TARGUS INC.

Targus MAC Address Clone Utility (formerly “Clone MAC Address”)

User Manual

The DocKtor

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This manual intends guiding users through the basic and advanced installation of the Targus MAC Address Clone Utility and its various options

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Introduction

This manual intends guiding users through the basic and advanced installation of the Targus MAC Address Clone Utility and its various options.

TMAC runs as a service which automatically replaces (spoofs, clones) a MAC address of any connected Targus Giga Ethernet network adapter with the MAC address of one of the built-in (Wired Ethernet, Wireless Ethernet, Bluetooth) network adapters from a Windows PC. The Targus MAC Address Clone Utility assists with selective access to network resources restricted by MAC address filtering. This functionality seeks to further preventing unauthorized access by devices not in the sanctioned network access list which are to be screened out or otherwise would gain network access via the Targus Docking Station network adapter.

Release Notes

The Targus MAC Address Clone Utility is configured to work with the following Targus Universal Docking Stations: DOCK1XX, DOCK3XX, and select DOCK4XX models.

The Targus MAC Address Clone Utility is configured to work with Microsoft Windows 10. At the time of this writing, it was validated using Windows 10 Build 19044. It may work on other builds of Windows 10 and Windows 11.

For Targus DisplayLink based Universal Docking Stations models DOCK1XX and DOCK3XX, the DisplayLink 10.2M2 software is required for proper Ethernet and TMAC operation.

The latest associated driver for Targus Alternate Mode Docking Stations models DOCK4XX and USB Ethernet Adapters and dongles is required for proper Ethernet and TMAC operation. These can be downloaded from the Targus.com US Support site.

It is not always possible to keep up with changes in device architecture including Ethernet solution modification forced by a changing Supply Chain, Windows OS, and various Ethernet solutions and their associated driver versions. For these reasons, this version of TMAC contains an installation option to disable TMAC functionality for USB-C Alternate Mode devices and competitor's products affected by TMAC.

Known Issues

- In case a WMI issue is present on a machine where WMI cannot communicate with the network adapter the Targus MAC Address Clone Utility may not work.
  The Targus MAC Address Clone Utility uses WMI to set and retrieve various properties for both Targus Giga Ethernet and MAC Address source network adapters.
- In some cases notification requests may appear as a sequence of several messages. Remedy options are being explored.
- TMAC may also function with non-Targus branded USB-C Alternate Mode docking stations and devices including those from Targus' sister company Hyper.
- TMAC may not function with older USB-C Alternate Mode DOCK419 including DOCK419-51/54/55.
- TMAC may function or cause instability with competitor's device utilizing similar Ethernet solutions to those implemented in the Targus devices TMAC was developed to support.

Uninstall Targus WiFi AutoSwitch Before Installing MAC Address Clone.

If you PC has Targus WiFi AutoSwitch installed, you must uninstall it for MAC Address Clone to be installed. If the MAC Address Clone installer detects that WiFi AutoSwitch is installed, the following dialog is presented. Click "Yes" to uninstall version 1 and continue the version 2 installation.

Click "Yes" to uninstall "WiFi AutoSwitch" and continue the "MAC Address Clone" installation.

Clicking "No" will not enable the "Targus MAC Address Clone" Installation. Click "OK" to abort.

Basic Installation via Windows GUI

The basic installation requires running the program executable which spawns the following dialog. Click **Next**.

At this point the application is ready to be installed. Click "Install".

Targus MAC Address Clone Utility will now install.

Followed by the 'Installation Complete' dialog

Clicking "Finish" completes the basic installation and starts the utility.

Basic Usage

Once the Targus MAC Address Clone Utility is installed it will work automatically without further need for user interaction. Results can be displayed on the network admin console or by subsequent access to network resources previously unavailable.

Action to Perform	Observations/Results
Connect your Targus Docking Station	
Disconnect the Targus Docking Station	MAC Address of the Targus Giga Ethernet network adapter will be reset to the factory value. The source Wired, Wireless or Bluetooth network adapter will be re-enabled.

Advanced Installation Options

The Targus MAC Address Clone Utility offers additional installation options. Using the Windows Command Line for launching 'SetupClone' of the Targus MAC Address Clone Utility gives administrators advanced options.

Enabled

This option enables or disables the Targus MAC Address Clone Utility by choosing one of the following Enabled (REG_DWORD) values:

0 = Targus MAC Address Clone Utility is disabled

1 = Targus MAC Address Clone Utility is enabled (default)

This option can be set during installation or on the Command Line:
SetupClone.exe /z"-disable" or SetupClone.exe /z"-enable"

Following installation changes to the corresponding registry entry can be performed:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC64\Parameters\Enabled (on 64-bit versions of Windows) or
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC32\Parameters\Enabled (on 32-bit versions of Windows)
A restart of the Targus MAC Address Clone Utility service or PC reboot will be required in order for this option to take effect.

Verbose Mode

To enable/disable tray balloon notifications during run-time. Additional command line switches for setup package to control application verbosity mode are /verbose and /noverbose

Ex.: SetupClone.exe /z"/verbose" to enable tray balloon notifications.

The registry value named "Verbose" of type REG_DWORD under
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC64\Parameters key (on 64-bit versions of Windows) or

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC32\Parameters (on 32-bit versions of Windows). A restart of Targus MAC Address Clone Tray Application (not the service) will be required for this option to take effect.

Please note, in this version of utility verbose mode is disabled by default and no registry edits are required after update to suppress balloon notifications.

SourceType

The preferred physical media type of the network adapter can be specified which the Targus MAC Address Clone Utility service will use as MAC Address source for replacement. Choices are one of the following 'SourceType' (REG_DWORD) values:

14 – (Hexadecimal 0x0E), NdisPhysicalMedium802_3 - The Ethernet (802.3) physical medium (default)

9 - (Hexadecimal 0x09), NdisPhysicalMediumNative802_11 - Native 802.11 Wireless LAN physical medium.

10 – (Hexadecimal 0x0A), NdisPhysicalMediumBluetooth – Bluetooth Network physical medium.

This option can be set during installation or from the Command Line:
SetupClone.exe /z"-wired" or SetupClone.exe /z"-wireless" or SetupClone.exe /z"-bluetooth"

Alternatively this change can be made in the corresponding registry entry after the application is installed:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC64\Parameters\SourceType (on 64-bit versions of Windows) or
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC32\Parameters\SourceType (on 32-bit versions of Windows)

When changing the value of this setting directly in the registry, any value from 0 (NdisPhysicalMediumUnspecified) to 20 (NdisPhysicalMediumMax) may be specified.

Note: Setting this option to an incorrect value or a value for a non-existent adapter does not produce an error. Consult Windows DDK documantation for values of NDIS_PHYSICAL_MEDIUM enumaration.

A restart of the Targus MAC Address Clone Utility service or PC reboot will be required in order for this option to take effect.

UpdateEnabled

This option enables or disables the Targus MAC Address Clone Utility update functionality by choosing one of the following UpdateEnabled (REG_DWORD) values:

0 = Targus MAC Address Clone Utility update is disabled (default)

1 = Targus MAC Address Clone Utility update is enabled

This option can be set during installation or on the Command Line:

SetupClone.exe /z"-update" or SetupClone.exe /z"-noupdate"

Following installation changes to the corresponding registry entry can be performed:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC64\Parameters\UpdateEnabled (on 64-bit versions of Windows) or
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC32\Parameters\UpdateEnabled (on 32-bit versions of Windows)

A restart of the Targus MAC Address Clone Utility service or PC reboot will be required in order for this option to take effect.

Tray Off

This option hides the Targus MAC Address Clone Utility 'Tray Application' by choosing one of the following (REG_DWORD) values:

0 = Targus MAC Address Clone utility Tray Application" is visible (default)

1 = Targus MAC Address Clone utility Tray Application" is hidden

This option can be set during installation or on the Command Line:

This option enables hiding the Targus MAC Address Clone Utility Tray Application during Installation by using the Command Line option /z"-trayoff as in SetupClone.exe /z"-trayoff"

Following installation changes to the corresponding registry entry can be performed:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC64\Parameters\TrayOff (on 64-bit versions of Windows) or
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\TMCSVC32\Parameters\ TrayOff (on 32-bit versions of Windows)

A restart of the Targus MAC Address Clone Utility service or PC reboot will be required in order for this option to take effect.

TMAC Logging

This option causes a log file to be built that before MAC Address Cloning, the Targus MAC Address Clone Utility (TMAC) will write to a file on the host (it creates the file as necessary named "Dock History.txt". The file will contain:

1. The local Data and Time (from the PC).
    a. Time is 24 hour with current Time zone HH:MM:SS format .
    b. Date format is zone dependent. Ex. US -> MM/DD/YYYY and India -> DD/MM/YYYY.
2. The full MAC Address of the Targus dock (before cloned) in Octets, XX:XX:XX:XX:XX:XX,
3. And if there was an active ethernet connection (cable connected at dock and to switch) T/F.

This option can be set during installation, update, or on the Command Line:

To activate: install/update using "/log" command-line option to setup package, i.e. SetupClone.exe /z"/log" OR

add/edit registry value named “Log” of type REG_DWORD under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TMCSVC64\Parameters” registry key and set its value to “1”, then restart the Targus Clone MAC Address service;

to deactivate: install/update using “/nolog” command-line option to setup package, i.e. SetupClone.exe /z”/nolog”
OR
add/edit registry value named “Log” of type REG_DWORD under “HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TMCSVC64\Parameters” registry key and set its value to “0”, then restart the Targus Clone MAC Address service;

Disable TMAC for non-DisplayLink USB Ethernet

Many Targus and Hyper products use varying USB Ethernet solutions. Other companies and Targus competitors also utilize these same solutions however supporting drivers may vary and as such functionality varies accordingly. Some Targus, Hyper, and other brands of docking stations and adapters may not function with TMAC installed, or their functionality may be unexpectedly limited by TMAC.

To disable TMAC in these situations a new command line option was added staring with TMAC v.1.01.033. This option enables TMAC for Targus DisplayLink MAC based docks but TMAC is not enabled for non-Targus DisplayLink devices. By default Targus DP Alt. Mode docks are included in TMAC function, but by implementing this setup option Targus DP Alt. Mode docks and other brands utilizing the same USB GbE adapters will be ignored by the program, and therefore their associated GbE MAC will not be cloned.

This option can be set during installation or on the Command Line in example:

SetupClone.exe “/noaltmode”

The corresponding registry setting for this option is:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\TMCSVC64\Parameters\NoAltMode of type REG_DWORD; set this value to 1 to disable DP Alt. Mode docks support. Setting this value to 0 or deleting it enables DP Alt. Mode docks support.

Silent Installation/Deployment

For deployment of the Targus MAC Address Clone Utility across multiple machines the Targus MAC Address Clone Utility setup supports an unattended setup mode by using the Command Line option “-silent”:
SetupClone.exe /z"-silent"

Several options may be specified during setup or update providing the Targus MAC Address Clone Utility parameters along with unattended setup mode by using a Command Line entry as:
SetupClone.exe /z"-silent -enable -bluetooth" or SetupClone.exe /z"-silent –disable -wireless"

In order to suppress installer windows completely, use additional command line switch "/hide_progress" to setup binary, i.e. - SetupClone.exe /hide_progress /z"-silent -wireless -trayoff -noaltmode"

Silent UnInstallation

In order to suppress the uninstaller windows completely, use command line switch "/hide_progress" to setup binary, i.e. - SetupClone.exe /hide_progress /z"-silent"

What it Does

Targus MAC Address Clone Utility Service

The Targus MAC Address Clone Utility is installed and runs as a service which is configured to start automatically. In the case where a user with administrative privileges stops the Targus MAC Address Clone Utility the service then will restart automatically on reboot.

On 'start-up' the service first tries detecting an administratively enabled Targus Giga Ethernet network adapter (Windows device of class "Network Adapter" with proprietary Vendor ID (VID) 17E9 and Product ID (PID) 4306 or 4361).

Please note: The Targus MAC Address Clone Utility service will ignore administratively disabled Targus Giga Ethernet network adapters. If a Targus Giga Ethernet network adapter is not present, the Targus MAC Address Clone Utility service will go to sleep until it receives notification about the arrival of devices matching the class "Network Adapter".

Once a Targus Giga Ethernet adapter arrives (as a result of Targus Docking Station connection) the Targus MAC Address Clone Utility service will attempt looking for a network adapter it can use as MAC Address source for replacement. The Targus MAC Address Clone Utility service will first try to find an adapter with a physical media type specified in the "SourceType" configuration registry setting. In any case where a network adapter with the desired physical media type does not exist (or is not detected) the Targus MAC Address Clone Utility service will then attempt finding a network adapter with Wired Ethernet, Wireless Ethernet and Bluetooth physical media type in listed order. If no adapter of the above listed physical media type is found, the Targus MAC Address Clone Utility service will stop searching for a source adapter, and will wait for the next network adapter arrival notification.

Once an adapter with the desired (expected) physical media type is found the Targus MAC Address Clone Utility service attempts retrieving the adapter's MAC address. When the MAC address retrieval operation succeeds the Targus MAC Address Clone Utility service uses this value in its replacement operation; otherwise it discards the adapter and continues the search.

The Targus MAC Address Clone Utility service may use administratively disabled network adapters as MAC address replacement source.

The Targus MAC Address Clone Utility service ignores the connection status of the Targus Giga Ethernet network adapter (Targus Giga Ethernet network adapter assumed always connected).

The Targus MAC Address Clone Utility service will disable (if enabled) network adapters which it uses as replacement MAC address source to avoid a MAC address conflict.

The Targus MAC Address Clone Utility service will replace the MAC address of a Targus Giga Ethernet network adapter by writing the new MAC address value into the Windows Registry and reloading the Targus Giga Ethernet network adapter.

Once the Targus Giga Ethernet MAC address is replaced the Targus MAC Address Clone Utility service will sleep until a Windows device of class “Network Adapter” removal notification occurs.

Once the Targus Giga Ethernet will be removed (as a result of Targus Docking Station disconnection) the Targus MAC Address Clone Utility service will reset the MAC address of a Targus Giga Ethernet network adapter by deleting the MAC address value in Windows Registry and reloading the Targus Giga Ethernet network adapter (this appears not to be required on Windows 10 and later).

The Targus MAC Address Clone Utility Tray Application

Along with the Targus MAC Address Clone Utility service the setup sequence installs the Targus MAC Address Clone Utility Tray Application, which provides information about replacement state and status allowing users without administrative privileges to control the Targus MAC Address Clone Utility service functionality through enabling and disabling.

The Targus MAC Address Clone Utility Tray Application is set to start automatically for every interactive session.

The Targus MAC Address Clone Utility Tray Application provides information about the replacement state and status by changing a notification icon, tooltip text and by displaying notification balloons.

The Targus MAC Address Clone Utility Tray Application allows users without administrative privileges to enable or disable the Targus MAC Address Clone Utility service functionality by selecting a corresponding option from a context pop-up menu, available on right-button mouse click on the Targus MAC Address Clone Utility Tray Application icon, located in the Windows taskbar notification area.

Icon	Severity	Description/Required Response
	Error	Targus MAC Address Clone Utility service is not installed. Reinstall the application.
	Warning	Targus MAC Address Clone Utility service is installed but not started. Start the service.
	Information	Targus MAC Address Clone Utility service is installed and started but disabled. Enable Targus MAC Address Clone Utility from context menu.
	Information	Targus MAC Address Clone Utility service is installed, started and enabled. Connect Targus Docking Station.
	Information	Targus MAC Address Clone Utility service is installed, started and enabled. Targus Docking Station is connected and MAC Address of Targus Giga Ethernet Adapter is replaced (spoofed, cloned).

Task Tray Icon Functionality

If the Tray Application is enabled, users can Right Click on the task tray icon and then left click to Disable the utility, Disable/Enable Cloning, check for updates to the utility (updates are not part of Windows Update), determine the version via the About, or Exit the utility.

Support

Support is available through phone and/or email. Please don't hesitate to contact us with any questions or issues.