

Upgrade Procedure:

TTM 01-E & N1

Current Release

The Universal Upgrade Tool will upgrade your TCG 01-E, TCG 02-E, or TTM 01-E to the following revision:

Current Firmware: 2.040

This Upgrade Procedure only applies to clocks with the following range of firmware revisions:

Firmware: 1.003 and above

Please double check that your clock revision matches the above table. If you are unsure please contact support@tekron.com and we will get back to you within 1 working day.

Requirements

- **Operating System:** Microsoft Windows XP, Vista, 7 or 8
- **Software:** Universal Upgrade Tool and the current Tekron Ethernet Configuration Tool
- **Microsoft .NET:** Microsoft .Net version 4 or higher

Notes

- **Static IP:** Clocks must be configured with a valid static IP Address that is accessible by your PC.
- **Firewalls:** Exceptions should be added for the items below. Please consult your IT team before changing any firewall settings.
 - The Tekron Configuration Tool and the Universal Upgrade Tool
 - The broadcast address 255.255.255.255 and default address 0.0.0.0
 - UDP packets on ports 9990, 9992, 9997 and 9999
 - For complex Ethernet networks please check with your network administrator to ensure that managed network devices do not block the network packets required for the upgrade process.
- **Firmware 1.401 and below:** The Universal Upgrade Tool will not 'Discover' the clock. See the Trouble Shooting section 1.6 for the upgrade procedure.
- **Firmware 2.017 and below:** The Universal Upgrade Tool will pause during upgrade and request that the clock power to be manually reset.
- **Firmware up to and including 2.027:** The clock can only be upgraded if it is connected to the local subnet.
- **Firmware post 2.027:** The clock can be remotely upgraded through multiple subnets.

Ethernet Upgrade Procedure

1. **Check Firewall:** Check that the upgrade PC does not have a firewall, or other security software, that will block broadcast messages (applicable to clocks with existing firmware prior to 2.031) or UDP packets on ports 9990, 9992, 9997 and 9999.
2. **Connect to the clock:** For clocks with firmware versions prior to 2.031 the upgrade PC will need to be on the same local subnet as the clock (2.031 and later support remote upgrades). The best setup is to use a standard (not managed) Ethernet switch to connect the clock to the PC.
3. **Check for Static IP Address:** Use the latest Tekron Configuration Tool to check that the clock to be upgraded has a static IP address. To check for a static IP address, go to the Network Tab and check that 'Static' is selected and the IP address and Netmask have been entered (Figure 1). Your PC should also be configured to a static IP address in the same address range.

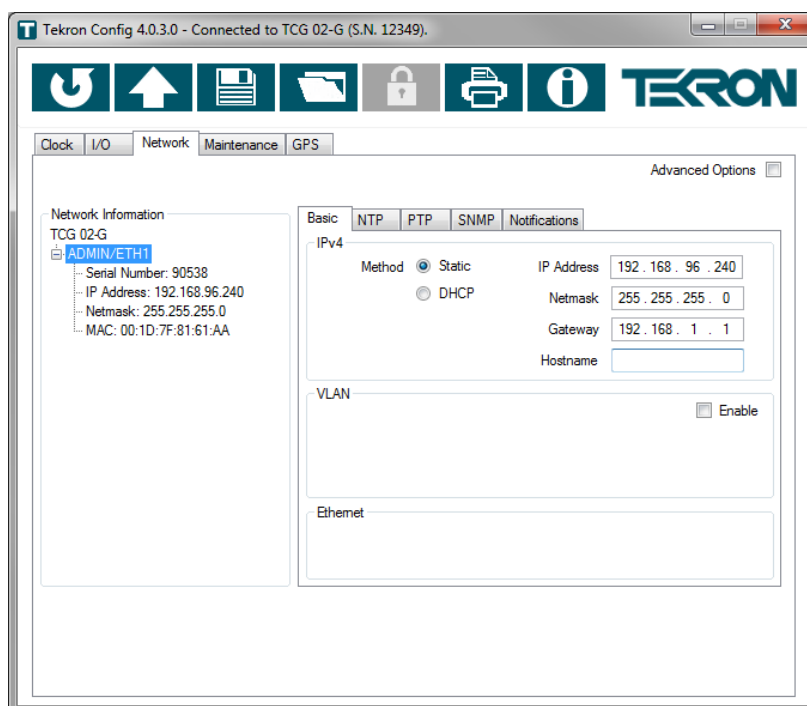


Figure 1. Setting a Static IP Address

4. **Find Clocks:** Open the Universal Upgrade Tool and press Discover to list all clocks present on the local subnet. To add a clock on a remote subnet, double click on 'add...' and enter the IP address of the clock you wish to upgrade.
5. **Begin Upgrade:** Select all the clocks that you wish to upgrade, and press **Upgrade** to begin the upgrade procedure.

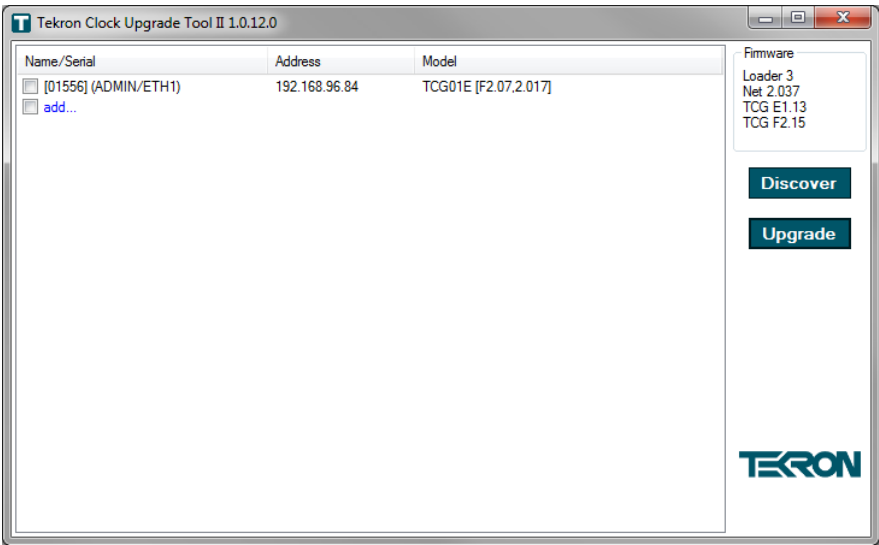


Figure 2. Selecting a clock to upgrade

6. **Power Cycle:** Clocks which have the firmware 2.017 (or earlier) may be requested to power cycle the clock (Figure 4). Refer to the trouble shooting section for help if the upgrade does not continue after the power is cycled.

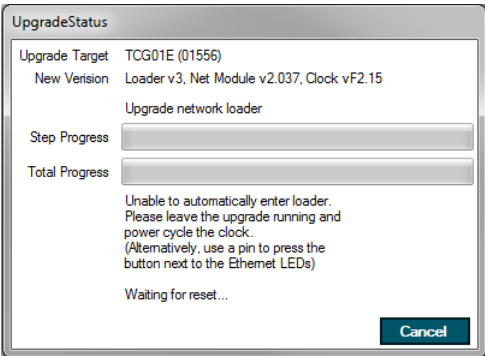


Figure 3. Cycle the power

7. **Upgrading:** The Universal Upgrade Tool will show a progress bar indicating the upgrade status. If multiple clocks are being upgraded a results window will show the status of each clock (Figure 4).

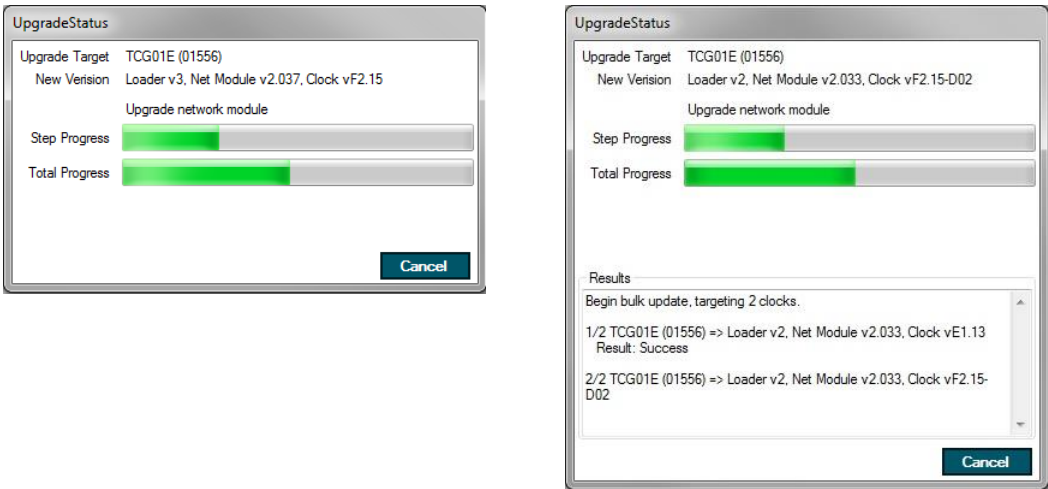
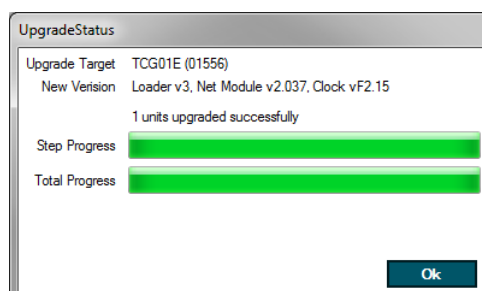


Figure 4. Upgrade Progress (Left: Single Clock Upgrade, Right: Multiple Clock Upgrade)

8. **Success:** Once the clock has upgraded an upgrade successful message is displayed



Trouble Shooting

1. **Failed to Discover Clock:**

- 1.1. **Retry Discover:** If the clock is connected to the local subnet then try the **Discover** button again. Any clocks that were not found during the first discovery attempt will be added to the list.
- 1.2. **Clock Add:** If the clock is connected to a remote subnet then double click on 'add...' and enter the clocks IP address. Note that only clocks with firmware 2.027 and above can be upgraded across multiple subnets.
- 1.3. **Check Network Settings:** If the clock is on the same subnet as your PC you will need to check that the clock and PC have the same netmask (subnet mask) and appropriate IP addresses. For example, if your PC has IP address 192.168.1.1 and netmask 255.255.255.0 then the clock should be given an IP address in the range 192.168.1.2 to 192.168.1.254 and the netmask 255.255.255.0 .
- 1.4. **Check Firewall Settings:** Your PC firewall or security software may be blocking the upgrade. To allow the upgrade to continue all firewalls will need to be configured with the exceptions listed under the Notes section on page one. Alternatively your firewall can be disabled for the duration of the upgrade. (Please consult your IT team before changing any firewall settings)
- 1.5. **Direct Connect to the Clock:** Some network devices will block the UDP ports or broadcast messages sent by the upgrade tool. To avoid the need to reconfigure your network devices you can connect the clock directly to your PC with a crossover Ethernet cable. Remember to check that the clock is configured with a static IP address on the same subnet as your PC.
- 1.6. **Firmware 1.401 and below:** Older clocks with firmware revision 1.401 and below will not be found when Discover is pressed. Press Upgrade with no other clocks selected in the tool. You will be prompted to cycle the power of the clock you wish to upgrade. The upgrade will continue as normal.

2. **Did Not Upgrade After Power Cycle:**

If the upgrade does not start after power cycling the clock your network settings may be incorrect. Alternatively, the upgrade may be blocked by a firewall or a device on your network.

- 2.1. **Check Network Settings:** Ensure that the clock and PC are configured with static IP addresses. Also check that the clock and PC have the same netmask (subnet mask) and appropriate IP addresses. For example, if your PC has IP address 192.168.1.1 and netmask 255.255.255.0 then the clock should be given an IP address in the range 192.168.1.2 to 192.168.1.254 and the netmask 255.255.255.0 .
- 2.2. **Check Firewall Settings:** Your PC firewall or security software may be blocking the upgrade. To allow the upgrade to continue all firewalls will need to be configured with the exceptions listed under the Notes section on page one. Alternatively your firewall can be disabled for the duration of the upgrade. (Please consult your IT team before changing any firewall settings)

- 2.3. **Direct Connect to the Clock:** Some network devices will block the UDP ports or broadcast messages sent by the upgrade tool. To avoid the need to reconfigure your network devices you can connect the clock directly to your PC with a crossover Ethernet cable. Remember to check that the clock is configured with a static IP address on the same subnet as your PC.
- 2.4. **Use a simple network switch:** If steps 2.1- 2.3 did not resolve the issue then your PC may be taking too long to register a network connection after the clock restarts. This can be resolved by using a simple network switch to connect to the clock (Or by using a different PC for the upgrade). Note that the switch will need to pass all broadcast network traffic.

3. **Upgrade Failed to complete**

It is important to note when a clock upgrade fails, that you need to retry the upgrade to ensure that the clock is fully upgraded.

- 3.1. **Retry the Upgrade:** Follow the Upgrade Procedure above to retry the upgrade.
- 3.2. **Cycle the power:** If the clock cannot be successfully upgraded a power cycle may be necessary to reinitialise the clock.
- 3.3. **Press Discover:** An upgrade fault may cause the clock IP address to default to a link local address (169.254.xxx.xxx) or an unassigned address of 0.0.0.0 . Press **Discover** to find the new IP address. See the Trouble Shooting section 'Clock IP Address has Changed' for more assistance.

4. **Clock Name has Changed**

If an error occurs during the upgrade the clock will be listed in the Universal Upgrade tool with its MAC address as its name. The upgrade should be run again following the Upgrade Procedure above. Once the unit has successfully upgraded the clock name will be restored.

5. **Clock IP Address has Changed**

If an error occurs during the upgrade the clock may default to a link local address (169.254.xxx.xxx) or an unassigned address of 0.0.0.0.

- 5.1. **Retry the Upgrade:** Follow the Upgrade Procedure above to retry the upgrade. Note that the original IP address will be recovered and may cause the upgrade to fail. If this happens, press **Discover** to find the new IP address and retry the upgrade.
- 5.2. **Connect to the Clock Directly:** Connect the clock to you PC directly using a crossover Ethernet cable.
- 5.3. **Change Network Adapter Settings:** If the IP address has changed to be a link local address (169.254.xxx.xxx) you may need to change your PC IP address to a link local address and the netmask 255.255.0.0 . Note that the original IP address will be recovered and may cause the upgrade to fail. If this happens, press **Discover** and then retry the upgrade. You may also need to change you IP address and netmask to match the original network configuration.

6. **Ethernet Light is Flashing Rapidly**

The Ethernet light (Located next to the Ethernet port) will flash rapidly if a failure occurs during the upgrade.

- 6.1. **Retry the Upgrade:** Follow the Upgrade Procedure above to retry the upgrade.
- 6.2. **Connect to the Clock Directly:** Connect the clock to you PC directly using a crossover Ethernet cable.
- 6.3. **Check Firewall Settings:** A firewall may be blocking the broadcast network packets from the clock. Check that all firewalls have either been disabled or configured with the exceptions listed under Notes on page one. (Please consult your IT team before changing any firewall settings)
- 6.4. **Connect the Clock to a Network Switch:** Some PC network adapter cards may have difficulty recognising the clock when the Ethernet light is flashing rapidly. This can be resolved by connecting to the clock via a network switch or by using an alternative PC.



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