Application Note

Restoring Amulet OS on GEMmodule

Supports: 4.3"/7" Resistive and Capacitive Color Modules
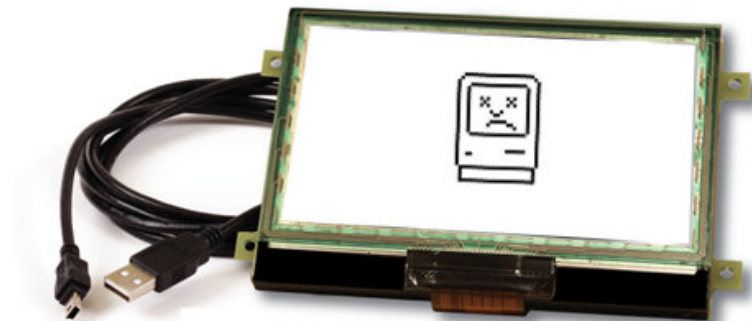
Supported Hardware

The following hardware is supported by this Applications Note. For additional GEMmodule support for hardware not listed in Table 1 please contact support@amulettechnologies.com

Table 1 - Supported Hardware Versions

| Part Number	Description
MK-070R	Resistive 7" GEMmodule
MK-480272C	Resistive 4.3" GEMmodule
MK-CY-043	Capacitive 4.3" GEMmodule
MK-CY-043MT	Capacitive 4.3" GEMmodule

Restoring Amulet OS on GEMmodule

During the development of GEMstudio projects it is possible to place the module's OS into an unresponsive state. This is not uncommon, and is recoverable with minimal effort. Please follow the following 10 steps to recovery the GEMmodule.

1. Close GEMstudio or GEMcompiler; make sure you save your project before you close.

2. Disconnect the module from USB and power connections.

3. Locate the two position DIP switch located on the back of the GEMmodule. This switch is labeled as SW6 in silk screen. The image below outlines the location of the DIP Switch and points to Switch 1, labeled as PROG/RUN. If there is no DIP switch on the board, it is a custom made module. Consult the designer of the board to receive direction on how to place the module into PROG mode.
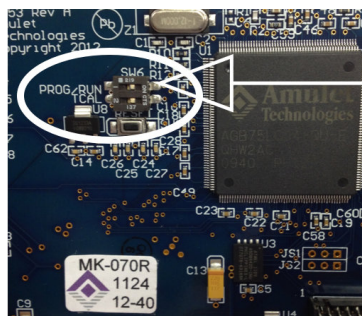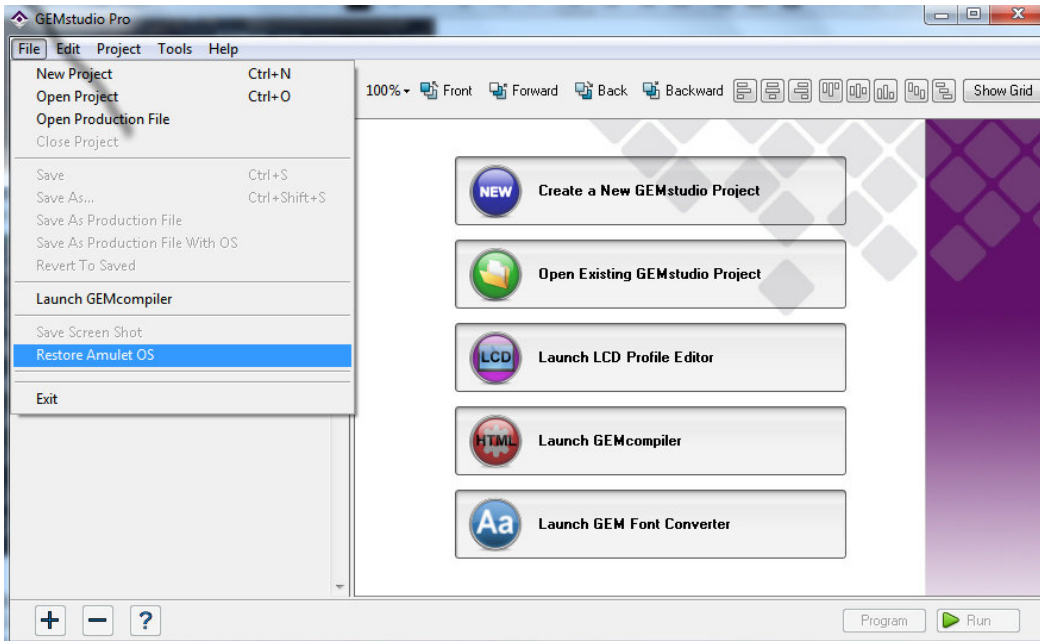

4. After the DIP switch has been located: flip switch 1 to the OFF position. The image below shows what the DIP should look like when in the OFF position. This will tell the GEMmodule to operate in Program Mode instead of RUN mode.
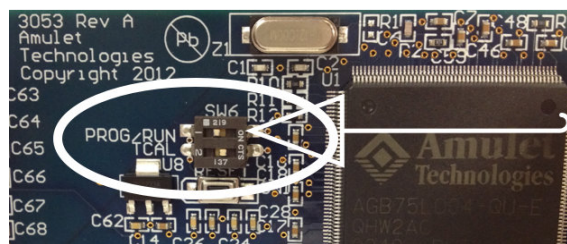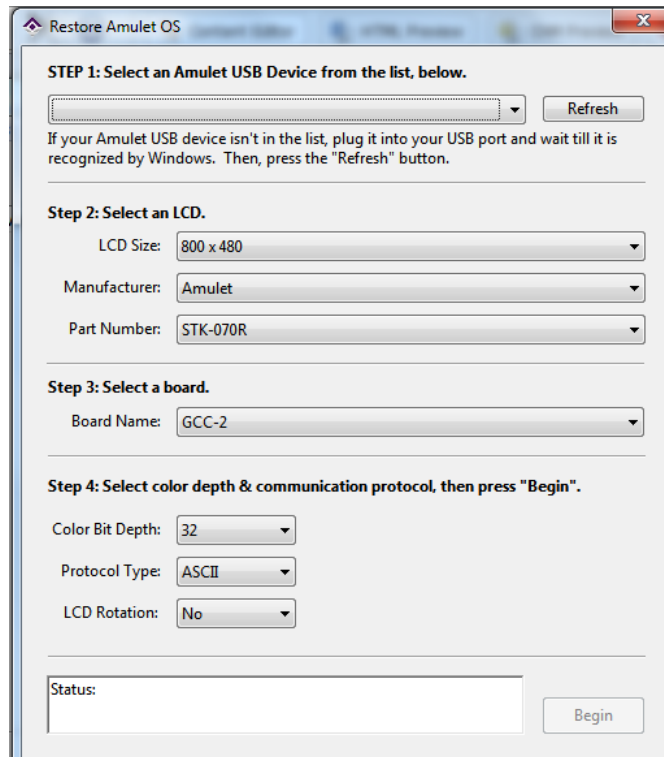

5. Restart GEMstudio.

6. Connect the GEMmodule to USB and power as required.

7. In GEMstudio navigate to the File Menu and select 'Restore Amulet OS'.

The following window will pop up.

Select "Amulet USB to Serial Converter", ensure the proper setting are configured correctly. The settings for the GEMmodule kits are 480x272 or 800x480 LCD size, Amulet for the manufacturer, and then pick the proper part number for either resistive or capacitive. Once everything has been configured correctly click Begin in the bottom Right corner of the window.

8. Once the restore process has completed, the module will boot in the touch panel calibration. Once the calibration is complete it will boot into the Amulet GEM OS splash screen. It will be a purple screen with white text displaying the Amulet GEM OS and version number.

9. Disconnect the GEMmodule from power and USB, return DIP switch 1 to the ON position.

10. Reconnect the board to the computer and power and reprogram the board with the GEMstudio project.

Note: If steps 1-10 were not able to get the module to restore functionality, please try to reboot your computer and GEMstudio and try steps 1-10 again.

Additional Configurations

It is possible while using a GEMmodule to lose USB communication to the device. In order to reestablish this communications link a direct serial connection to the module is required. If the steps above did not restore communications to the GEMmodule, please follow the steps below to hook up the module directly over serial and then repeat the Restoring Amulet OS steps in the section above. These steps are going to direct the user to the UART communications pins and instruct how to make a serial connections to a GEMmodule.

What is required to complete these steps:

• A method of attaching three wires to three pins on the back of the GEMmodule.
• A USB to Serial adapter or a serial communications port on the back of your computer. The USB to Serial adapter is available in any electronics store.

Please follow these steps to connect your GEMmodule directly to a serial port.

1. On the back of the GEMmodule locate the 24 pin header. It is commonly labeled J3. It is also commonly in the bottom right corner of the module. If you are using a custom board please consult the board designer.
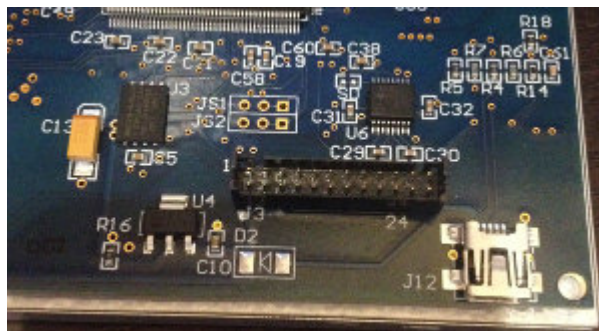
2. Once the header is located, find Pins 13 and 18. This can be done by counting from top to bottom, and from left to right. The pin in the upper left corner is Pin 1, the pin below that is Pin 2; Pin 3 is the pin to the right of Pin 1, and Pin 4 is directly below that.

| 1 | 3 | 5 | 7 | ... | 21 | 23 |
| 2 | 4 | 6 | 8 | ... | 22 | 24 |
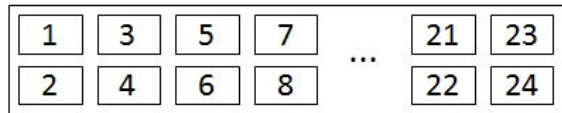
3. Pin 13 is the Receive Data pin (RXD) and Pin 18 is the Transmit Data pin (TXD). Pin 4 ground, which is also required.
4. Take your USB to Serial adapter and connect the TX from the adapter to Pin 13 and the RX from the adapter to Pin 18. See below for details.
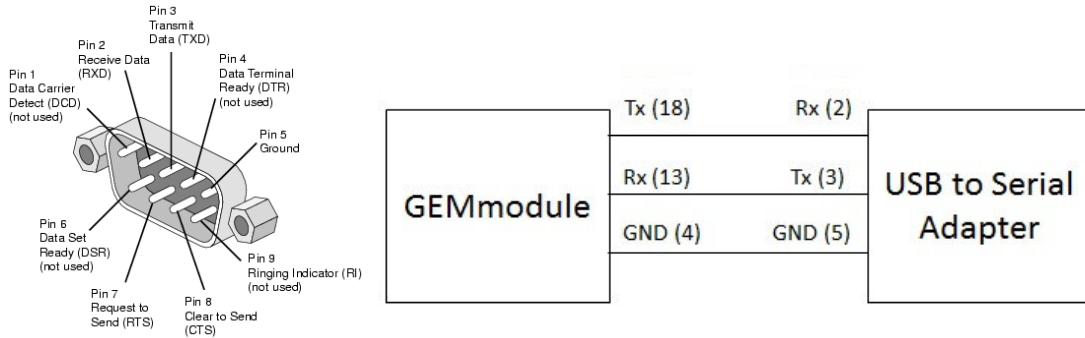
5. Once these pins are connected, plug the USB to Serial adapter into the computer.
6. Go to the previous section and follow the steps for Restoring Amulet OS on GEMmodule, but make sure to select the new comm port created by the USB to Serial adapter.

Customer Support Contact Information

If the above steps were insufficient to getting the GEMmodule to respond, please contact Amulet customer support via e-mail at support@amulettechnologies.com.