NEPTUNE SYSTEMS

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control.

APEX

APEX Cloning Guide

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INTRODUCTION

On occasion, due to a failure or water damage it may become necessary to replace an APEX, APEX LITE, or APEX JR with another controller.

In APEX-family firmware version 4.40 and newer, a special mode has been added to facilitate cloning an APEX configuration. This is called REPLACEMENT MODE. REPLACEMENT MODE, in conjunction with the Load/Save features of the APEX, will allow you to quickly and easily swap one APEX base unit with another APEX base unit or swap an APEX JR with another APEX JR, and preserve all existing programming, profiles, AquaBus module addresses, and most other APEX settings.

The cloning process and APEX REPLACEMENT MODE may only be used for direct replacement of an **identical** controller model. It cannot be used as an upgrade or migration tool if changing from one model of APEX to another, such as upgrading from an APEX JR to an APEX or upgrading from an APEX LITE to an APEX.

Note: The label on the face of the controller does not matter; an APEX or APEX JR with an old black label and an APEX or APEX JR with the newer white label both have the same hardware, so the label color is not a factor when using this document.

The procedures in this Guide are designed to cover a wide variety of different system configurations and home or business network environments, and to accommodate Apex users of all experience and knowledge levels. Consequently, these procedures are very detailed, but please do not be intimidated or discouraged. Experienced APEX users can do this entire process in 15-20 minutes; less-experienced APEX users will likely require a bit more time.

NOTE: Currently, it is not possible to migrate historical data stored in the Apex or in APEX Fusion from one Apex to another. This applies to:

- Logged probe measurement data
- Logged outlet activity data
- DŌS activity data

*Regardless of your experience level, it is **crucia**l that these procedures be followed exactly and that no steps be skipped or abbreviated.*

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REQUIREMENTS

There are three critical requirements which must be met before using this procedure and REPLACEMENT MODE:

1. You must already have, or be able to make a configuration backup file from the original APEX
2. You must have a functional APEX display module
3. The new APEX must be of the exact same model as the APEX being replaced

There is one more requirement applicable only to APEX base units – this does not apply to APEX JR:
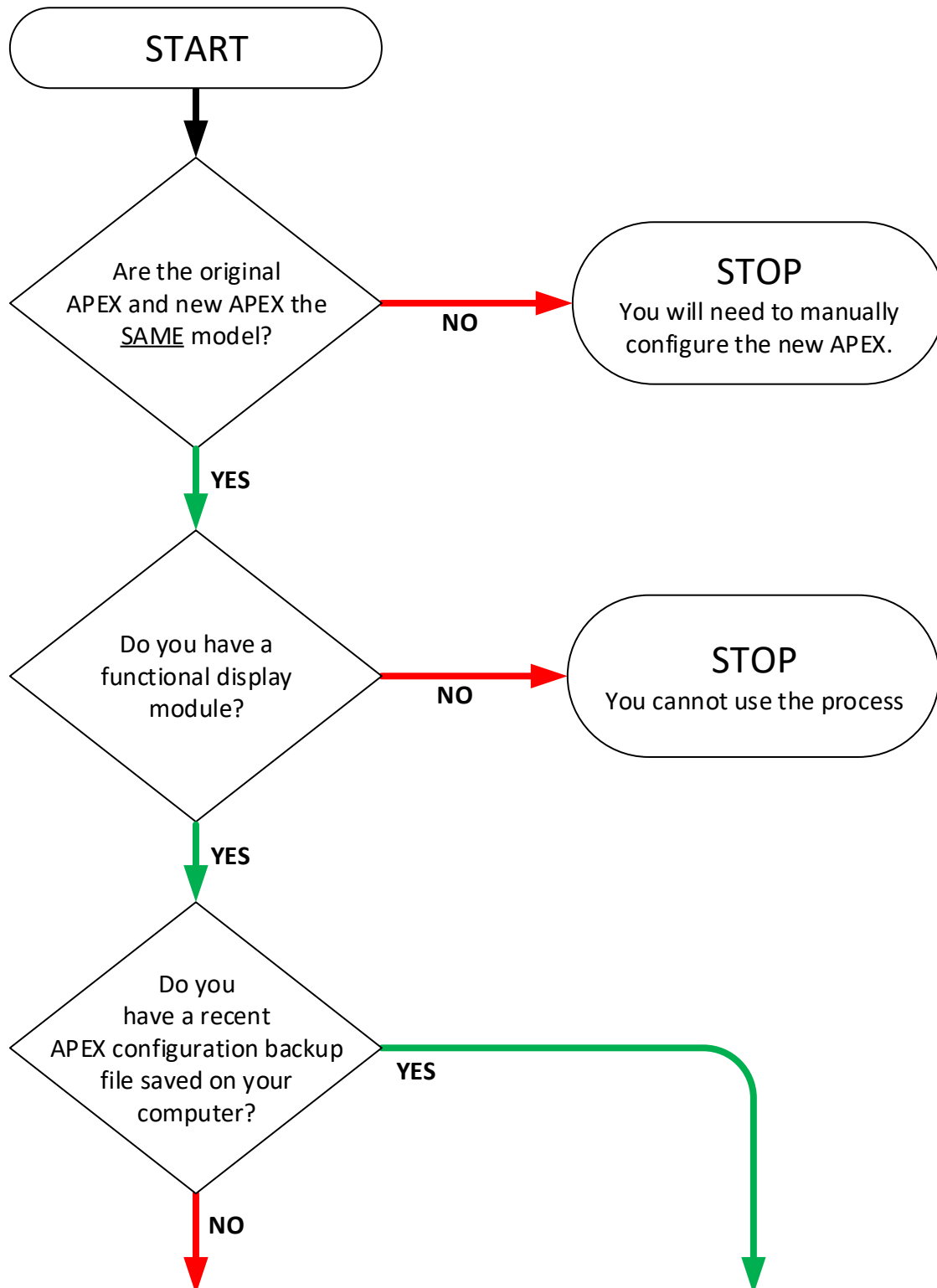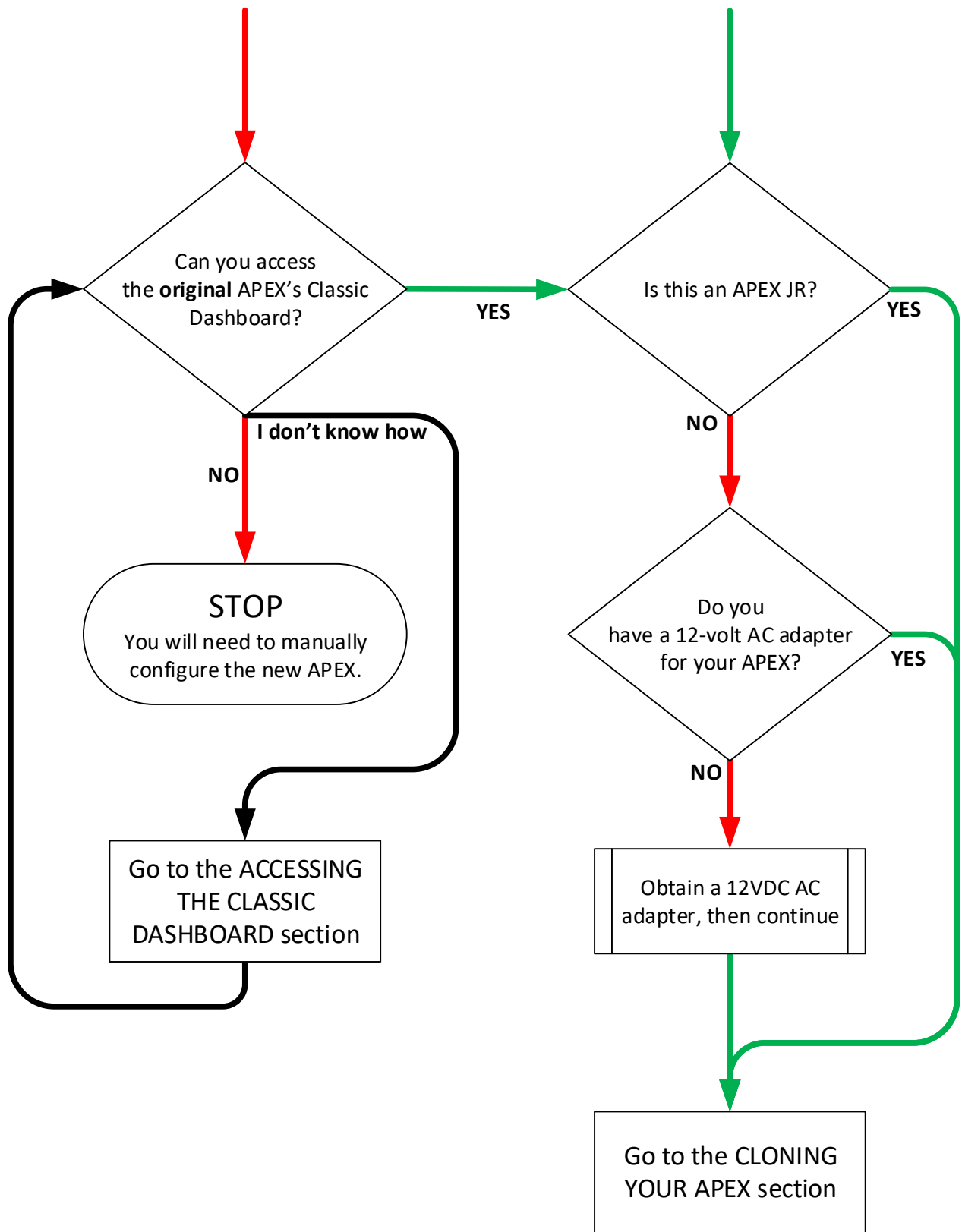
4. You must have a 12-volt AC adapter for APEX

Additionally, this process requires the use of a desktop or notebook computer running Windows or Mac OS.

If you use an APEX but do not have a 12-volt adapter:

- You may purchase one directly from Neptune Systems
- You may purchase one from your preferred reseller of Neptune Systems products
- You may acquire and use one from other sources if it meets these specifications:
  - 12-volt DC output
  - 2.1mm plug
  - Plug has positive (+) on the center pin
  - DC output rating is 0.5 amps (500 milliamps), or greater
- Many home Internet routers, other home network gear, and some consumer electronics use similar AC adapters; you might already have one on hand which may be used temporarily during the cloning process.

Use the flow chart on the next page to determine if you can use the cloning procedure.

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START

Are the original APEX and new APEX the <u>SAME</u> model?

NO → STOP
You will need to manually configure the new APEX.

YES

Do you have a functional display module?

NO → STOP
You cannot use the process

YES

Do you have a recent APEX configuration backup file saved on your computer?

YES →

NO ↓

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Can you access the **original** APEX's Classic Dashboard?

YES

Is this an APEX JR?

YES

NO

I don't know how

NO

STOP
You will need to manually configure the new APEX.

Go to the ACCESSING THE CLASSIC DASHBOARD section

Do you have a 12-volt AC adapter for your APEX?

YES

NO

Obtain a 12VDC AC adapter, then continue

Go to the CLONING YOUR APEX section

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ACCESSING THE CLASSIC DASHBOARD

DO NOT USE MOZILLA FIREFOX OR MICROSOFT EDGE BROWSERS DURING THE CLONING PROCESS

Mozilla Firefox is fine to use for accessing an APEX's Classic Dashboard in everyday use, but during the APEX cloning process, the most recent version of Firefox will not work. Microsoft Edge (included in Windows 10) also has known issues. If you use a Windows computer, use Google Chrome or Microsoft Internet Explorer. If you use an Apple Mac computer, use Google Chrome of Apple Safari. Neptune Systems recommends the use Chrome in either case.

1. To access the Classic Dashboard of an APEX (any model), follow these steps:
   a. If using an Apple Mac computer, continue to Step 2.
   b. If using a Windows computer, type http://apex in your web browser's address bar and press ENTER.
      i. If you get a 404 or Page Not Found error, continue to Step 2
      ii. If you get a login prompt that looks similar to this, skip to Step 4:
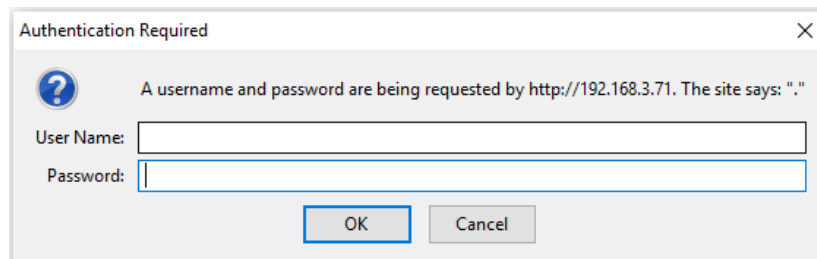
2. Use your display module to find the IP address of the APEX:
   a. Press the center button once
   b. Press the down arrow button 3 times to scroll to **System**

   c. Press the center button once
   d. Press the down arrow button once to scroll to **Net Setup**

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e. Press the center button
f. Press the down arrow button to scroll to **IP Address**

g. Press the center button once
h. Note the IP address shown

i. Press the center button once
j. Press the up arrow button 3 times to scroll to **HTTP PORT**

k. Note the HTTP Port number shown. In most cases, it will be "80".
3. In your web browser's address bar, enter the address of the APEX in this format:

http://ip-address

Do not enter any spaces. For example, if the display shows `192.168.   1.  20`, enter the IP address in your browser address bar like this:
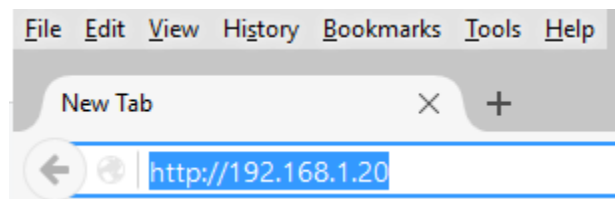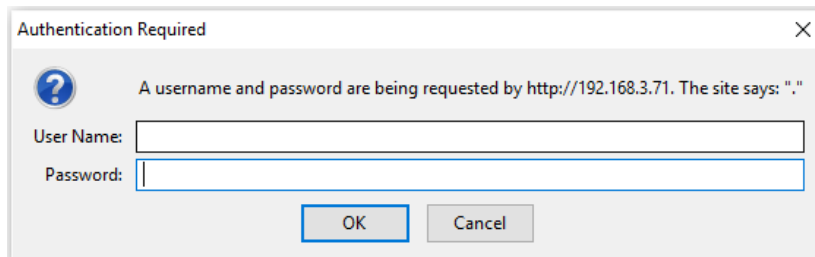

a. If the HTTP port noted previously is something other than 80, add a semicolon and that port number after the IP address in your address bar, like this:

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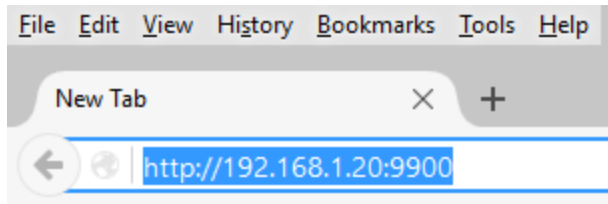
b. Press the ENTER key on your computer keyboard.

4. You should be presented with a logon prompt like this:

5. Enter the username and password for your Apex. *This might not the same username and password as you use for APEX Fusion*. If you do not know the APEX's username and password, try username 'admin' and password '1234'.

6. After login, you should now see a web page similar to this:
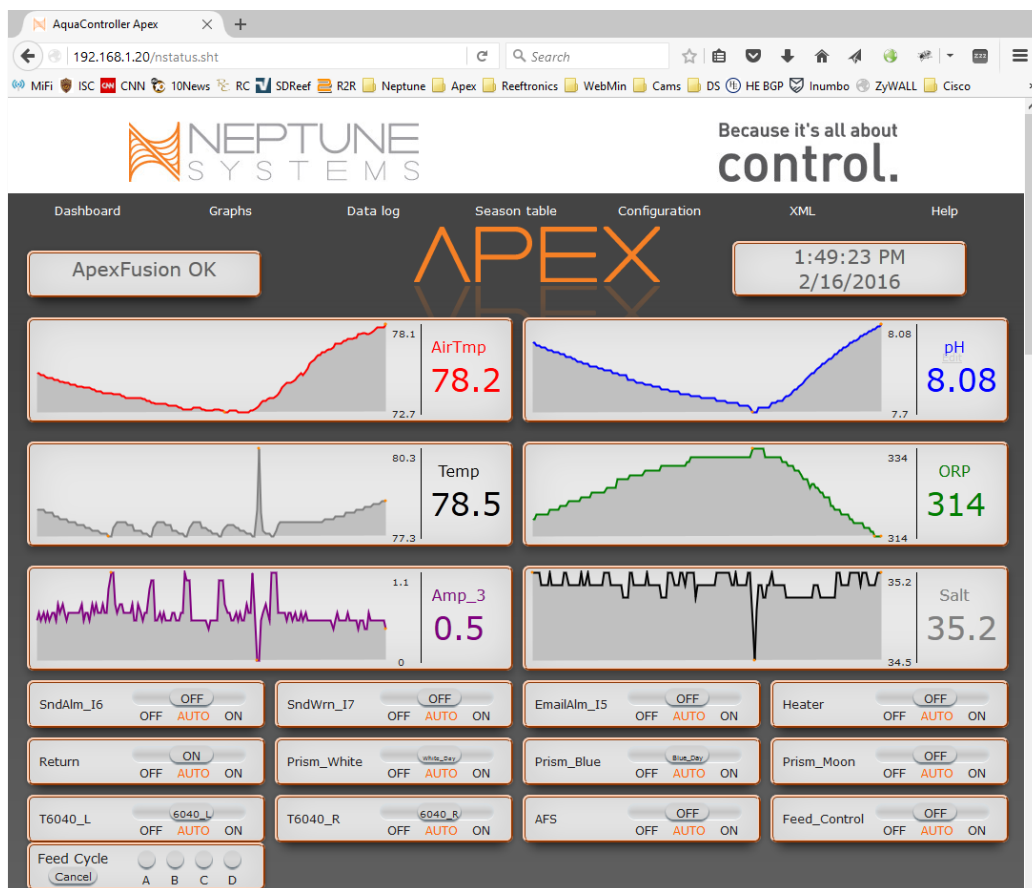
7. You have successfully accessed the Classic Dashboard. Proceed to the next section.

CLONING YOUR APEX

REVIEW THIS SECTION COMPLETELY BEFORE ACTUALLY DOING ANYTHING WITH THE NEW/REPLACEMENT APEX.

DO NOT DISCONNECT ANY MODULES FROM THE OLD APEX UNTIL DIRECTED.

DO NOT CONNECT ANY MODULES TO THE NEW APEX OR APPLY POWER TO THE NEW APEX UNTIL DIRECTED.

**DO NOT USE MOZILLA FIREFOX OR MICROSOFT EDGE BROWSERS DURING THE CLONING PROCESS**

Mozilla Firefox is fine to use for accessing an APEX's Classic Dashboard in everyday use, but during the APEX cloning process, the most recent version of Firefox will not work. Microsoft Edge (included in Windows 10) also has known issues. If you use a Windows computer, use Google Chrome or Microsoft Internet Explorer. If you use an Apple Mac computer, use Google Chrome of Apple Safari. Neptune Systems recommends the use Chrome in either case.

NOTE: Throughout this procedure, "APEX" generally means all models of APEX-family controllers. Where there are differences which apply only to Apex base units or only to APEX JR, the terms "APEX base unit" and "APEX JR" will be used to differentiate as needed.

Create a configuration backup of the OLD APEX

1. Do one of the following:
    *   If you can still access the **old** APEX's Classic Dashboard, proceed to Step 2
    *   If you have a recently-saved configuration backup file saved on your computer **AND** you cannot access the Classic Dashboard of the OLD APEX, skip ahead to *Prepare the NEW APEX*.
2. Using the Classic Dashboard, browse to the Configuration->Load/Save page
3. Click the **Save Apex Configuration** button
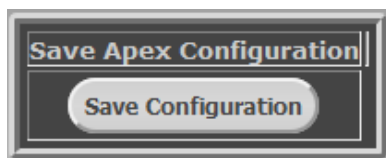
4. Save the file in the computer's Downloads folder. The default file name is 'apexcfg.bin'. It is recommended that you change this name to include the current date, such as 'apexcfg_02FEB2016.bin' when saving the file to your computer.

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5. Got to Configuration->Misc Setup and make a screen shot of the Feed Interval settings, or jot them down.
6. Got to Configuration->Network Setup and make a screen shot of the network settings, or jot them down.
7. If you have customized the Season Table in the **old** Apex, make a screen shot of the Season Table page.

Prepare the NEW APEX

DO NOT DISCONNECT ANY MODULES FROM THE OLD APEX UNTIL DIRECTED.

DO NOT CONNECT ANY MODULES TO THE NEW APEX UNTIL DIRECTED.

1. Remove the **new** APEX from the packaging.
2. Disconnect ONLY your display module from the **old** APEX and connect it to an AquaBus port on the **new** APEX. **DO NOT CONNECT ANY OTHER MODULES TO THE NEW APEX YET, and DO NOT DISCONNECT ANY MODULES FROM THE OLD APEX OR FROM OTHER MODULES**.
3. Disconnect the network cable from the **old** APEX and use that same cable to connect the **new** APEX to your network.
4. Power up the new APEX or APEX JR
   - For APEX base units: Connect the 12-volt AC adapter to the POWER jack on the **new** APEX, and plug the 12-volt AC adapter into a regular electrical outlet.
   - For APEX JR: Plug the APEX JR power cord into a regular electrical outlet.
5. Wait until the Status LED on the face of the **new** APEX is lit solid green.
6. Using the display menu, reset the **new** APEX to factory defaults.
   a. Press the center button once.
   b. Use the down button to scroll to **System**.
   c. Press the center button once.
   d. Use the up button to scroll to **Init Memory.**
   e. Press the center button once.
   f. Scroll to **Init All** if needed (it should already be selected).
   g. Press the center button once.
   h. Press the **Yes** button when prompted "*Are you sure*?".
   i. Wait until the Status LED on the face of the **new** APEX goes out then becomes lit solid green again.
7. Upgrade the **new** APEX's firmware and web pages to the latest version using the instructions and APEX firmware files available at https://www.neptunesystems.com/firmware/.
8. Using the display menu, update the **new** APEX bootloader.
   a. Press the center button once.
   b. Press the down button 3 times to scroll to **System.**
   c. Press up button 2 times to scroll to **Bootloader Update.**
   d. Press the center button once.
   e. The display might go blank for several seconds, or might just flash momentarily.

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f. Wait until the screen returns, then use the down button to scroll to **Net Setup**.
g. Press the center button.
h. Press the up button once to scroll to **Restart**.
i. The APEX will reboot; wait until the Status LED on the face of the APEX is lit solid green, then proceed to the next section.

## Restore the Configuration Backup on the NEW APEX

DO NOT DISCONNECT ANY MODULES FROM THE OLD APEX UNTIL DIRECTED.

**DO NOT CONNECT ANY MODULES TO THE NEW APEX UNTIL DIRECTED.**

1. Access the Classic Dashboard of the **new** APEX.   Refer back to the ACCESSING THE CLASSIC DASHBOARD topic for instructions if needed.
2. Browse to the Configuration->Load/Save page.
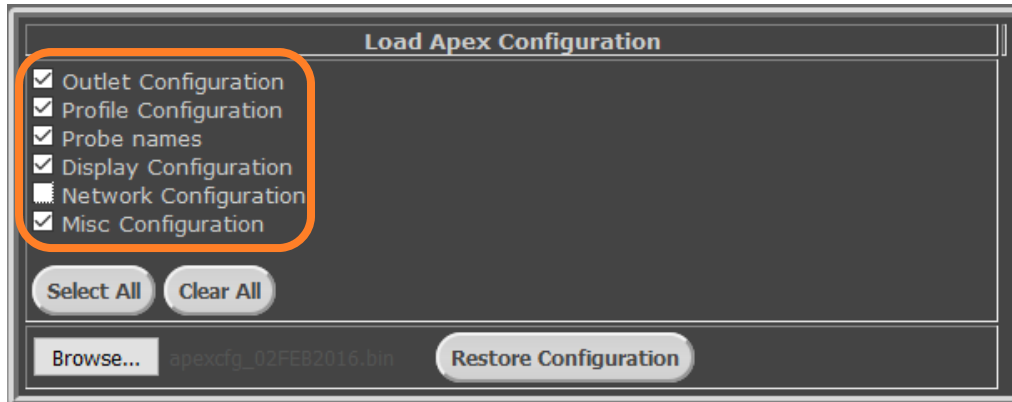3. Click the **Browse** button.

4. Locate the configuration backup file you saved previously. The filename will be 'apexcfg.bin' unless you saved it with a different name.   Select it, then click **Open** (or **OK**).
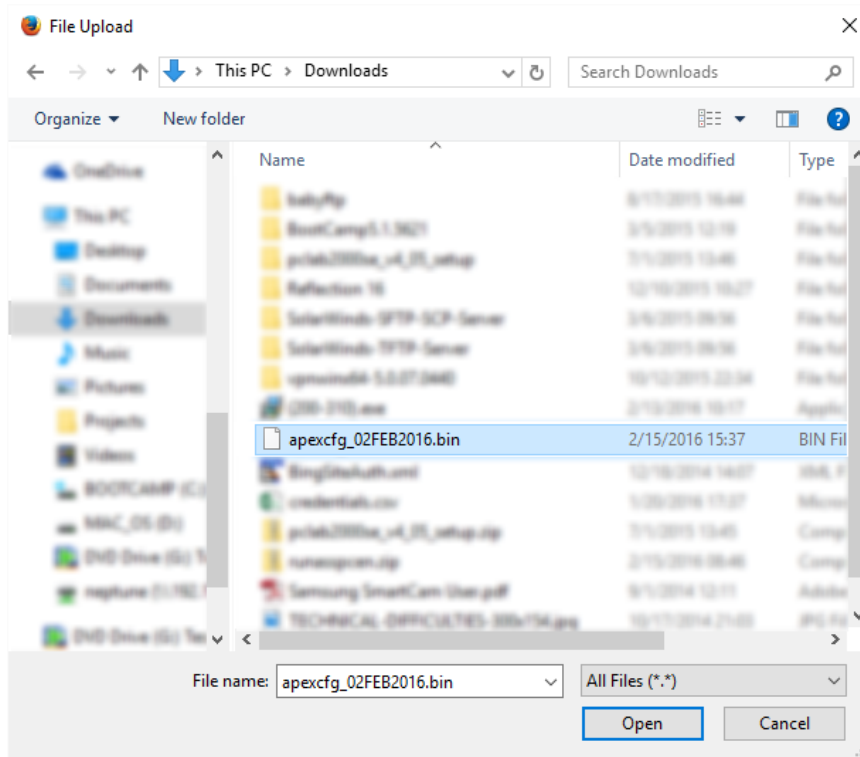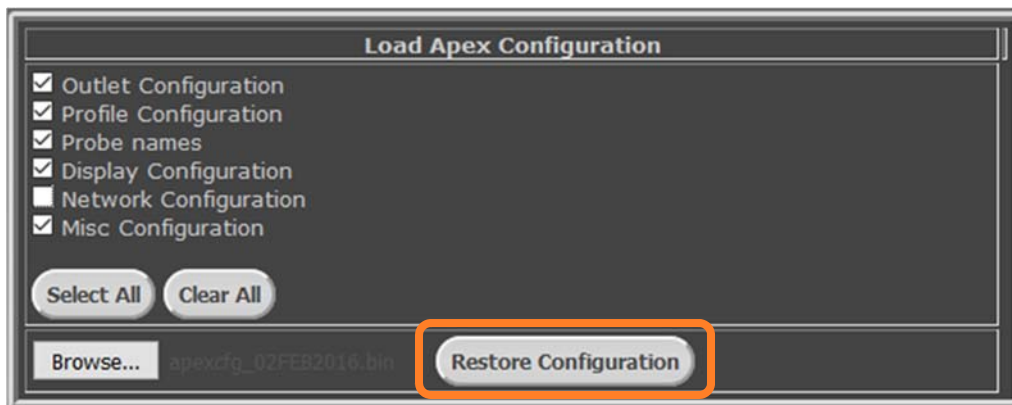
5. Verify that the selected backup file name appears in dim gray text to the right of the **Browse** button.
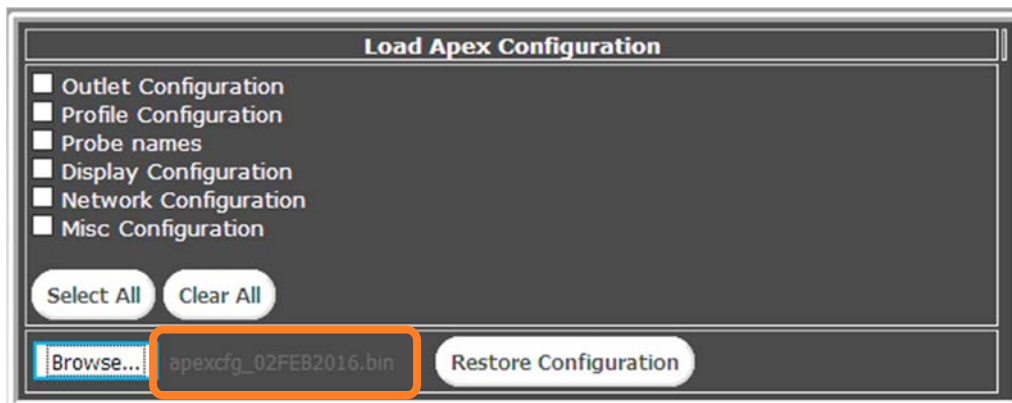
6. Click the **Select All** button. Verify that all options are selected, then de-select the Network Configuration option.
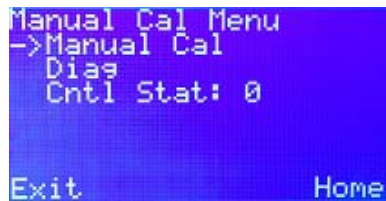
7. Click the **Restore Configuration** button.

8. Watch the status LED on the face of the **new** APEX. After a minute or two, the status LED will go out, then will flash orange for several seconds, and finally be lit solid green.
9. In the browser tab or window for the **new** APEX, click the Dashboard menu.
10. Verify that tiles appear on the Classic Dashboard for your probes and outlets, and have the names they had in the **old** APEX.
11. All outlets will be in AUTO. If you had any outlets in the **old** APEX set to manual OFF or manual ON (instead of AUTO) as the normal state, check the outlet sliders using the Dashboard page and change those outlets to the desired ON or OFF state.

Enable REPLACEMENT MODE in the NEW APEX

1. Using the Classic Dashboard (Configuration->Clock Setup), or using the display menu (System->Clock Setup), update the **new** APEX clock settings for the proper time zone and Daylight Saving Time settings for your geographic location.
2. Using the display module connected to the **new** APEX, enable REPLACEMENT MODE:
   a. Press the center button once.
   b. Press the down arrow 5 times to scroll to **Self Test.**
   c. Press the center button once.
   d. Press the up button twice.

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e. Press the down button twice.
f. Press the center button once.
g. The display screen should appear like this:

h. Press the down button once to scroll to **Diag**.
i. Press the center button once.
j. Press the down button twice to Replacement Mode, which usually will be **Off**.
     (The word "Off" will be truncated".)
k. If you received a replacement APEX base unit under RMA, REPLACEMENT MODE might already be enabled; if so, skip to Step 3.
l. Press the center button once.
m. The display will go blank briefly. When it returns to normal, it should indicate that Replacement Mode is now **On.**

3. Using the display module connected to the **new** APEX, delete the display module:
    a. Press the Home button.
    b. Press the Center button once.
    c. Press the down button 2 times to scroll to **Setup.**
    d. Press the center button once.
    e. Press the down button 2 times to scroll to **Module Setup.**
    f. Press the center button once.
    g. Press the down button 3 times to scroll to **Delete Module.**
    h. Press the center button once.
    i. A display (**Disp_#)** should be the only module listed and it should already be selected.
    j. Press the center button once.
    k. Press the **Yes** button, then disconnect the display module from the **new** APEX *immediately* after appears on the display screen.

4. Wait 5-10 seconds then:
    a. For APEX: disconnect the 12-volt AC adapter and network cable from the **new** APEX.
    b. For APEX JR: unplug the **new** APEX JR power cord and disconnect the network cable.

  REPLACEMENT MODE will be automatically disabled at midnight (00:00) per the Apex's clock. The next task must be completed before midnight of the day you enable REPLACEMENT MODE.

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Replace the OLD APEX with the NEW APEX

1. Disconnect the Aquabus cable(s) from the **old** APEX base unit or APEX JR.
2. If using an APEX JR, disconnect device power cords from the APEX JR's outlets, making note of which power cord is plugged into which outlet.
3. Disconnect any Temp, pH, and/or ORP probes from the **old** APEX. There is no need to disconnect probes from any Probe Modules, leak sensors from an ALD, power cords from EnergyBars, etc.
4. Dismount the **old** APEX if necessary.
5. Mount the **new** APEX as desired.
6. Connect any Temp, pH, and/or ORP probes to the **new** APEX.
7. Connect the network cable to the **new** APEX.
8. Connect the AquaBus cables that you disconnected in Step 1 to the **new** APEX. *Do NOT reconnect the display module yet*.
9. If using an APEX JR, plug the APEX JR power cord into an electrical outlet.
10. Wait at least 60 seconds.
11. If you previously had a 12-volt AC adapter connected to your **old** APEX base unit, reconnect it to the **new** APEX.
12. Connect the display module to any available AquaBus port of the **new** APEX system.
13. If using an APEX JR, plug device power cords into the same outlets previously used.

Disable REPLACEMENT MODE

1. On the display module connected to the **new** APEX, disable REPLACEMENT MODE:
   a. Press the center button once.
   b. Press the down arrow 5 times to scroll to **Self Test.**
   c. Press the center button once.
   d. Press the up button twice.
   e. Press the down button twice.
   f. Press the center button once.
   g. Press the down button once to scroll to **Diag.**
   h. Press the center button once.
   i. Press the down button twice to scroll to **Replacement Mode.**
   j. If it shows as **On**, press the center button to turn off. The display will go blank briefly. When it returns to normal, it should indicate that **Replacement Mode** is now **Off.**
2. Press the Home button to exit the menu system.

Additional Steps on the NEW APEX

- Calibrate the pH probe(s) on the **new** APEX base unit (not applicable for APEX JR).
- Using the Classic Dashboard, go to the Configuration->Misc Setup page.
  o Due to a software bug in some firmware versions, the setting for Feed Interval D might not have been transferred. Check and update the Feed Interval D value if needed.
  o Enable the Power Monitor feature **only** if you had used this feature with the **old** APEX.

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- Using the Classic Dashboard, go to the Configuration->Module Setup page. Look at the table on the lower section of the page. If any modules appear with **(OLD)** in the SW column, update the firmware on those modules using the upper part of that page. For any modules that show OLD:
    o Using the drop-down menu on the upper left part of the Module Setup page, select a module which shows (OLD).
    o After the page reloads, click to select **Update Firmware**
    o Click **Submit Module Update**
    o Watch the space just above the bottom table to see the status of the module firmware update process.
    o Repeat for any other module needing to be updated.
- Verify that APEX Fusion is enabled, and update other Network Settings. Using the Classic Dashboard, go to the Configuration->Network Setup page.   Configure any non-default network settings previously used on your **old** Apex.
    o Verify that the *Apex Fusion Enable* and *Apex Fusion Control Enable* options are both enabled. Enable both settings if they are disabled.
    o If your old APEX had a user-defined hostname, use the Classic Dashboard (Configuration->Network Setup) to change the **new** APEX's hostname as desired.
    o If you previously used a static IP address on your **old** Apex, you should now configure the **new** Apex accordingly.
    o If you previously used a non-standard HTTP port on your **old** Apex, you should now configure the **new** Apex accordingly.
    o Restart the APEX after any network settings are changed so these changes take effect.
      - If you previously customized the APEX Season Table, recreate those modifications using the screen shot obtained previously, or use websites such as http://www.timeanddate.com/ and http://aa.usno.navy.mil/data/docs/RS_OneYear.php to obtain current sunrise/sunset and lunar cycle data.

Link the NEW APEX with APEX Fusion

1. Sign in to APEX Fusion (https://apexfusion.com).
2. On the display module connected to the **new** APEX, press the center button once.
3. Press the down button to scroll to **ApexFusion: Link** then press the center button once.
4. If you do not see the word "Link" change to a 5-character code after 5 seconds, press the center button again.
5. The ApexFusion line should now show a 5-character code which is the APEX Fusion token.
6. Click on your Fusion username in the upper right corner of the APEX Fusion web page.
7. Click Link Apex
8. Enter the 5-character token from Step 5 in the Link Token field.
9. Click Link Apex
10. After the linking process completes, go to the Apex List page.
11. Locate your **old** APEX on the APEX List, which will probably have a ! icon.
12. Click the ! or ⚙ icon to the left of the **old** APEX, then click ⊖ Remove.
13. Enter your Fusion account password when prompted.

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