This Manual will walk you through the process of setting up your Touchscreen, modifying and loading graphics for MCS-Connect.

See Appendix section in back of Manual for quick steps for some MCS-TOUCHSCREEN functions
The MCS Commitment is to provide practical solutions for the industries needs and to be both a leader and partner in the effective use of microprocessor controls.

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Chapter - 1. Getting to know your Touchscreen

On the following pages we will acquaint you with the function and use of the MCS-TOUCHSCREEN, plus introduce you to the graphics that we have incorporated into the design.

OEMs with additional training and the Graphic Builder, will be able to make changes to the graphics and help manage with all the information the MCS controller has available to provide.

TOUCHSCREENS

The MCS-TOUCHSCREEN has a new Weather Proof Touchscreen interface designed to simplify user access with the MCS-Magnum and MCS-MicroMag. MCS-Connect can be utilized to provide both graphics and service mode access for technicians.

Information and graphics on the MCS-TOUCHSCREEN are shown on high resolution (1280x800) LCD display with LED back lighting, which guarantees long-life operation.

The high resolution screen makes it easy for the user to manage complex installations quite easily. It also ensures that the pages can be navigated in a fast and straightforward manner. Up to 60 MCS controllers can be connected to a MCS-TOUCH via RS485 or Ethernet.

Utilizing a gasket for an environment seal provides the MCS-TOUCHSCREEN with a NEMA4 rating.

Depending on the Box Enclosure you choose, an installation can be either indoor or outdoor.

A NEMA4 Box Enclosure must be used for outdoor installation or for areas that are subject to water wash-down or extreme harsh environments. The MCS-TOUCH temperature range is -20oC to 70oC / -4oF to 158oF.

The Magnum can be installed without the Keypad Display using the new Touchscreens.

GRAPHICS FOR TOUCHSCREENS

With the new Graphical Interface and MCS-Connect, you now have a better view of your controller’s many functions as shown on the screen to the right.

The graphics package is pre-installed and can be customized by OEMs with the MCS Graphic Builder or custom build by MCS for your clients.

Additional information on the setup and using your Touchscreen and Graphics can be found on our web site, along with additional App. notes concerning the Touchscreens.

http://www.mcscontrols.com/manuals.html
Chapter - 2. Touchscreen’s Interface

Your touchscreen is shipped installed with the latest Linux operating system, MCS-Connect and additional files for displaying your graphics.

INCLUDED COMPONENTS

50W Single Output Power Supply for Touchscreen
Resistant to short circuiting, overloading, and over voltage.
Operating temperature up to 158F (70 °C)

MCS-TOUCHSCREEN MOTHERBOARD - FRONT

MCS-TOUCHSCREEN MOTHERBOARD - BACK
Chapter - 3. Site Documents

3.1. Documents, Spec Sheets, Drawings, etc.
Stored in the Touchscreen's flash memory you will find pdf's and documents pertaining to the building of your unit. Each unit's configuration is different, so the ‘SITE DOCUMENTS’ file will pertain to that unit only.

An example of the contents of the ‘SITE DOCUMENTS’ folder may contain:

1. DRAWINGS (PDF’S) of the components used in this unit
2. EXAMPLE OF MANUALS (if installed in your unit)
   a. Getting Started Manual
   c. Touchscreen Manual
   d. EXV Manual
   e. BMS-GATEWAY Startup Guide
   f. Additional manual may be stored here depending on the configuration of the unit

3. SPECIFICATION SHEETS
   Each part installed should have a spec (data) sheet included in the ‘SITE DOCUMENTS’ folder

4. CONFIGURATION FILE - This is the key file in building your unit. If your config file is somehow corrupted, this is the original file used and may need to be re-installed. Call MCS-SUPPORT for help in re-installing this file to your controller.

To locate the ‘SITE DOCUMENTS’ folder:
1. Navigate to the ‘MCS TOOLS folder’ on your desktop
2. Double click on folder to open
3. Click on Site_Documents under Places on left.
Chapter - 4. Main Screen

4.1. Layout of Main Screen on the Touchscreen

1. MCS-Connect icon
2. On Screen Keypad icon
3. MCS Tools, icon
4. Touchscreen Software Version
5. Touchscreen - LOCKED OR UNLOCKED
6. Time of Day

4.2. COMPANY GRAPHICS

If your touchscreen came pre-installed with the ‘Graphic Package’, OEM’s and trained Installers will be able to modify some of the displays after the initial installation using the Graphic Builder if they are authorized.

With its 1280x800 Resolution, the display is sharp and easy to read. Making use of the ‘Stylus pen’, and the on screen keypad adjustments are easy and lets the technician check readouts as to the status of the controller.

The Touchscreen now comes with a Linux operating system.

The latest touchscreens, firmware version 3.0 +, comes with a 9 point calibrating software program for pin point accuracy.
**Chapter - 5. Touchscreen Keypad**

5.1. **KEYPAD**

On the main screen, click on Keypad Icon as shown in screen 1.

![Screen 1](image1)

5.2. **‘ON SCREEN KEYPAD’**

Screen 2 shows keypad display. Use the stylus and keypad to enter or make adjustments.

![Screen 2](image2)
Chapter - 6.  Touchscreen Utilities

6.1. Utilities folder and its sub folders

1. Navigate to the ‘MCS TOOLS folder’ on your desktop.
2. Double click on folder to open.
3. Double click on the ‘Utilities’ sub folder to view contents.

4. Screen 3 below displays the difference utilities build into the system.

Brief descriptions of these files will be shown on the following pages in this manual.

6.1.1  Calibrate Touchscreen

Your touchscreen comes with a software program which will allow you to calibrate your touchscreen stylus pen to pin point the accuracy. When you touch an area on the screen the stylus point aligns with the screen area. We will describe how to do this later in this manual.

6.1.2  Leafpad

Leafpad is a text editing program enabling you to make changes to text files.

6.1.3  LX Terminal

LXTerminal is the LXDE version of a terminal emulator. It is used by programmers who are familiar with the Linux operating system.

6.1.4  MCS Website

If you are connected to the internet where this touchscreen is installed, you will be directed to the MCS website by clicking on this icon.

6.1.5  Network Connections

Clicking on this icon will direct you to a program which will allow you to setup your communications to the company’s network and controllers.
6.1.6 **Reboot**
Clicking on this icon will reboot your touchscreen.

6.1.7 **Setting Time and Date - MCS-TOUCHSCREEN**
1. Navigate to the 'MCS TOOLS' folder on your desktop.
   Double click on folder to open.

2. Double click on the 'Utilities' sub folder to view contents.

3. Double Click 'Time And Date' to make changes
4. Screen opens - click on ‘Unlock’
   You must be authorized to make these changes.

5. Using the keypad, enter password “mcs’ (lower case)
6. Click ‘Authenticate’ to unlock

7. Make changes to date or time and click to ‘Lock’.
Chapter - 7.  Network

7.1. Setting Up Network For Communication With Your Controller
At the touchscreen main screen, click on ‘MCS TOOLS’ folder as seen screen 1.

7.2. Utilities Folder
Screen 2 appears, click on ‘Utilities” to view contents of folder. Click on ‘Network Connections’ as shown in screen 3.
7.2.1 **Network Connections Screen**

Next display, screen 9-4 shows network communication screen. Your touchscreen will show ‘**Wired connection**’, click to add.

Screen 5, click to ‘**Edit**’ this connection.
### 7.2.2 Adding IP Address

On screen 6, set 'Method' to 'Manual' click on 'IPV4' than click on 'Address', enter the IP address, the netmask and gateway addresses. Click to save to touchscreen memory.
Chapter - 8.  MCS-CONNECT

8.1.  MCS-CONNECT Shortcut on Desktop

1. Click on the MCS-Connect.

2. This will launch the MCS-Connect main screen.

3. Click on Serial or Ethernet to scan for your controller.

4. Screen below shows available controllers on your network.
Chapter - 9. MCS-Connect Communication

1. At the ‘Desktop screen’ click on the ‘MCS-CONNECT shortcut’.
2. Click on ‘Setup’ at the MCS-CONNECT screen.
3. Next screen is the setup screen for communicating with your controller or PC.
4. You can change the “Com port” and “Baud Rate” depending on how you are communicating with your controller or computer.
Chapter - 10. UnLocking / Locking Touchscreen

10.1. Unlocking the Touchscreen.
   1. Click on the ‘MCS TOOLS’ folder on the desktop, ‘Memory Lock’ sub folder will appear when this file is opened.
   2. Double click on the ‘Memory lock’ folder
   3. Double click on the ‘Unlock_Memory’sh icon
   4. Next screen, click on ‘Execute’
   5. Touchscreen will perform a restart
Re-Locking Touchscreen

1. Double click the ‘MCS TOOLS’ Icon on the Desktop.

2. Double click ‘Memory Lock’ sub directory.

3. Double click ‘Lock Memory’.

4. Click ‘EXECUTE’. The touchscreen will reboot.

When the Lock Memory file is pressed it does an automatic reboot and autostarts MCS-Connect. Check the top right corner of the desktop to make sure the touchscreen is locked.
Chapter - 11. APPLICATION NOTES

THE FOLLOWING PAGES CONTAIN APPLICATION NOTES FOR MAKING ADJUSTMENT TO THE TOUCHSCREEN AND UPGRADING Firmware or SOFTWARE.
APP #113 - Upgrading MCS-CONNECT

Revision History

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UPGRADING

MCS-CONNECT

on

MCS-TOUCHSCREENS
NOTE: MAKE SURE YOU DOWNLOAD THE LINUX VERSION OF MCS-CONNECT FROM OUR WEBSITE AT:
http://www.mcscontrols.com/software.html

Download Latest MCS-CONNECT software
Call or email MCS for the password to download the latest MCS-CONNECT LINUX VERSION software.
Download to your laptop or computer’s desktop or a location where you will be able to copy to a USB drive.

Start by Unlocking the Touchscreen.

1. Click on the ‘MCS TOOLS’ folder on the desktop, ‘MEMORY LOCK’ sub folder will appear when this file is opened.
2. Double click on the ‘Memory lock’ folder
3. Double click on the ‘Unlock_Memory.sh’ icon
4. Next screen, click on ‘Execute’
5. Touchscreen will perform a restart
**PLUG IN USB DRIVE AS SHOWN**

On back of touchscreen, locate the USB PORT as shown on screen 2 and insert the USB drive with the new version of MCS-CONNECT.

---

**Copy the Updated File**

1. After plugging in the USB drive, the following screen will appear, click ok to open in File Manager.
2. When the drive opens, drag the ‘MCS-CONNECT installation file’ to the desktop.
3. Close the screen so you can access the desktop.
4. Double click on the ‘MCS-CONNECT installation file’ you just dragged to your desktop to upgrade.
5. Click next to continue installing the new ‘MCS-CONNECT installation file’.
6. Accept the terms for the 'license agreement', click next to continue.
7. Select the 'Default Path' for the upgrade., click next to continue.

8. Click on ‘YES’ to overwrite the existing file, click next to continue.
9. Choose **Keep Existing Config/Setting**, click next to continue.

10. Make sure to **Un-check** the box to 'Create shortcuts in the Start-Menu', Check box 'Create additional shortcuts on the desktop', click next to continue.
11. Next screen will show progress of installation.

![Screen 9](image)

12. Installation is complete, click next to continue.

![Screen 8](image)

13. Screen shows installation was successful, click ‘DONE’.

![Screen 11](image)
14. Double click on the USB drive on the desktop, opens in file manager.

15. Click on ‘ARROW’ to eject and remove from the back of the touchscreen.

16. While on the desktop, touch stylus pen to ‘MCS-CONNECT install file’, select move to trash. 
Next double click ‘MCS TOOLS’ on the desktop, opens in File Manager.

17. Click on the ‘Go’ button at the top and select trash can, Highlight the MCS CONNECT installer and select delete
Re-Locking Touchscreen

1. Double click the ‘MCS TOOLS’ Icon on the Desktop.
2. Double click ‘Memory Lock’ sub directory.
3. Double click ‘Lock Memory’.
4. Click ‘EXECUTE’. The touchscreen will reboot.

When the Lock Memory file is pressed it does an automatic reboot and autostarts MCS-Connect. Check the top right corner of the desktop to make sure the touchscreen is locked.
APP #127 - Changing Linux Autostart File

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Changing Linux

Autostart File

MCS-TOUCHSCREENS
Unlocking MCS-TOUCHSCREEN

Start by Unlocking the Touchscreen.

1. Click on the ‘MCS TOOLS’ folder on the desktop, ‘MEMORY LOCK’ sub folder will appear when this file is opened.

2. Double click on the ‘Memory Lock’ folder
3. Double click on the ‘Unlock_Memory.sh’ icon
4. Next screen, click on ‘Execute’
5. Touchscreen will perform a restart
Changing Startup File - MCS-TOUCH

Open ‘On Screen Keypad’ and MCS CONNECT

1. Navigate to the ‘On Screen Keypad’ on your desktop as shown below. Click with stylus or touch to open.

2. Click or touch on the ‘MCS CONNECT’ on desktop, main screen will open as shown below.

3. Click on ‘EDIT AUTOSTART FILE’.

![Image of On Screen Keypad and MCS Connect]

![Image of MCS Connect interface]

![Image of Local and Remote Network Connections]
4. The following screen will open. Below is a description of the different ‘Arguments’.

Descriptions of Arguments that can be changed in the Autostart file:

<table>
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<th>Argument #2</th>
<th>Argument #3</th>
<th>Argument #4</th>
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<tr>
<td>&quot;serial&quot;</td>
<td># of controllers to look for</td>
<td># seconds to search</td>
<td>MCS address of controller to connect to</td>
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<tr>
<td>&quot;ethernet&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;remote&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;lantronix&quot;</td>
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Editing the ‘AUTOSTART MCS-CONNECT’ file (see corresponding numbers above).

1. ‘Connection Type’ = This argument can be set to “ethernet”, “serial”, “remote” or “lantronix” depending on the type of connection used to connect to the Magnum.
2. ‘# of Devices’ = This argument is the number (1-60) of Magnums MCS-Connect is to look for on the network.
3. ‘Seconds to wait’ = This argument is the time in seconds MCS-Connect waits while searching for the number of Magnums specified in argument 6 before creating an error popup message.
4. ‘Address of Device’ = This argument is the address of the Magnum that you want to connect to upon auto start. If argument 1 is set to “ethernet” then enter the IP address of the Magnum. Otherwise if argument 1 is set to “serial” then enter the Magnum RS485 address.
5. ‘Start Screen’ = This argument determines which screen MCS-Connect will load on auto-start. There are 3 options: “graphics”, “status” or “transmit”.
6. ‘Starting Port’ = If argument #5 is “transmit”, this argument is used for the file path of the configuration to transmit. Otherwise, if argument #1 is “remote” or “lantronix” this argument is used to pass in the starting port for these connection types.
7. ‘Ending Port’ = This argument is only used when argument #1 is “remote” to pass in the ending port for a remote connection.
8. Auth. Level = This argument allows the user to pass in a keyword that starts MCS-Connect with a preset Authorization Level.

APP 126 is available at http://www.mcscontrols.com/appNotes.html to set the Graphics Lock feature which ensures that unauthorized users cannot navigate out of the Graphics screen.
Re-Locking Touchscreen

1. Double click the ‘MCS TOOLS’ Icon on the Desktop.
2. Double click ‘Memory Lock’ sub directory.
3. Double click ‘Lock Memory’.
4. Click ‘EXECUTE’. The touchscreen will reboot.

When the Lock Memory file is pressed it does an automatic reboot and autostarts MCS-Connect. Check the top right corner of the desktop to make sure the touchscreen is locked.
APP #129 - Changing Linux IP Address

Revision History

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Changing MCS-Touchscreen

LINUX IP ADDRESS
Unlock the Touchscreen

1. Navigate to the ‘Desktop’, click on ‘MCS TOOLS’.

2. Click on the ‘Memory Lock folder’ screen 1.

3. Double click the ‘Unlock_Memory.sh’

4. Click ‘Execute’

5. The touchscreen will reboot and show unlocked at the top right corner.
**KEYPAD** - On the main screen, click on Keypad Icon as shown in screen 3.

‘ON SCREEN KEYPAD’
Screen 4 shows keypad display. Use the stylus and keypad to enter or make adjustments.
Changing the Ethernet IP address on the MCS-MAGNUM

If you need to change the Ethernet IP address or subnet on the Magnum because of a conflict follow the instructions below.

You can use the MCS-CONNECT to make this change.

Using MCS-CONNECT

Start by gathering the correct network information for your plant, including the Ethernet IP address and the Subnet address.

1. Open MCS-CONNECT
2. Connect to the MAGNUM or MicroMag controller that needs to be changed.

3. YOU MUST BE AUTHORIZED TO MAKE THIS CHANGE.
4. Once on the MCS-CONNECT status screen, click on the ‘VIEW’ tab at the top of your screen.
5. Click on ‘SERVICE WINDOW’

6. Click on ‘ETHERNET’

7. Make the necessary changes and click the button "SEND COMM. CHANGES TO THE CONTROLLER."
8. YOU MUST ‘RESET THE MAGNUM BY PUSHING THE RESET BUTTON ON THE MAGNUM.”
Setting Up the Touchscreen For Communication With Your Controller
At the touchscreen main screen, click on 'MCS TOOLS' folder as seen in screen 5.

UTILITIES FOLDER
Screen 6 appears, click on 'Utilities" to view contents of folder. Click on 'Network Connections' as shown in screen 7.
Network Connections Screen
Next display, screen 8 shows network connections screen. Your touchscreen will show ‘Wired connection’, click to highlight.

Screen 8

Screen 9, click to ‘edit’ this connection.

Screen 9

Click to edit this connection
Adding IP Address

On screen 10, click on IPV4, than set ‘Method’ to ‘Manual’ than click on ‘Address’, enter the IP address, netmask and gateway addresses. Click to save to touchscreen memory.

NOTE: YOU MUST EDIT THE AUTO START ADDRESS - SEE APP# 127 TO REFLECT THIS CHANGE.
LOCKING THE TOUCHSCREEN AFTER CALIBRATION

1. Click on ‘MEMORY LOCK’, CLICK ON ‘Lock_Memory.sh’, click on ‘Execute

When the Lock Memory file is pressed it does an automatic reboot and autostarts MCS-Connect.
Check the top right corner of the desktop to make sure the touchscreen is locked.
APP #135 - Installing New Graphics

Revision History

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Installing New Graphics on Touchscreen
**INSERT A MEMORY STICK IN THE BACK OF THE TOUCHSCREEN**

1. Screen will appear, highlight ‘Open in File Manager’ and click OK.
2. Make a backup of your Graphics file before proceeding with the new graphic install.
3. Highlight your ‘Graphics Folder’ on left, click to open, than highlight the actual graphics folder on the right.
4. Click on ‘EDIT’ at top and click ‘COPY’.
5. HIGHLIGHT THE ‘USB’ MEMORY STICK on the left side under places.
6. Click on ‘EDIT’ and click ‘PASTE’.
7. CHECK TO MAKE SURE YOU HAVE A BACKUP ON YOUR USB MEMORY STICK.
8. Remove that USB memory stick.
9. INSERT NEW USB memory stick with new graphics package.

**Unlocking the Touchscreen.**

1. Click on the ‘MCS TOOLS’ folder on the desktop.
2. Click on ‘MEMORY LOCK’.
3. Click on ‘Unlock_Memory’.
4. Click on ‘Execute’.
5. Touchscreen will re-boot.
6. When Touchscreen re-boots- **NOTE ON TOP RIGHT THAT SCREEN IS ‘UNLOCKED’**.

**Delete old Graphics Folder**

1. On desktop, click on ‘MCS TOOLS’.
2. Under places, locate your ‘GRAPHICS FOLDER’, CLICK TO OPEN.
3. Locate the folder for your touchscreen graphics and highlight.
4. Click on ‘EDIT’ move to trash.
5. **DO NOT DELETE ‘ERROR.JPG, GRAPHICeRROR.XML files**.

**Install ‘New Graphics Folder’**

1. Before saving the graphics to the USB MEMORY STICK BE SURE TO EXTRACT THEM FROM THE WINZIP FOLDER.
2. Click on the **USB memory stick**.
4. Click on ‘EDIT’ at top.
5. Click on ‘COPY’.
6. Highlight ‘GRAPHICS’ under places.
7. Click on ‘EDIT’ at top.
8. Click on ‘PASTE’.
9. Verify that the new Graphics file has been copied to your touchscreen Graphics folder.

**Re-lock Touchscreen**

1. Click ‘HOME’ (House Icon) tab at top of screen to the left of your file path.
2. Click on ‘MEMORY LOCK’ folder.
3. Click on ‘Lock Memory’.
4. Click on ‘EXECUTE’
5. When touchscreen reboots, verify the touchscreen is ‘LOCKED’ AT TOP RIGHT OF SCREEN

ON MCS-CONNECT SCREEN
1. Click on ‘OFFLINE’ at top
2. Load an Offline XML file, Enable Auto Screen Refresh
3. Click to open your graphics folder in the graphics folder under places
4. Highlight ‘systemoverview.xml, and click open
5. When MCS-CONNECT opens, click on the ‘systemoverview.xml’ tab to open your graphics
6. Once you verified the graphics have been loaded, close MCS-CONNECT and re-connect to the controller and click on the graphics tab at the top right.

If you cannot view the new graphics package, please read your touchscreen manual located in your documents folder for detailed instructions on how to install new graphics

CONTACT SUPPORT FOR ADDITIONAL SUPPORT

Email: support@mcscontrols.com
239-694-0089
APP #136 - Calibrating the Touchscreen

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Calibrating the Touchscreen
Unlocking MCS-TOUCHSCREEN

**Start by Unlocking the Touchscreen.**

1. Click on the ‘MCS TOOLS’ folder on the desktop, ‘MEMORY LOCK’ sub folder will appear when this file is opened.

2. Double click on the ‘Memory lock’ folder
3. Double click on the ‘Unlock Memory’ icon
4. Next screen, click on ‘Execute’
5. Touchscreen will perform a restart
USING CALIBRATING SOFTWARE

At the main menu:

1. Click on the ‘MCS TOOLS folder’
2. Click on the ‘Utilities’ folder’
3. Click on ‘Calibrate Touchscreen’
4. Calibration software will open.
CALIBRATING WITH NEW 9 POINT SOFTWARE ON Touch 7 and 15.4

The screen below shows calibration for the touchscreens.

(only one target point will display at a time)

1. Position your stylus pen point as close to the center of the target as you can. BE CAREFUL NOT TO PRESS ON THE SCREEN IN OTHER AREAS.

2. After touching the left top target, the next target will appear in the top center and continue to display as per the screen below until all '9 target points' have been calibrated.

If satisfied with the calibration, go to the next step. If needed, rerun the calibration tool.

3. After you calibrated all 9 points on the screen you will be returned to the desktop.
LOCKING THE TOUCHSCREEN AFTER CALIBRATION

1. Click on 'MEMORY LOCK', CLICK ON 'LOCK MEMORY', click on ‘EXECUTE

When the Lock Memory file is pressed it does an automatic reboot and autostarts MCS-Connect.
Check the top right corner of the desktop to make sure the touchscreen is locked.
Setting Time & Date

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1. Click on the ‘MCS TOOLS’ folder on the desktop, ‘Memory Lock’ sub folder will appear when this file is opened..

2. Double click on the ‘Memory Lock’ folder

3. Double click on the ‘Unlock_Memory.sh’ icon

4. Next screen, click on ‘Execute’

5. Touchscreen will perform a restart
Open ‘On Screen Keypad’

1. Navigate to the ‘On Screen Keypad’ on your desktop as shown below. Click with stylus or touch to open.
Setting Time and Date - MCS-TOUCHSCREEN

1. Navigate to the ‘MCS TOOLS’ folder on your desktop.
   Double click on folder to open.

2. Double click on the ‘Utilities’ sub folder to view contents.

3. Double Click ‘Time And Date’ to make changes
4. Screen opens- click on 'Unlock'
   You must be authorized to make these changes.

5. Using the keypad, enter password “mcs” (lower case)
   Click ‘Authenticate’ to unlock

6. Make changes to date or time and click to ‘Lock’.
1.1. Locking Touchscreen

1. Double click the 'MCS TOOLS' Icon on the Desktop.
2. Double click ‘Memory Lock’ sub directory.
3. Double click ‘Lock_Memory.sh’.
4. Click ‘Execute’. The touchscreen will reboot.

When the Lock Memory file is pressed it does an automatic reboot and autostarts MCS-Connect.
Check the top right corner of the desktop to make sure the touchscreen is locked.