

The proceeding section presents illustrations that shows the notification flow when the Dock Manager Application is hidden in the system tray. Illustrated are three types of expected behaviors: Default Behavior, No User Confirmation, and Silent Mode.

5.1 Default Behavior

The default behavior flow notifies the user to update the firmware when download is complete. The flow is illustrated below (see Figure 12. Default Behavior Flow)



Figure 13. Default Behavior Flow

5.2 No User Confirmation

When AskBeforeFirmwareUpdate is set to NO in the registry; upon firmware download completion, the downloaded firmware update will proceed to execute without prompting the users. (see Figure 13. No User Confirmation)

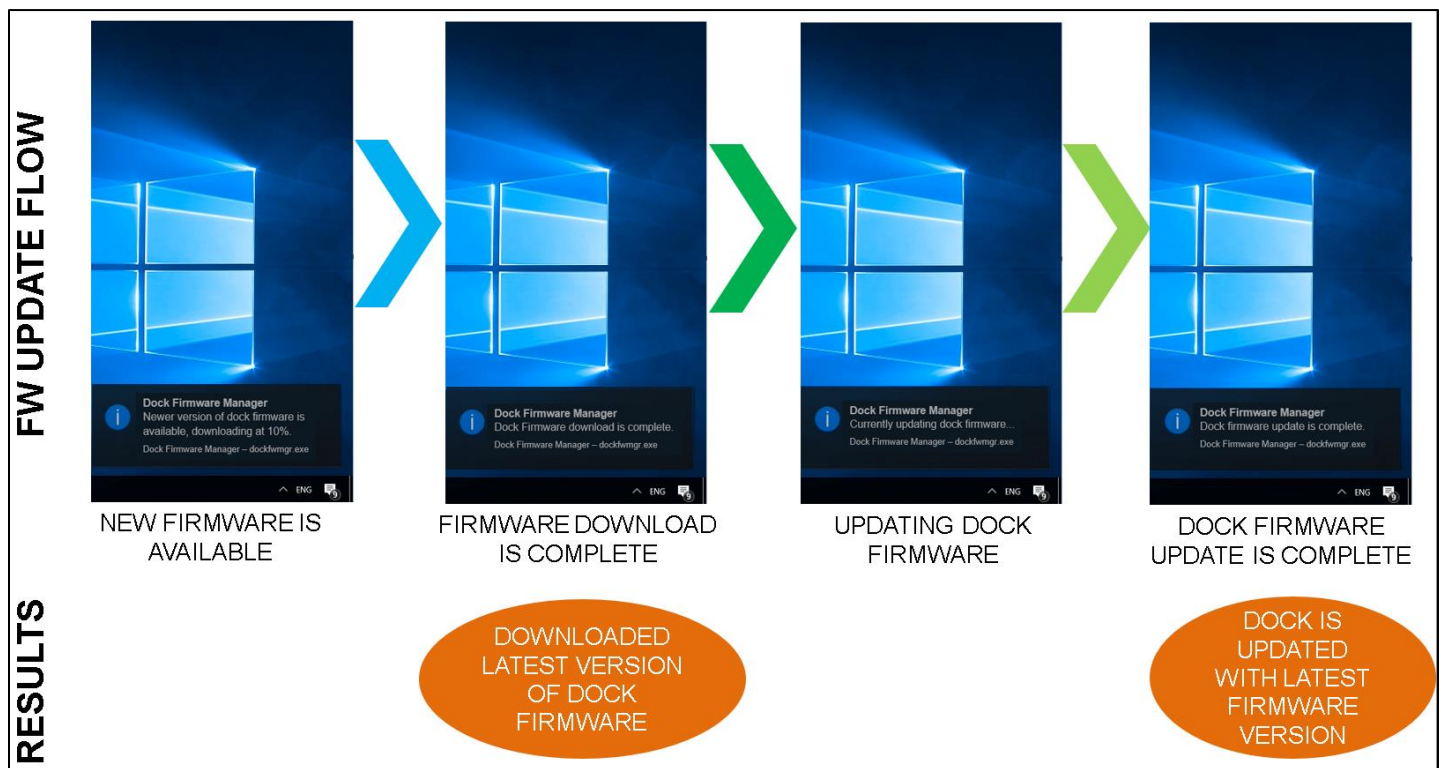


Figure 14. No User Confirmation

5.3 *Silent Mode*

When AskBeforeFirmwareUpdate and EnableNotifications is set to NO in the registry, the firmware update flow will proceed to download and execute update in the background without notifications and prompts for the user.

NOTE:

For following docks, default behavior need user confirm in the dialog box, and they can be configured to no user confirm or silent mode.

- Lenovo USB-C Dock (Windows Only)
- ThinkPad Thunderbolt 3 Essential Dock
- ThinkPad Thunderbolt 3 Workstation Dock / ThinkPad Thunderbolt 3 Dock Gen 2
- ThinkPad USB-C Dock Gen 2
- ThinkPad Hybrid USB-C with USB-A Dock
- ThinkPad Thunderbolt 3 Dock
- ThinkPad USB-C Dock

For following docks, default behavior is no user confirm, they don't need to set AskBeforeFirmwareUpdate to NO. They can be configured to silent mode.

- ThinkPad Universal USB-C Dock
- ThinkPad Universal Thunderbolt 4 Dock
- ThinkPad Universal USB-C Smart Dock
- ThinkPad Universal Thunderbolt 4 Smart Dock
- ThinkPad Universal USB-C Dock v2

6 Group Policy

This section is used by Administrators to enable easy configuration of the registry keys through Group Policy Management Editor; the configurations include: the Repository Location for retrieving which repository to access the firmware updates; Application configuration to edit the AskBeforeFirmwareUpdate and EnableNotifications value for changing the behaviors upon Firmware Download and Update; Managing the Logs for the max log file size and days to clean up; Configuring proxy; Configuring the Task Scheduler to set when the next scheduled task is to be executed; and pushing supported command such as Update Software.

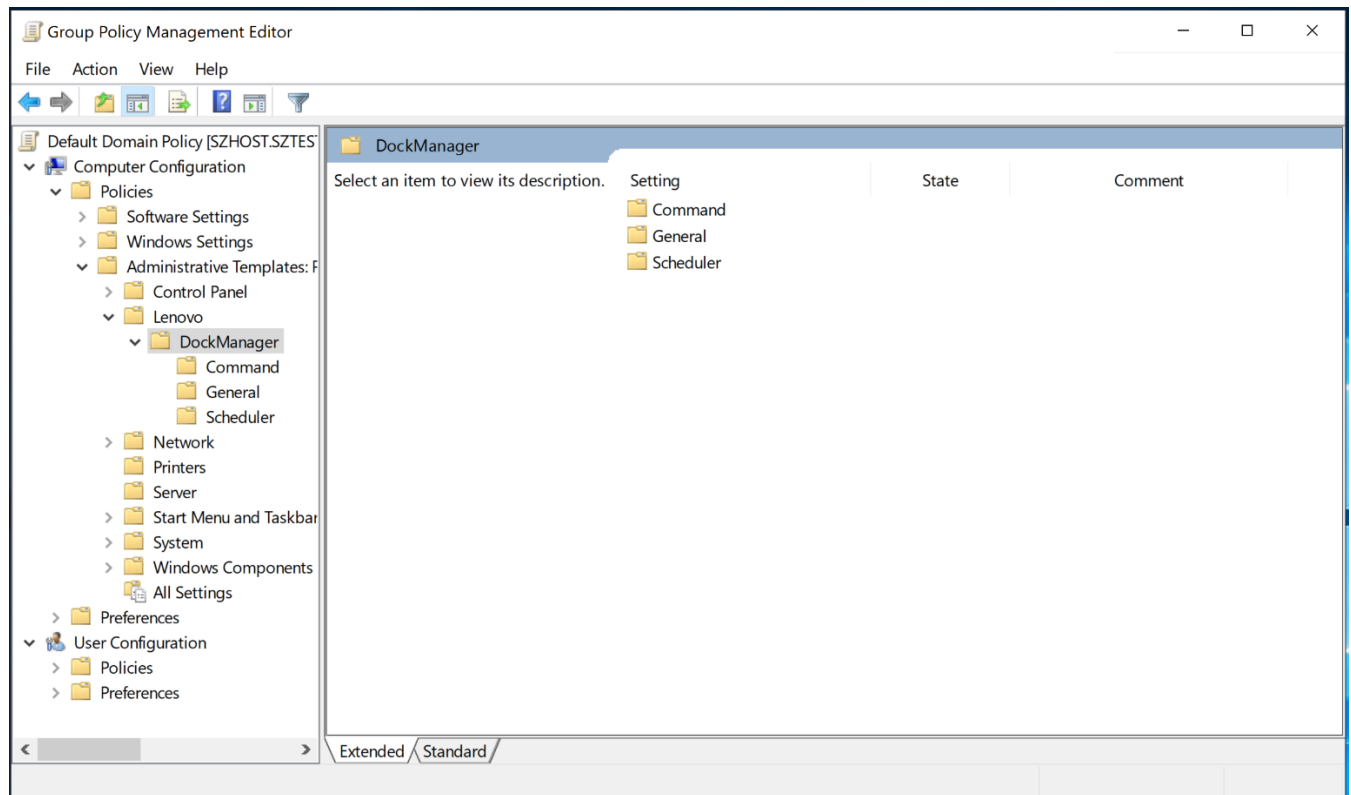


Figure 15. Group Policy Management Editor

6.1 Setup Policy Settings for Lenovo DockManager application

Before accessing the group policy, make sure to check if the IT Administrator pushed the policy settings to user's laptop.

6.1.1 Changing the Group Policies

- To import the group policies and enable easy configuration:
 - Make sure that you are accessing the computer as an administrator.
 - Extract to get “Lenovo.admx” and “en-US\Lenovo.adml” by double-clicking “Policy Setup.exe” and then import admx and adml.
 - On start, search for “group policy management” and press enter.
 - The group policy management editor will be opened by clicking the edit context menu on the right policy and load all the created policies.
 - Locate the Dock Manager Policies inside:
Computer Configuration\Administrative Templates\Lenovo\Dock Manager\
 - Inside are 3 categories: Command, General and Scheduler.

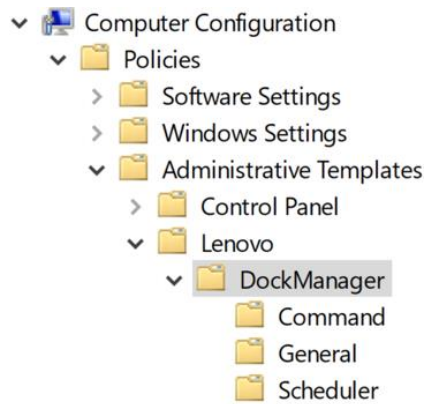


Figure 16. Dock Manager Policies Path

6.2 Configuring the Firmware Download and Update Behavior

To configure the download and update behavior as stated in Section 5, AskBeforeFirmwareUpdate and EnableNotification are located inside the General Category inside the Dock Manager Group Policies.

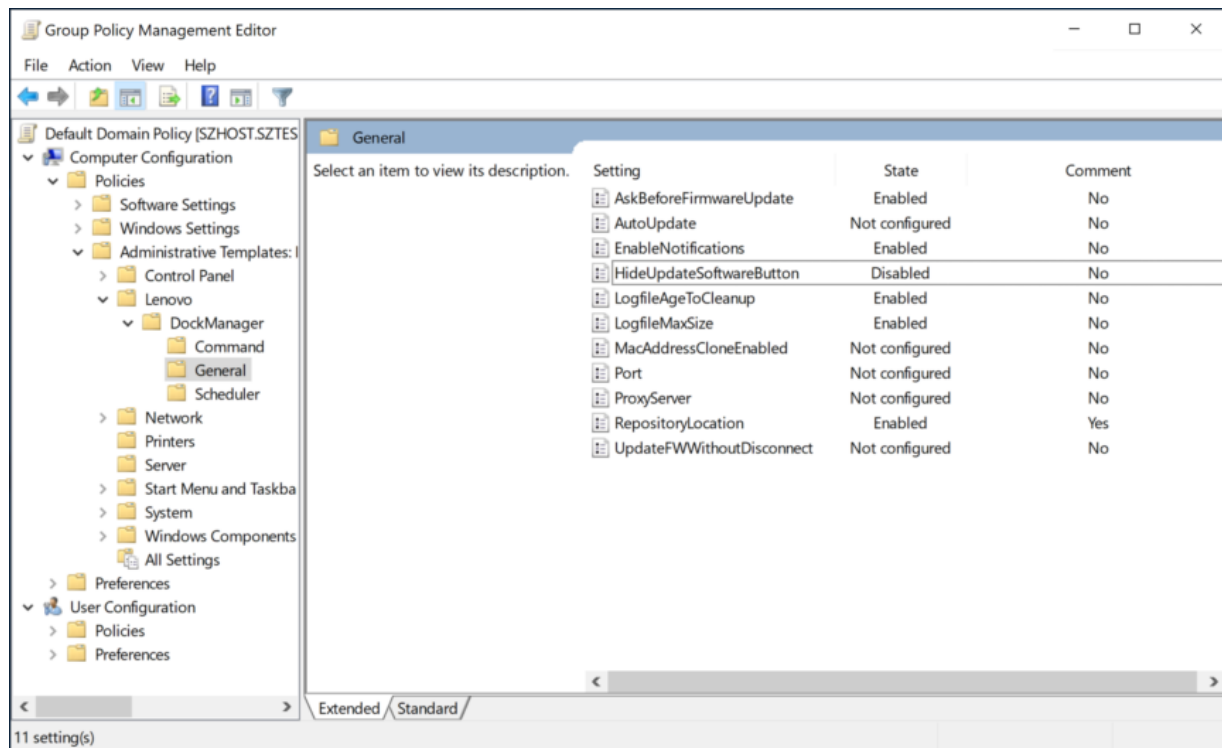


Figure 17. Dock Manager General Policies

6.2.1 Enable No User Confirmation

- To enable no user confirmation:
 - Ensure that "EnableNotifications" policy is set to "Not Configured" or "Enabled"
 - Select "AskBeforeFirmwareUpdate" policy and set to "Disabled".

6.2.2 Enable Silent Mode

- To enable silent mode:
 - Select "EnableNotifications" policy and set to "Disabled".
 - Select "AskBeforeFirmwareUpdate" policy and set to "Disabled".

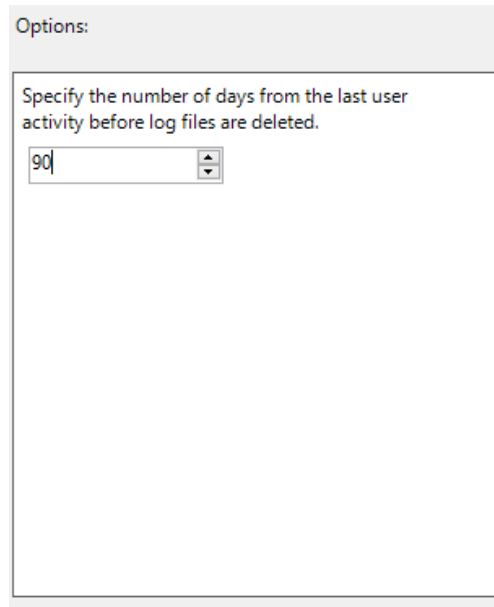
6.3 Configure Log Settings

To configure Log Setting, all policies can be located inside the General category inside the Dock Manager Policies. (Refer to Figure 16. Dock Manager General Policies)

6.3.1 Change Number of Days Before Log Files are Deleted

This configuration will delete all the Log files inside “C:\ProgramData\Lenovo\DockManager\Logs\” which were modified before a number of days. (E.g. All logs modified on 6/22/2020 or before will be deleted on 6/27/2020 when the days is set to 7.)

- To change the number of days before log files are deleted:
 - Select “LogfileAgeToCleanup” and set to “Enabled”.
 - Enter the number of days inside textbox in the options panel. (Default: “90”)



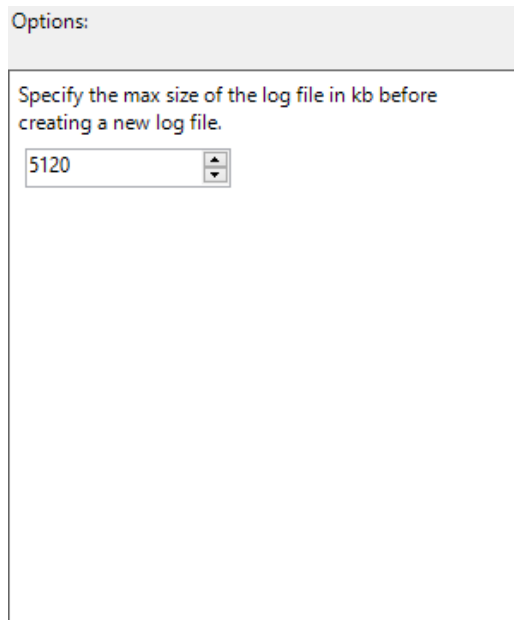
The image shows a software configuration window titled "Options:". Inside, there is a text label that reads "Specify the number of days from the last user activity before log files are deleted." Below this label is a spin box control. The spin box has a text field containing the number "90" and a vertical scroll bar to its right. The entire configuration area is enclosed in a rectangular frame.

Figure 18. Number of Days Input

6.3.2 Configure Log File Max Size Before Creating a New Log File

This configuration will create a new Log file inside “C:\ProgramData\Lenovo\DockManager\Logs\” based on the max file size set. Old log files will have their Log filenames appended with the current date and a new Log file will be created.

- To change the max file size before creation of new log file:
 - Select “LogfileMaxSize” and set to “Enabled”.
 - Enter the max file size in kb inside textbox in the options panel. (Default: “5120”)



Options:

Specify the max size of the log file in kb before creating a new log file.

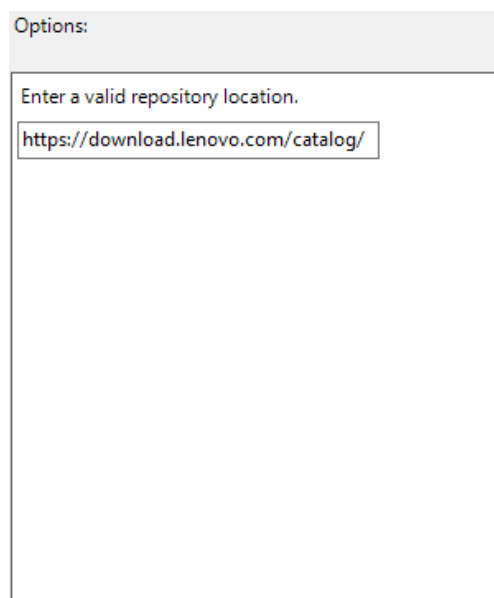
5120

Figure 20. Max File Size Input

6.4 *Configure Repository Location*

This configuration will edit the Lenovo repository location from where the firmware updates will be downloaded. The policy is located in the General category inside the Dock Manager Policies (Refer to Figure 16. Dock Manager General Policies):

- Valid values:
 - C:\FwRepo – For local directory location repository
 - [\\10.11.32.109\FwRepo\](#) - Shared network folder location repository
- To change the repository location:
 - Select “RepositoryLocation” and set to “Enabled”.
 - Enter the repository location inside the textbox in the options panel. (Default: “https://download.lenovo.com/catalog/”)



Options:

Enter a valid repository location.

<https://download.lenovo.com/catalog/>

Figure 21. Repository Location Input

Note:

When building repository with Update Retriever, please add packages by searching dock's machine type. The following figure 21.1 is an example.

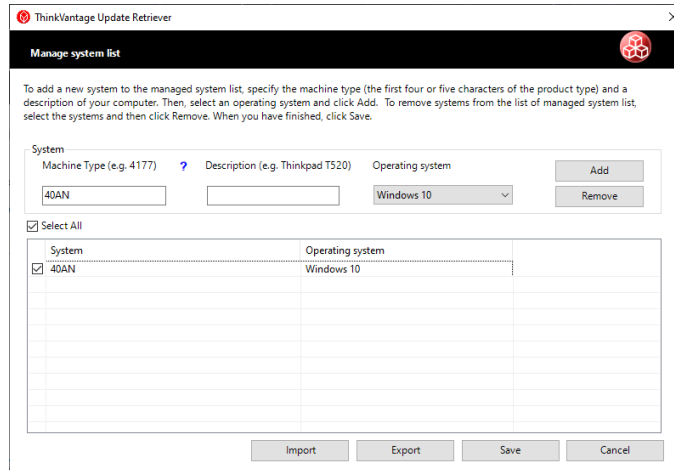
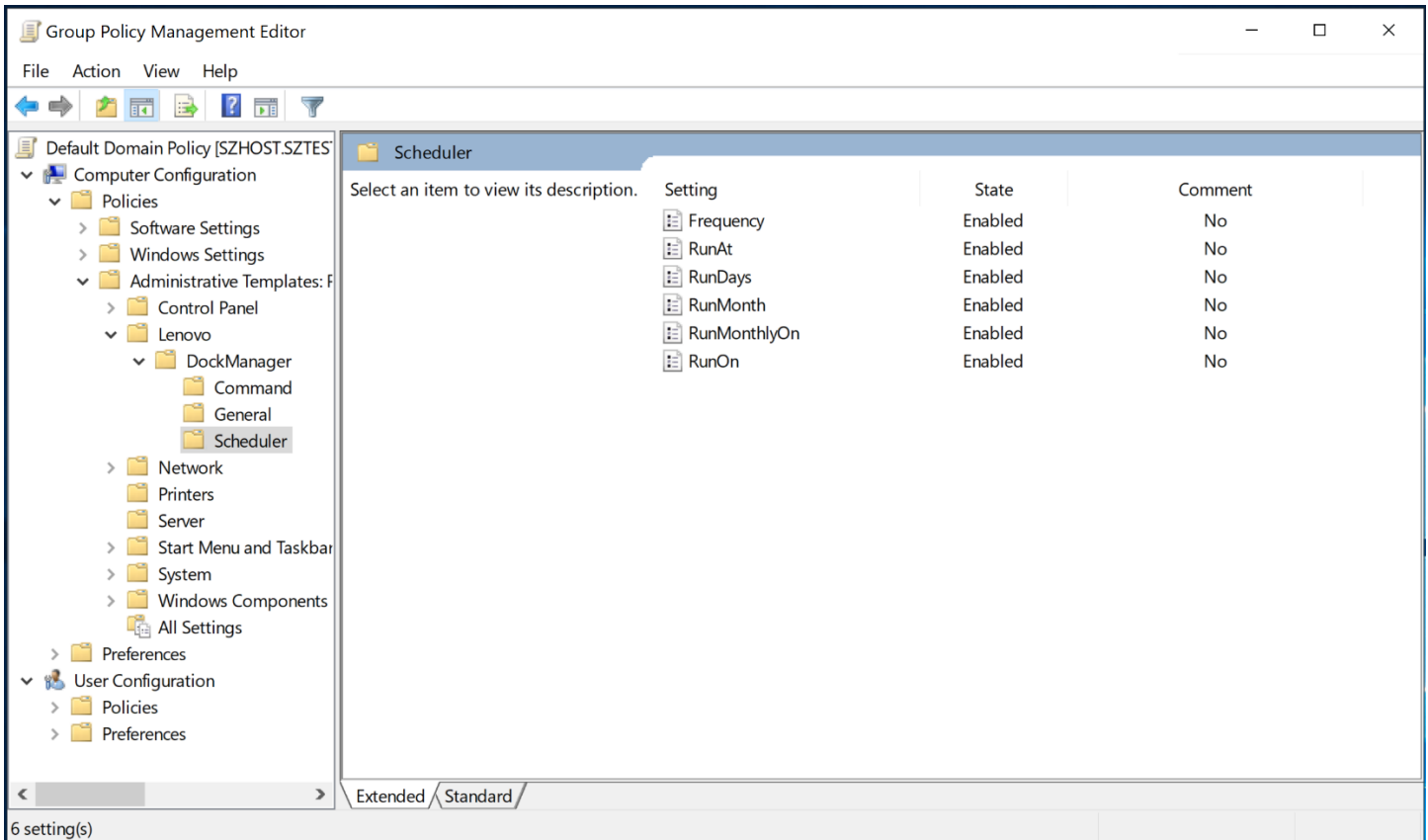


Figure 21.1 Build repository with Update Retriever

6.5 Configure Task Scheduler

To configure Task Scheduler Setting, all policies can be located inside the Scheduler category inside the Dock Manager Policies. This configuration can edit the task scheduler to execute firmware check and update on the next scheduled task at a specific time, day, week or month. The scheduled task can be scheduled on different frequencies: DAILY, WEEKLY, and MONTHLY.



6.5.1 DAILY

This configuration will schedule a firmware check daily on a specific time.

- To update the scheduled task daily:
 - Select “Frequency” and set to “Enabled”.
 - Set the value of the dropdown inside the options menu to “DAILY”.

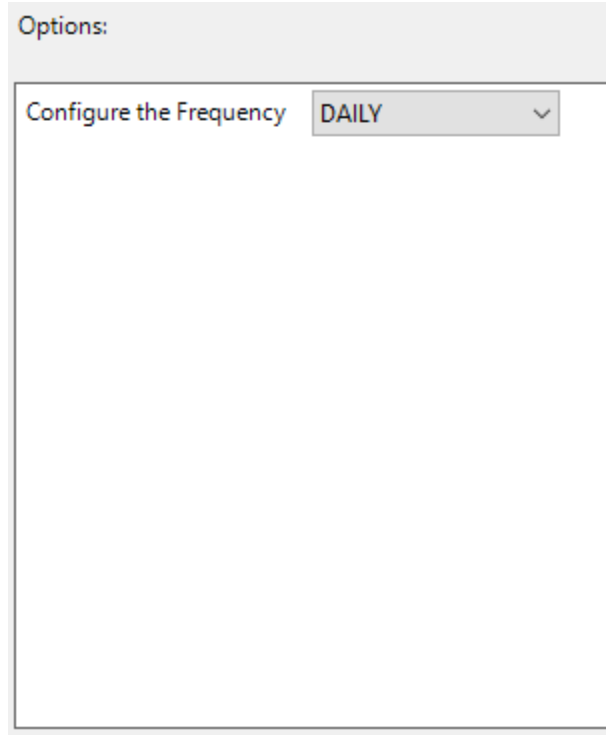


Figure 23. Frequency Dropdown

- Select “RunAt” and set to “Enabled”
- Enter time in 24:MM:SS format inside the textbox in the options panel. (Default: “13:05:30”)

Options:

Enter a valid time for the task scheduler to run.
(24:MM:SS format)

13:05:30

Figure 24. RunAt Input

- The scheduled task will be updated on (Sample Result: Run every day on 13:05:30) the next scheduled firmware check. To manually update the scheduled task and execute firmware check, open Windows Task Scheduler, locate the Scheduled Task (Lenovo/Dock Manager – Task Scheduler) and run manually.

6.5.2 WEEKLY

This configuration will schedule a firmware check weekly on a specific time and day of week.

- To update the scheduled task weekly:
 - Select “Frequency” and set to “Enabled”.
 - Set the value of the dropdown inside the options menu to “WEEKLY”. (Refer to Figure 21. Frequency Dropdown)
 - Select “RunAt” and set to “Enabled”.
 - Enter time in 24:MM:SS format inside the textbox in the options panel. (Refer to Figure 22. RunAt Input)
 - Select “RunOn” and set to “Enabled”.
 - Enter day/s of week inside the textbox in the options panel. (Default: TUESDAY)

Options:

Enter day of week when scheduled task should run.
(Monday, Tuesday, etc. Multiple days must be specified as comma separated list.)

TUESDAY

Figure 25. RunOn Input

- The scheduled task will be updated on (Sample Result: Run Every Tuesday on 13:05:30) the next scheduled firmware check. To manually update the scheduled task and execute firmware check, open Windows Task Scheduler, locate the Scheduled Task (Lenovo/Dock Manager – Task Scheduler) and run manually.

6.5.3 MONTHLY (By RunDay)

This configuration will schedule a firmware check monthly on a specific day/s of a month.

- To update the scheduled task monthly by date:
 - Select “Frequency” and set to “Enabled”.
 - Set the value of the dropdown inside the options menu to “MONTHLY”. (Refer to Figure 21. Frequency Dropdown)
 - Select “RunAt” and set to “Enabled”.
 - Enter time in 24:MM:SS format inside the textbox in the options panel. (Refer to Figure 22. RunAt Input)
 - Select “RunDays” and set to “Enabled”.
 - Enter day/s inside the textbox in the options panel. (Default: 1)

Options:

Enter dates when scheduled task should run. (1, 2, etc. Multiple dates must be specified as comma separated list.)

Figure 26. RunDays Input

- Select “RunMonth” and set to “Enabled”.
- Enter month/s inside the textbox in the options panel. (Default: January)

Options:

Enter months when scheduled task should run. (January, February, etc. Multiple months must be specified as comma separated list.)

Figure 27. RunMonth Input

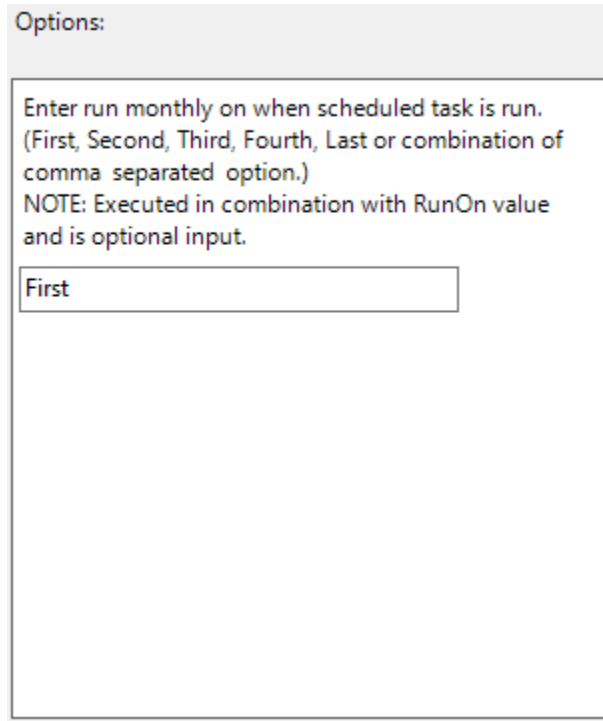
- The scheduled task will be updated on (Sample Result: Run Every January 1 on 13:05:30) the next scheduled firmware check. To manually update the scheduled task and execute firmware check,

open Windows Task Scheduler, locate the Scheduled Task (Lenovo/Dock Manager – Task Scheduler) and run manually.

6.5.4 MONTHLY (By RunMonthlyOn)

This configuration will schedule a firmware check monthly on a specific order of a month.

- To update the scheduled task monthly by order:
 - Select “Frequency” and set to “Enabled”.
 - Set the value of the dropdown inside the options menu to “MONTHLY”. (Refer to Figure 21. Frequency Dropdown)
 - Select “RunAt” and set to “Enabled”.
 - Enter time in 24:MM:SS format inside the textbox in the options panel. (Refer to Figure 22. RunAt Input)
 - Select “RunMonthlyOn” and set to “Enabled”.
 - Enter order inside the textbox in the options panel. (Default: First)



The screenshot shows a software interface with a light gray header labeled "Options:". Below the header is a white rectangular box containing the following text: "Enter run monthly on when scheduled task is run. (First, Second, Third, Fourth, Last or combination of comma separated option.)" followed by "NOTE: Executed in combination with RunOn value and is optional input." At the bottom of this box is a text input field with the word "First" entered.

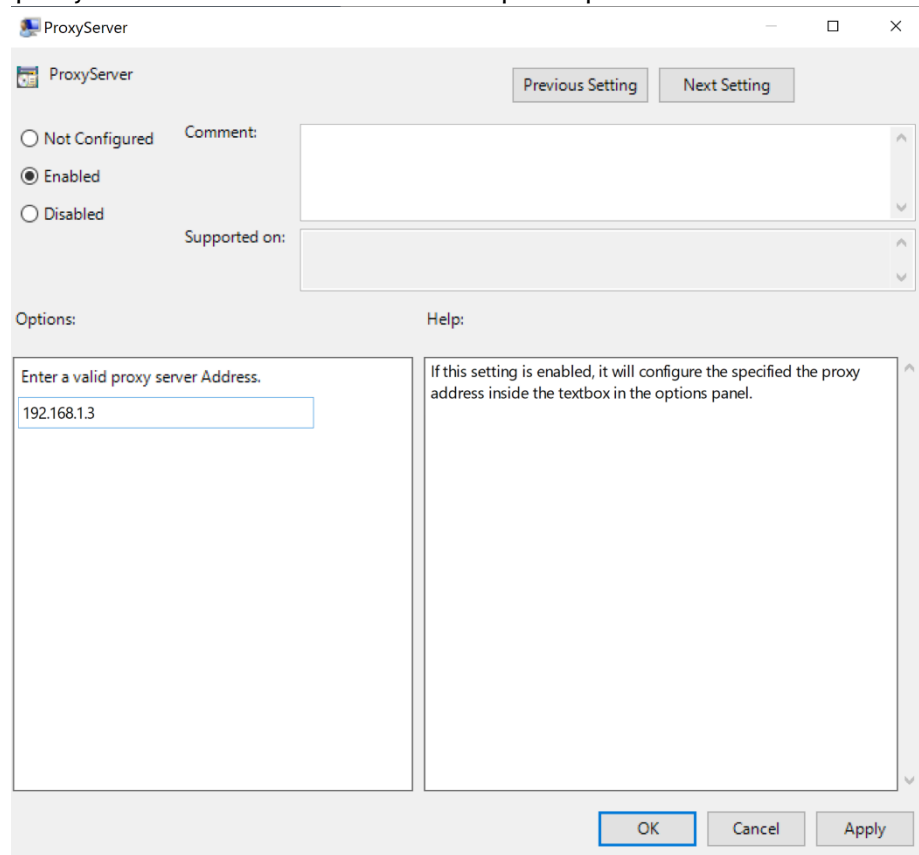
Figure 28. RunMonthlyOn Input

- Select “RunMonth” and set to “Enabled”.
- Enter month/s inside the textbox in the options panel. (Refer to Figure 25. RunMonth Input)
- Select “RunOn” and set to “Enabled”.
- Enter day/s of week inside the textbox in the options panel. (Refer to Figure 23. RunOn Input)
- The scheduled task will be updated (Sample Result: Run Every First Tuesday of January on 13:05:30) on the next scheduled firmware check. To manually update the scheduled task and execute firmware check, open Windows Task Scheduler, locate the Scheduled Task (Lenovo/Dock Manager – Task Scheduler) and run manually.

6.6 Configure Proxy

The policy for configuring the proxy is in the general category within the Dock Manager policy (refer to Figure 16. Dock Manager General Policies). This configuration can set the address and port number of the proxy server. Authentication is not currently supported.

- To set the proxy server:
 - Select “ProxyServer” and set to “Enabled”.
 - Enter the proxy server inside the textbox in the options panel.



The screenshot shows a window titled "ProxyServer" with a standard Windows interface (minimize, maximize, close buttons). Inside the window, there is a tab labeled "ProxyServer". At the top right of the window are two buttons: "Previous Setting" and "Next Setting". Below the tab, there are three radio buttons: "Not Configured", "Enabled" (which is selected), and "Disabled". To the right of these radio buttons is a "Comment:" label followed by a large text area. Below the radio buttons is a "Supported on:" label followed by a smaller text area. In the center, there are two panels: "Options:" on the left and "Help:" on the right. The "Options:" panel contains the text "Enter a valid proxy server Address." and a text box with the value "192.168.1.3". The "Help:" panel contains the text "If this setting is enabled, it will configure the specified the proxy address inside the textbox in the options panel." At the bottom right of the window are three buttons: "OK", "Cancel", and "Apply".

Figure 29. ProxyServer Input

- To set the proxy port:
 - Select “Port” and set to “Enabled”.
 - Enter the proxy port inside the textbox in the options panel.

Figure 30. Port Input

6.7 *Update Software*

There are 3 ways to update software itself: (software can be upgraded without UI by method i & iii)

- i. Upgrade automatically.
This can be disabled by setting “AutoUpdate” group policy in “General” category to “Disabled”. (Refer to figure 31. AutoUpdate Input)

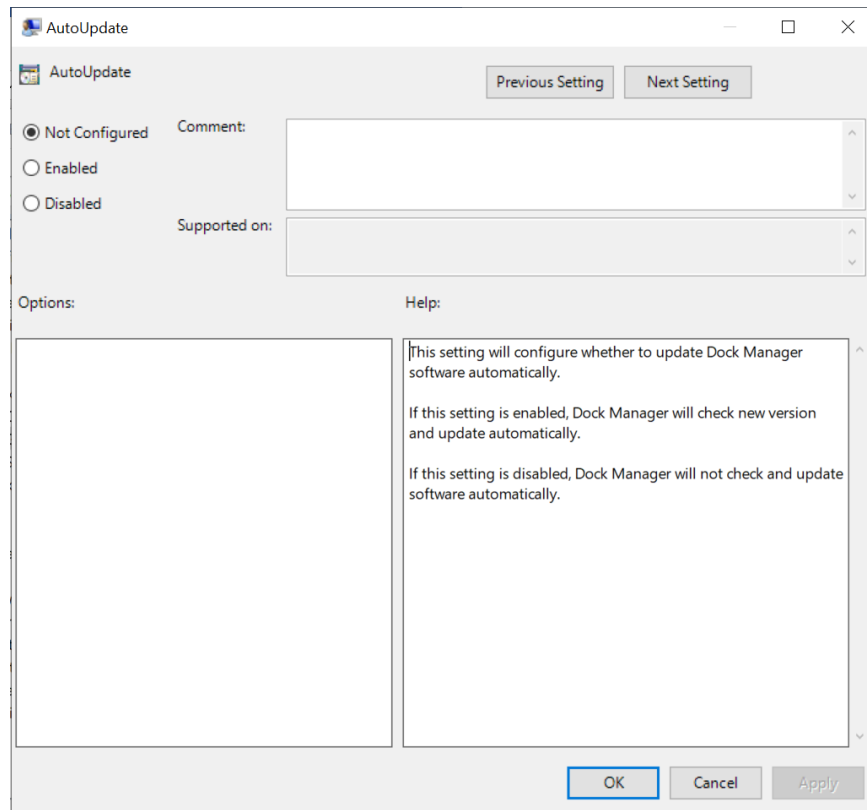


Figure 31. AutoUpdate Input

- ii. Trigger upgrade by end user.
Refer to Figure 5.1. Click the download button in the title bar.
The download button in the title bar can be hidden by enable “HideUpdateSoftwareButton” group policy in “General” category. (Refer to figure 32. HideUpdateSoftwareButton Input)

HideUpdateSoftwareButton

Previous Setting Next Setting

☐ Not Configured
 ☒ Enabled
 ☐ Disabled

Comment:

Supported on:

Options:

Help:

This setting will configure whether to show update software button in the main window.

If this setting is enabled, will hide update software button in the main window.

If this setting is disabled, will show update software button in the main window.

OK Cancel Apply

Figure 32. HideUpdateSoftwareButton Input

iii. Trigger upgrade by IT manager.

The “Command” policy (Figure 33. Supported Command Input) in “Command” category (see Figure 32. Dock Manager Command Policies) within the “DockManager” policy allows the IT manager to send update software command (1) to machines installed Dock Manager in the domain.

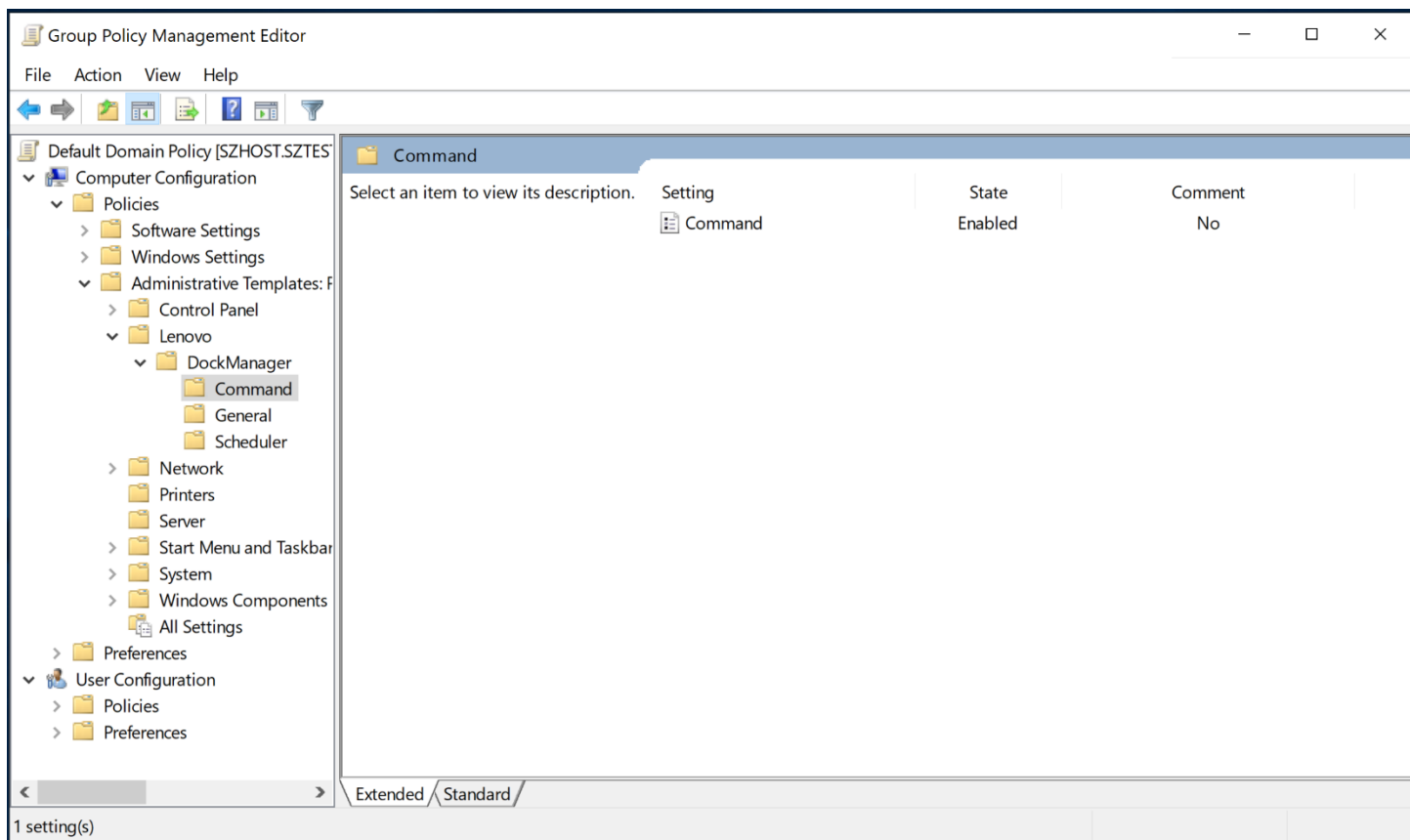


Figure 33. Dock Manager Command Policies

If “Command” policy is enabled, it will allow the IT manager to send supported commands to Dock Manager. Now the supported commands:

- 1: checking and updating software for the Dock Manager.

Command

Previous Setting Next Setting

☐ Not Configured
 ☒ Enabled
 ☐ Disabled

Comment:

Supported on:

Options:

Enter the supported commands.

1

Enter the time when the command is sent.

2023-07-05 03:12:05Z

Help:

If this setting is enabled, it will allow you to send supported commands to Dock Manager.

Supported commands:

1: checking and updating software for the Dock Manager.

Note that if you want to send the same command as the previous one, just need to update the time in the second text box.

OK Cancel Apply

Figure 34. Supported Command Input

Note that if you want to send the same command as the previous one, just need to update the time in the second text box.

6.8 *Update firmware without disconnection*

You can complete updating firmware for the following docks without disconnecting it from the computer. You can do that by enabling the “UpdateFWWithoutDisconnect” group policy in “General” category. (Refer to figure 35. UpdateFWWithoutDisconnect Input) and entering the dock type you want.

- ThinkPad Universal USB-C Dock
- ThinkPad Universal Thunderbolt 4 Dock
- ThinkPad Universal USB-C Smart Dock
- ThinkPad Universal Thunderbolt 4 Smart Dock
- ThinkPad Universal USB-C Dock v2

Note: The above docks need to be updated to firmware version that supports the “-r” parameter when updating firmware if you want to enable update firmware without disconnection.

UpdateFWWithoutDisconnect

UpdateFWWithoutDisconnect

Previous Setting Next Setting

☐ Not Configured
 ☒ Enabled
 ☐ Disabled

Comment:

Supported on:

Options:

Enter the dock type (four characters), which can be found on the label on the back of the dock. (Multiple dock types must be specified as comma separated list.)

40AY,40B0

Help:

If this setting is enabled, it will configure the dock types (which complete firmware updating after disconnecting dock from the computer) to update firmware without disconnecting from the computer.

OK Cancel Apply

Figure 35. UpdateFWWithoutDisconnect Input

6.9 Allow Mac Address Clone with 40AF dock

This is a function switch for Mac Address Clone that is only available for 40AF dock. This switch can be turned on only when the “MacAddressCloneEnabled” group policy in “General” category (Refer to figure 36. MacAddressCloneEnabled Input) is enabled.

MacAddressCloneEnabled

MacAddressCloneEnabled

Previous Setting Next Setting

☐ Not Configured
 ☒ Enabled
 ☐ Disabled

Comment:

Supported on:

Options:

Help:

This setting will configure whether to enable mac address clone function.

If this setting is enabled, Dock Manager will turn on mac address clone function.

If this setting is disabled, Dock Manager will turn off mac address clone function.

OK Cancel Apply

Figure 36. MacAddressCloneEnabled Input

6.10 *Allow disable firmware update when dock connect for first time*

By default, connecting dock for the first time to a computer installed Dock Manager will trigger checking and updating firmware for this dock. But you can disable it by disable the “UpdateFWOnFirstConnection” group policy in the “General” category. (Refer to figure 37. UpdateFWOnFirstConnection Input)

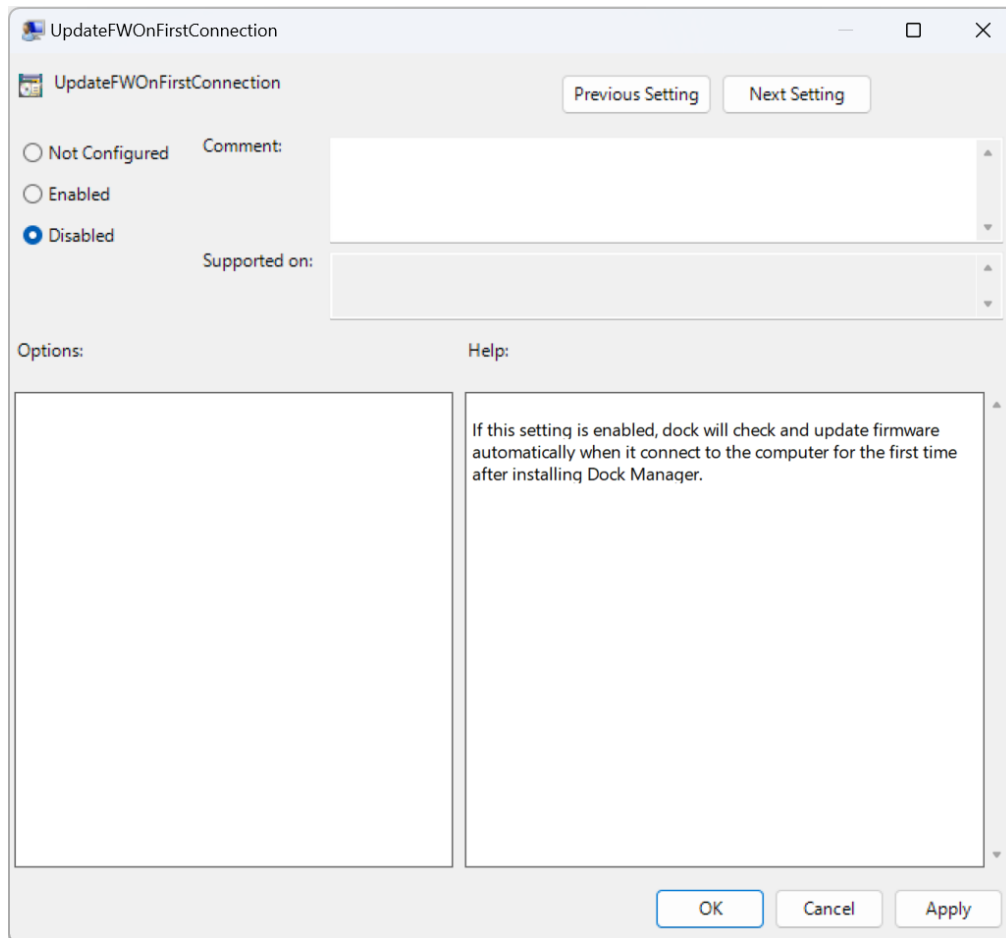


Figure 37. UpdateFWOnFirstConnection Input

6.11 *Enable firmware white list*

If this setting is enabled, the device can be upgraded only to the firmware version in the whitelist. (Refer to Figure 38. FWWhitelist Input)

For example:

40AY:3.0.85,3.0.92; means if you have a 40AY dock, you can only upgrade to 3.0.85 or 3.0.92 if your firmware repository contains them.

40Bo;; means your 40Bo dock cannot upgrade to any version because your whitelist is empty.

Figure 38. FWWhitelist Input

7 APPENDIX: Registry Settings

7.1 Application Group Policy Settings Registry

7.1.1 Values under General group

NAME	TYPE	REGISTRY LOCATION	VALUE	DESCRIPTION
RepositoryLocation	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\General	https://download.lenovo.com/catalog/	Lenovo support site repository
			\\<Server IP Address>\LenovoSWRepo	This is the repository from private network shared folder.
AskBeforeFirmware Update	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\General	YES	Enable pop-up dialog message asking user to proceed to firmware update or not.

			NO	Disabled pop-up dialog message asking user to proceed to firmware update or not. Dock Manager will automatically proceed to firmware update after downloading firmware package without user confirmation.
EnableNotifications	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\General	YES	This means tray message should display desktop notification during firmware download and update
			NO	This means tray message should not display desktop notification during firmware download and update
LogfileAgeToCleanu p	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\General	1-365	Age of logfile to delete in log directory in days unit.
LogfileMaxSize	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Log	Such as '5120'	Filesize in Kilobytes.

7.1.2 Values under Scheduler group

NAME	TYPE	REGISTRY LOCATION	VALUE	DESCRIPTION
Frequency	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Scheduler	DAILY	Execute firmware check daily
			WEEKLY	Execute firmware check weekly
			MONTHLY	Execute firmware check monthly
RunAt	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Scheduler	Such as 13:05:30	Time in 24:MM:SS format
RunOn	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Scheduler	MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY, SUNDAY	Name of the Day (Monday – Sunday).
RunMonth	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Scheduler	January	January – December

RunDays	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Scheduler	1	1-31 or combination of comma separated dates (Ex: 1, 30)
RunMonthlyOn	REG_SZ	HKLM\Software\WOW6432Node\Policies\Lenovo\Dock Manager\User Settings\Scheduler	First	First, Second, Third, Fourth, Last Note: Executed in combination with RunOn value and is optional input.