

# CPAS-3000 TROUBLESHOOTING GUIDE

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# I. QUICK CHECKLIST FOR TROUBLESHOOTING CPAS-3000 PROBLEMS

THE CUSTOMER NEEDS TO ANSWER “YES” TO THE FOLLOWING QUESTIONS:

- Is the aircraft on the ground?
- Is the Maintenance or Data Load Enable switch(es) on?
- Is the XM GWX circuit breaker pulled? (Labeled *DATALINK* in Cessna aircraft)
- Is the laptop plugged in to an external power source?
- Is the correct cable type being used? (straight vs. crossover) *note: Cessna uses straight in all applications.* Has the cable ever worked before?
- Is the cable plugged into the correct aircraft and computer ports?
- Has the laptop power saving features been deactivated?
- Any wireless adapters installed? Are they disabled?
- Are the network adapter power saving features disabled?
- Virus scanning software disabled or removed?
- Firewall software disabled or removed?
- Any virtual private network software installed? Is it disabled?
- Has your CPAS-3000 ever worked before?

## II. DETAILED TROUBLESHOOTING OF CPAS-3000 PROBLEMS BY SYMPTOM.

**Note: AFTER EACH DEBUG STEP, A LOAD MAY BE ATTEMPTED TO SEE  
IF THE PROBLEM WAS FIXED.**

<b>After clicking “refresh targets”, no targets are available in the "Select Target/LRU to be Updated" window</b>	
<b>POSSIBLE CAUSES:</b>	Incorrect network adapter configuration, wrong network adapter being used, wireless network adapter selected when CPAS-3000 was installed, VPN enabled, or firewall enabled. <i>Note: Before going through this list, ask the user if they have tried re-clicking “refresh targets”. Sometimes the list does not populate on the first target refresh.</i>
<b>DEBUG STEP 1 PROCEDURE</b>	Verify VPN, virus software, and firewall software are disabled Varies by program
<b>DEBUG STEP 2 PROCEDURE</b>	<p>Check network adapter communications to FSU and verify proper network adapter configurations</p> <ol style="list-style-type: none"> <li>1. CPAS-3000 Data Loader must be running and connected to aircraft, if not double click the CPAS-3000 Launch Pad icon. Double click the Dataload icon, a message window “Waiting For The Network Adapter To Be Configured...” will appear for a few seconds</li> <li>2. On the Windows taskbar , click the “Start” button , click “Run”.</li> <li>3. Type <b>cmd</b> into the dialog window, then click the “OK”.</li> <li>4. In the resulting command window, type <b>ipconfig</b> and press the “Enter” key.</li> <li>5. In the command window, you should see at least one Ethernet adapter local area connection with an IP Address number. If "<b>Media State:... Media Disconnected</b>" is shown, you should also see no active link light next to the cable port on the PC. Suspect one or both of the following: <ol style="list-style-type: none"> <li>a. Wireless network adapter was selected when CPAS-3000 was installed. If a wireless adapter was selected upon installation, CPAS-3000 will need to be uninstalled and reinstalled with the correct network adapter.</li> <li>b. Network cable plugged into wrong computer port. (Note: this problem usually causes a failure window that reads “Unable To Refresh Targets. An Error Occurred During The SNIP Request. Windows error code 10049...”</li> </ol> <p>If "<b>Media Disconnected</b>" is not shown you should see at least one Ethernet adapter local area connection with an <b>IP Address of 10.191.254.254</b> and a <b>Subnet Mask of 255.240.0.0</b>.</p> <p>If another IP Address or Subnet Mask is shown, the network adapter was configured incorrectly when CPAS-3000 Dataloader was launched (refer to <b>DEBUG STEP 3</b>)</p> </li> <li>6. In the resulting command line window, type <b>ping 10.177.28.1</b> (left FSU) or <b>ping 10.178.28.1</b> (right FSU) and press the “Enter” key.</li> <li>7. The proper response should be <b>reply from 10.177.28.1 ...</b> (or <b>reply from 10.178.28.1 ...</b>). If you get this response, the FSU is operational, try refreshing targets again. If still no targets, recheck to make sure any VPN is disabled and virus protection software is off.</li> <li>8. If “<b>Destination host is unreachable</b>” is shown and the <b>link light is on</b>, the network adapter was configured incorrectly when CPAS-3000 Data Loader was launched (refer to <b>DEBUG STEP 3</b>).</li> </ol>

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<b>DEBUG STEP 3</b>	Ensure proper network adapter configuration when CPAS-3000 Data Loader is running.
PROCEDURE	<ol style="list-style-type: none"> <li>1. In the CPAS-3000 data loader window select the "View" dropdown menu, and then select "Configuration..."</li> <li>2. Click on the "Advanced..." button, click the "OK" button in the caution window.</li> <li>3. Select the "Network" tab.</li> <li>4. Click the "Restore Network Defaults" button.</li> <li>5. Click the "Yes" button when prompted "Are you sure..".</li> <li>6. Click the "OK" button.</li> <li>7. Click the "Yes" button when prompted "Do you want to save these settings permanently...".</li> <li>8. Click the "OK" button to close the Data Loader configuration window.</li> <li>9. Exit and restart CPAS-3000</li> </ol>

<b>After clicking "Refresh Targets", button never returns to original state after two minutes, or button stays "grayed out".</b>	
<b>POSSIBLE CAUSES:</b>	The network adapter has not completed it's reconfiguration process when CPAS-3000 initializes
<b>DEBUG STEP 1</b>	Verify "Auto-Refresh On Startup" feature is not selected
PROCEDURE	<ol style="list-style-type: none"> <li>1. In the CPAS-3000 dataloader window, select the "View" dropdown menu, and then select "Configuration..."</li> <li>2. Uncheck the "Automatically Refresh Targets on Startup" box; Click the "OK" button.</li> <li>3. Click the "Yes" button when prompted "Do you want to save these settings permanently..."</li> <li>4. Exit and restart CPAS-3000</li> </ol>

**After clicking "Refresh Targets" an error window appears that reads "Unable To Refresh Targets. An Error Occurred During The SNIP Request. Windows error code 10049...".**

<b>POSSIBLE CAUSES:</b>	Network cable not hooked up, wrong type of cable, faulty cable, faulty wiring from FSU to aircraft data load RJ45 port, wireless adapter selected when CPAS-3000 was installed.
<b>DEBUG STEP 1</b>	Verify correct network cable is plugged into correct aircraft and computer ports
PROCEDURE	See aircraft manual for RJ45 port location and markings. See PC manual (or network card manual) for network adapter ports.
<b>DEBUG STEP 2</b>	Verify cable is good
PROCEDURE	Verify network cable has continuity or substitute with a known good cable.
<b>DEBUG STEP 3</b>	Verify network cable is of the correct type (crossover or straight).
PROCEDURE	Refer to Aircraft manual for cable type
<b>DEBUG STEP 4</b>	Verify wireless adapter was not selected when CPAS was installed (if not installed, skip this step).
PROCEDURE	<ol style="list-style-type: none"> <li>1. In the CPAS-3000 Data Loader window select the "View" dropdown menu, and then select "Configuration...".</li> <li>2. Click on the "Advanced..." button, click the "OK" button in the caution window.</li> <li>3. Select the "Network" tab.</li> <li>4. Verify that network adapter displayed as the "Selected network adapter" is not a wireless network adapter. <i>Note: If a wireless adapter was selected upon installation, CPAS-3000 will need to be <b>uninstalled and reinstalled</b> with the correct network adapter. NOTE: "Restore Network Defaults does NOT CHANGE THE NETWORK ADAPTER.</i></li> </ol>

<b>After clicking “Refresh Targets”, the only target listed is NODE in the "Select Target/LRU to be Updated" window</b>	
<b>POSSIBLE CAUSES:</b>	FSU still warming up or in a transition state when "Refresh Targets" was selected.
<b>DEBUG STEP 1</b>	Recycle FSU power
<b>PROCEDURE</b>	<ol style="list-style-type: none"> <li>1. Cycle FSU circuit breaker, wait 2-3 minutes</li> <li>2. Access MFD “DATABASE EFFECTIVITY” page and verify page data populates the display.</li> <li>3. Select “Refresh Targets” again.</li> </ol>

<b>After clicking “Refresh Targets”, the only targets listed are “FSU and NODE” in the "Select Target/LRU to be Updated" window.</b>	
<b>POSSIBLE CAUSES:</b>	<p>FSU has not entered data load mode, incorrect data loader configuration settings, or incorrect network adapter configuration.</p> <p><i>Note: The flight deck effects of the FSU entering data load mode are shown on the MFD “DATABASE EFFECTIVITY” page. The message “PROCESSING REQUEST” is annunciated for a few moments followed by the messages “DATABASE EFFECTIVITY FAULT” and “FSU INOP”</i></p>
<b>DEBUG STEP 1</b>	Verify aircraft “data load enable” or "maintenance" switch is on.
<b>PROCEDURE</b>	Refer to aircraft manual
<b>DEBUG STEP 2</b>	Verify CPAS is initiating data load mode automatically on FSU and the network adapter is correctly configured
<b>PROCEDURE</b>	<ol style="list-style-type: none"> <li>1. Select the “View” dropdown menu, and then select “Configuration...”</li> <li>2. Verify the "Automatically Initiate Data Load Mode on FSU" box is checked</li> <li>3. Click the “Advanced” button; click the “OK” button when prompted with a Caution window.</li> <li>4. Click the “FSU” tab and click “Restore FSU Defaults” button, click the “YES” button when prompted with “Are you sure you want to...”.</li> <li>5. Select the “Network” tab.</li> <li>6. Click the "Restore Network Defaults" button.</li> <li>7. Click the “Yes” button when prompted “Are you sure..”.</li> <li>8. Close the Configuration window by clicking the “OK” button.</li> <li>9. Click the “Yes” button when prompted “Do you want to save these settings permanently...”.</li> <li>10. Close the “Data Loader Configuration Window” by clicking the “OK” button.</li> </ol>
<b>STEP 3</b>	Verify FSU data load enable discrete pins are properly configured
<b>PROCEDURE</b>	Check for ground signal at connector J1, pins 1, 2, 96, 116

**After clicking “Refresh Targets” only targets listed are “FSU”, “NODE”, and “429-Based LRU” but no FMC or MDC.**

<b>POSSIBLE CAUSES:</b>	FMC or MDC failure, FMC or MDC not powered, FMC or MDC not operational, or FSU internal failure  <i>NOTE: Loss of MDC or FMC may be due to dropping voltage levels; this is common with situations where the avionics power source is a battery. The optimum situation is to have a constant power source such as an external power “cart”, auxiliary power unit, or the engine’s generators.</i>
<b>STEP 1</b>	Verify target LRU circuit breaker is on.
PROCEDURE	Refer to aircraft manual
<b>STEP 2</b>	Verify FMC, or MDC, is operational.
PROCEDURE	1. Look for CDU FMS operation, or look for MFD MDC operation.
<b>STEP 3</b>	Verify FMC or MDC is responsive to CPAS-3000
PROCEDURE	<ol style="list-style-type: none"> <li>1. Select the “View” dropdown menu, and then select “Configuration...”</li> <li>2. Click the “Advanced” button; click the “OK” button when prompted with a Caution window.</li> <li>3. Select the “FSU” tab.</li> <li>4. Verify a solid green circle next to the target LRU in the “Port Connected” column, if red “X” is shown, FSU has an internal error (try cycling FSU power and restarting CPAS-3000; verify still not there).</li> <li>5. Verify a solid green circle next to the target LRU in the “LRU Responding” column, if red “X” is shown suspect LRU power input or LRU to FSU wiring.</li> </ol>

## Upload process aborts.

<b>POSSIBLE CAUSES:</b>	Corrupted database files, missing database files, network adapter driver has a problem, or incorrect network adapter configuration
<b>DEBUG STEP 1</b>	Verify wireless adapter is disabled (if not installed, skip this step). <i>Note: Inform customer that in order to use the wireless adapter when not using CPAS-3000 that they must enable it.</i>
PROCEDURE	<ol style="list-style-type: none"> <li>1. Click on the Windows start menu button in the lower left hand corner of the desktop</li> <li>2. Right click on the "My Computer" icon located on the Windows Start Menu and select the "Properties" option. (Do not use the desktop shortcut to My Computer)</li> <li>3. Click the "Hardware" tab in the System Properties window.</li> <li>4. Click the "Device Manager" button.</li> <li>5. In the Device Manager window, a list of hardware components installed on the computer is shown. Open the "Network adapters" item in the list by clicking the "+" sign located to the left of the icon.</li> <li>6. Look for a network adapter with the word "wireless" in its name (note: there is no guarantee that the word wireless will appear for a wireless adapter).</li> <li>7. Right Click on the Wireless network adapter icon and select "Disable".</li> <li>8. Click the "Yes" button when prompted with a window that reads "Disabling this device will cause it to..."</li> </ol>
<b>DEBUG STEP 2</b>	Verify XM Graphical Weather LRU circuit breaker is off. <i>Note: in Cessna aircraft this breaker is labeled DATALINK.</i>
PROCEDURE	Refer to aircraft manual for circuit breaker(s) location
<b>DEBUG STEP 3</b>	Load Data/Software from laptop hard drive instead of CD-ROM.
PROCEDURE	<p>Import data/software into the computer hard drive (if not previously done)</p> <ol style="list-style-type: none"> <li>1. From the CPAS-3000 Launch Pad Window double click the "Manage Data/Software" icon (or you can open this from the CPAS-3000 Data Loader window by select "Manage Data/Software..." from the "File" dropdown menu located at the top of the window)</li> <li>2. In the "Manage Data/Software" window, click the "Import..." button.</li> <li>3. In the "Drives" dropdown box, select the CD-ROM drive that contains the disk you want to load.</li> <li>4. If the desired data/software is shown in the right hand window, click on the check box just to the left of the data/software. <i>NOTE: If the desired data/software is not shown it may be in a subdirectory on the disk. Open the subdirectory in the left hand window and then check the box next to the desired data/software in the right hand window</i></li> <li>5. Click the "OK" button to start the importation process. A status box will appear that will read "Done!" when the importation is complete. <i>Note: some imports take up to three minutes.</i></li> <li>6. Click the "Close" button for both the "Importing Data/Software..." window and the "Manage Data/Software" window</li> </ol>

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<b>DEBUG STEP 4</b>	Verify laptop virus scan software is turned off
PROCEDURE	Varies by program
<b>DEBUG STEP 5</b>	Verify laptop power saving settings and network card power saving settings are turned off
PROCEDURE	<ol style="list-style-type: none"> <li>1. Click on the Windows start menu button in the lower left hand corner of the desktop</li> <li>2. Right click on the "My Computer" icon located on the Windows Start Menu and select the "Properties" option. (Do not use the desktop shortcut to My Computer)</li> <li>3. Click the "Hardware" tab in the System Properties window.</li> <li>4. Click the "Device Manager" button.</li> <li>5. In the "Device Manager" window, open the "Network adapters" item in the list by clicking the "+" sign located to the left of the icon."</li> <li>6. Find the network adapter selected when installing CPAS-3000. Right click on the network adapter and select "Properties"</li> <li>7. Click the "Power Management" tab <i>Note: Some computers may not have this tab, if so then skip to procedure step 9 in this debugging step.</i></li> <li>8. Uncheck the box next to "Allow the computer to turn off this device to save power". Click OK</li> <li>9. Right click on any empty part of the Windows Desktop, and select "Properties".</li> <li>10. Click the "Screen Saver" tab</li> <li>11. Click the "Power..." button</li> <li>12. In the "Plugged in" column click on the dropdown menu next to "Turn off hard disks:" and select "Never"</li> <li>13. In the "Plugged in" column click on the dropdown menu next to "System standby:" and select "Never"</li> <li>14. Click on the "Hibernate" tab</li> <li>15. Uncheck the box next to "Enable hibernation"</li> </ol>
<b>DEBUG STEP 6</b>	Is load process always aborting during start of a load (.LUH file)? If so, verify MTU size is set to default of 576.
PROCEDURE	<ol style="list-style-type: none"> <li>1. In the CPAS-3000 program, select the "View" dropdown menu, and then select "Configuration..."</li> <li>2. Click the "Advanced" button; click the "OK" button when prompted with a Caution window.</li> <li>3. Select the "Network" tab.</li> <li>4. Click the "Restore Network Defaults" button.</li> <li>5. Click the "Yes" button when prompted, "Are you sure you want to restore the default values"</li> <li>6. Click the "Yes" button when prompted, "Do you want to save these settings permanently for all future data loader sessions".</li> </ol>
<b>DEBUG STEP 7</b>	Is the Data/Software file always aborting at same point? If so, check database integrity (only applicable to -003 and greater statuses of CPAS-3000) <i>Note: If the Charts database is aborting at 11%, then proceed to DEBUG STEP 9.</i>
	<ol style="list-style-type: none"> <li>1. In the CPAS-3000 Launch Pad window double click the "Manage Data/Software" icon.</li> <li>2. Select the suspect file in the "Data/Software Installed on CPAS:" column.</li> <li>3. Click the "Check Integrity" button.</li> <li>4. Verify that "Integrity check succeeded" appears in the "Check Integrity" window, click the "close" button. If the check fails then suspect that the Data/Software file is corrupted. Try a new copy of the data/software.</li> <li>5. Click the "close" button in the "Manage Data/Software" window.</li> </ol>

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<b>DEBUG STEP 8</b>	Reduce 615A block size to 512
PROCEDURE	<ol style="list-style-type: none"> <li>1. In the CPAS-3000 Data Loader window, select the "View" dropdown menu, and then select "Configuration..."</li> <li>2. Click the "Advanced" button; click the "OK" button when prompted with a Caution window.</li> <li>3. Select the "615A" tab.</li> <li>4. In the entry point next to "Block Size (bytes):" type <b>512</b></li> <li>5. Click the "Yes" button when prompted, "Do you want to save these settings permanently for all future data loader sessions"</li> </ol>
<b>DEBUG STEP 9</b>	Update the network adapter driver. <i>Note: this debug step will most likely require internet access if an updated driver is not located on the laptop or on laptop OEM provided CD-ROM.</i>
PROCEDURE	<ol style="list-style-type: none"> <li>1. Click on the Windows start menu button in the lower left hand corner of the desktop</li> <li>2. Right click on the "My Computer" icon located on the Windows Start Menu and select the "Properties" option. (Do not use the desktop shortcut to My Computer)</li> <li>3. Click the "Hardware" tab in the System Properties window.</li> <li>4. Click the "Device Manager" button.</li> <li>5. In the "Device Manager" window, open the "Network adapters" item in the list by clicking the "+" sign located to the left of the icon."</li> <li>6. Find the network adapter selected when installing CPAS-3000. Right click on the network adapter and select "Update Driver..."</li> <li>7. If you have a Laptop OEM provided CD-ROM, install it in the CD tray.</li> <li>8. Follow "Hardware Update Wizard" window prompts and recommended instructions (<i>Note: it may be necessary to search the Internet for an updated driver</i>)</li> </ol>
<b>STEP 7</b>	Send laptop to Collins for continued debugging and study

### **III. GENERAL COMPUTER OPERATIONS QUESTIONS**

#### **How do I determine what network adapters are installed on my laptop?**

1. Find the My Computer icon. My Computer is installed either on the Windows desktop or on the Windows Start Menu.
2. Right-click My Computer and select the Properties option from the pop-up menu that appears. A new System Properties window will appear on the screen.
3. Click the Hardware tab in the System Properties window.
4. Click the Device Manager button located near the top of this window. A new Device Manager window will appear on the screen.
5. In the Device Manager window, a list of hardware components installed on the computer is shown. Open the "Network adapters" item in the list by clicking the "+" sign located to the left of the icon. The Network adapters section of the window will expand to reveal a list of all network adapters installed on the computer.

#### **How do I update a network card driver (continuing from above instructions)**

1. Double click on the network card listed.
2. Click the Driver tab and make note of the driver Date and Version.
3. Click the Update Driver Button or visit the network card manufacturer's website using the driver Date and Version information to find updated network card drivers.

#### **How do I disable network interface card power management features?**

1. Continue from the instructions above by right clicking on the network adapter you selected when setting up CPAS and select "Properties"
2. Click the "Power Management" tab
3. Uncheck the box next to "allow the computer to turn off this device to save power"
4. Click OK

#### **How do I verify a network adapter is operational**

1. Continue from the instructions for "How do I determine what network adapters are installed on my laptop" and right click on the Network adapter you selected when setting up CPAS and select "properties"
2. Status window should contain the message: "This device is working properly".

#### **How do I verify a non-wireless network card is not being used for CPAS-3000**

1. In the CPAS-3000 Data Loader window select the "View" dropdown menu, and then select "Configuration...".
2. Click on the "Advanced..." button, click the "OK" button in the caution window.
3. Select the "Network" tab.
4. Verify that network adapter displayed as the "Selected network adapter" is not a wireless network adapter. *Note: If a wireless adapter was selected upon installation, CPAS-3000 will need to be uninstalled and reinstalled with the correct network adapter.*