AFATDS Release Notes

For

AFATDS 6.3.1.0

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1.0 AFATDS 6.3.1.0 OVERVIEW

The AFATDS 6.3.1.0 product is the result of continued AFATDS development, including the addition of new and enhanced functionality. The term AFATDS refers to the 6.3.1.0 version of AFATDS software. This document summarizes new features, known problems, and operator notes for this version of software. Known problems are outlined in detail in sections 3 and 4. The Known Problems Section also lists "work arounds" for those problems that have them.

2.0 NEW FUNCTIONALITY

- New Unit workspace: The unit workspace provides simplified access to unit data. The operator can now access all units associated with a plan/phase or current situation from a single window. Unit information can be sorted by type, (i.e. cannon, rocket, other, etc.). Search features are also provided to assist the operator in locating specific units names on lengthy lists of units.
- New Target and Mission Workspace: The Target Workspace provides more rapid and convenient access to current mission and target list information.
- New Guidance Workspace: The Guidance Workspace simplifies navigation to guidance windows.
- New Geometry Workspace: The Geometry Workspace simplifies navigation to geometry windows, and access to existing geometry data.
- Improved and Expanded Fire Support Client: The AFATDS - Fire Support Client interface has been improved, which results in greater reliability. In addition, the Fire Support Client enjoys an expanded set of capabilities. These include the ability to create target lists and air support lists, and ability to initiate fire missions.
- Improved communications interface with Theater Battle Management Core System (TBMCS). Air support requests are now "bundled" into a single D670 message, rather than sending one D670 message per air support request.
- Expanded capability to store and display air mission data from the ATO with AFATDS air support requests.
- Export of ASL to floppy disk.
- A simple "ping" utility has been added, so that the AFATDS operator can verify network connectivity without having access to an "x-term" window.
- The operator can specify one of three coordinate display preferences (UTM, MGRS, GEO (i.e. LAT/LONG). This selection causes coordinate information on all system windows to be displayed in the specified format.
- Capability to send "free text" (GENADMIN) messages to TBMCS.
- Improved capability to exchange unit and geometry data with TBMCS.
- Operator alert generated when ASL updates are received.
- Improved ASR numbering scheme
- Capability to print "9 line brief" for air missions received in the ATO.
- Improved Interface with IOS system. AFATDS can generate "real" geometries from IOS inputs, rather than just general geometry types. IOS geometries can also be printed.
- NABK V3.02, which supports additional munition and weapon types, is incorporated in 6.3.1.0
- Mission Info Routing provides information addressee with additional information (attacking unit, munition, method of fire).
- Automatic forwarding of non-acknowledged messages on MLRS 11508910 networks.
- Display of MLRS launcher aiming data

3.0 PROBLEMS CORRECTED (OMITTED)

4.0 KNOWN PROBLEMS

Interface Issues that are not AFATDS Errors

- **Paladin may UTE missions during heavy mission loads:** Occasionally, the Paladin may send a UTE message when AFATDS sends an EOM on one mission and then a CFF on the next mission in close time proximity. To reproduce the behavior it is necessary for the AFATDS operator to select "Accept recommendation" or "Send" on the IP for mission 2 at about the same time the EOM for mission 1 is sent. Paladin will sometimes send back a UTE stating that it is ending the 1st mission due to receipt of the 2nd mission. Note that the mission completes - therefore this is considered a nuisance to the AFATDS operator - no action needs to be taken - It appears that AFATDS will not be able to do anything about this. It was noted that the message should be a BAT rather than a UTE.

- **CMP will die and restart occasionally**. Operators should be aware that the CMP process will occasionally "die", and the "mailbox icon" will display an "N/A", rather than the number of messages for review. When this happens, AFATDS automatically restarts CMP. When the icon displays a number again, rather than N/A, CMP can be used again. This typically takes only a few seconds.

- **Only one ASIP radio can be attached to the radio mount**. When two R/Ts are plugged into the same Radio Mount, both R/Ts are set to packet mode, and only one of the two radios has its data port connected to the INC, the INC is not able to transmit over the radio it is connected to via the data port. This occurs even when the radios were set to two different frequencies. This seemed to include 1256 messages as well as test messages. Once the second radio was removed, communications resumed. We suspect that the INC is being confused because it detects the radio via the interface on the backside of the radio mount, yet can't establish a physical link to the R/T data port of the radio. When this situation occurred AFATDS was unable to transmit but there was no indication of a problem other than failed message transmission in both directions. Operators can avoid this problem by leaving the second radio turned off, or at least not set to packet mode, if its not being used.

- **"Number Lock" key disables the "Mouse Button" menu items**. Clicking the mouse buttons with the cursor focused on the blank "AFATDS" window screen causes various selection menus to appear. If the "number lock" key is engaged, the selection menus are no longer accessible. De-selecting the "number lock" key solves this problem. This problem is a consequence of the common hardware /COE environment.

- **NET/NLT Cannot Be Processed By All Firing Systems**. AFATDS allows the operator to specify a "no earlier than (NET) and a "no later than" (NLT) time in mission data. When AFATDS generates fire commands for weapon systems, it includes the NET and NLT times whenever possible. Not all systems are able to process this information, however. Paladin, for example, cannot process NLT time, and will reject a fire order that contains an NLT. The pkg 11 message interface does not provide a way to send NET time. The MLRS FCS can process NET and NLT times. Air support requests can accommodate an NET/NLT time. Therefore, operators must be aware that for fire support systems other than MLRS and air, time constraints for target engagement are NOT automatically enforced. Control of mission timing must be performed manually.

- **PTM Notification of Conversion to ATACMS Mission Fails if No Direct Comm Route to Observer.** On rare occasions, an ordinary fire request received at AFATDS will result in selection of ATACMS for engaging the target. When this happens, AFATDS is designed to notify the mission originator via PTM that the mission has been "converted" to an ATACMS mission, and the processing AFATDS is now the "controlling unit" for the mission. If a non-AFATDS device (e.g. a FOS) initiates the mission, the PTM will not automatically go to the originator unless the AFATDS that originally selected ATACMS for the mission has a defined communications route to the observer.

- **Don't Fire Projectile M825 with M203, M203A1, or M232 zone 5 Propellant:** The M825 (improved smoke round) should not be fired with M203, M203A1, or M232 zone 5 propellant. Normally, the AFATDS user interface software prevents selection of incompatible ammunition components. In this case it does not, because knowledge of the restriction came too late to modify the software. This restriction does not apply to the M825A1 projectile. It is okay to fire the M825A1 with these propellants.

- **Archive Fire Support Plan to Jaz Drive Sometimes "Locks Up" System:** The CCU2 hardware allows the user to archive fire support plans to the Jaz drive. Unfortunately, the Jaz drive does not always work reliably. When an archive attempt fails, AFATDS may be "locked" in an archive "loop". Rather than stopping when the archive attempt fails, AFATDS continues to try and export. If you try to send the fire support plan via tactical communications after a failed archive attempt, and you see an error message on the 'export plan' window ("transfer plan still in progress), then AFATDS is in such a "loop". AFATDS blocks plan transmission if it senses that a plan archive or transmission is already underway. To recover from this situation, you must restart AFATDS

- **AFATDS and Joint Common Data Base (JCDB) use Different Rules for Naming Geometry Objects:** AFATDS and other fire support systems (e.g. IFSAS) allow the operator to give geometries the same name, so long as the geometries are of a different type. For example, it is possible to have a zone of responsibility called "3BDE" and a CFL called "3BDE" in AFATDS. The JCDB requires all geometries, regardless of type, to have a unique name. When AFATDS is operating with the JCDB, operators should follow a naming convention which provides unique names for all geometries.

AFATDS Known Problems

- **Clear and Clear/Verify buttons on the Disk Utilities Window have no function.** The Clear and Clear/Verify buttons on the Disk Utilities window do not actually do anything. These functions were removed when the Jaz Drives were introduced but the buttons were not removed.

- **Recalculate During Adjust or RFFE Appears to Move Mission Aimpoint**. If the operator chooses to recalculate an adjustment on an active mission, and then examines the "mission aimpoint" (visible on the "Adjust" window), he will notice that the displayed location may revert to the original target location. This is strictly a display problem. AFATDS uses the correct mission aimpoint for subsequent mission processing. But it is no longer displayed accurately on the "Adjust" window. NOTE: The only reason an operator should recalculate an in progress mission is to change the adjusting weapon.

- **AFATDS Displays Only 12 Firing Vectors Per Mission**: This problem may be encountered at Paladin Battalion FA CP's conducting massed missions and running detailed attack analysis. AFATDS will display

a maximum of 12 friendly fire vectors per mission. Even though the mission may include more units, only 12 vectors will be displayed. Mission processing is not otherwise affected.

- **Cannot Change Adjusting Shell During Adjust Phase of a Fire Mission**: AFATDS will not process a request to change the adjusting shell during the adjust phase of an active mission. This complicates execution of the "quick smoke" mission, which may be initiated with HE in adjustment, and then change to smoke in adjustment.

- **Firing DPICM in Adjustment Doesn't Produce "Impact" Trajectory**: If DPICM (M483A1, or M916) is selected as an adjusting projectile for a normal adjust fire mission, AFATDS does not produce firing data for a "graze burst" trajectory, but generates data for an "effects" trajectory, i.e. one which will cause submunitions to be dispensed over the target location. If target adjustment based on graze burst is desired, then an HE/PD projectile/fuze combination must be selected for the adjust phase. AFATDS produces "graze burst" data if DPICM is selected for a registration mission.

- **Target Indicator "Match" Does Not Generate Operator Alert**: When AFATDS receives a target indicator report (i.e. a shelling report) that correlates with an existing, inactive target, AFATDS is supposed to generate an alert message for the operator. AFATDS is not generating the alert.

- **Aircraft Type Not Displayed in Aircraft Info Window at AFATDS**: When an ATO is processed, the aircraft type associated with an air mission is not displayed in the "Aircraft Info" window.

4.1 KNOWN PROBLEMS WITH WORKAROUNDS

- **Printing Functions may discontinue if Print Queue alert is ignored:** Print Functions may discontinue after prolonged heavy printing. This has been observed during testing when printing was turned on for all messages in a high intensity scenario over several days. Operators should manage their Print operations and only print necessary information. If the printer becomes unavailable all other AFATDS functions will continue normally. Operators should wait until an opportune time and then shutdown and reboot the workstation to regain printer functions.

- **Exporting / Importing the Master Unit List has long delays.** A long list of units being modified will appear when only a few changes are made to a large Master Unit List. This occurs when a Master Unit list is exported then imported on another AFATDS workstation. An exported MUL with three unit changes can take approximately 5 minutes and Importing approximately 15-30 minutes. This is a display problem, all units are displayed in the window describing import master unit list differences instead of only the New or modified units being displayed.

- **Re-establishing LAN communications of channel that was on a Slave Workstation when a catastrophic failure of the slave occurs can result in a LAN channel that does not initially function.** This problem may occur at a multiworkstation OPFAC that has a LAN network physically connected to one of the slave workstations. If the slave workstation with the LAN channel should fail, this may cause LAN networks at the master workstation to fail. If the operator turns the failed network off, removes the assigned channel, and then re-assigns the channel and reactivates the network, communications return to normal.

- **Route management not transitioning with VMF Primary/Secondary routes**. If a direct primary VMF net and a direct secondary net VMF is configured for a communications route, the automatic transition from primary to secondary will not occur. The operator can open the destination units window and select Activate Secondary and re-transmit the message.

- **Slave workstation does not always restart on first try.** If a catastrophic failure removes the slave workstation from the master, the slave may not restart on the first attempt. The operator should simply shut down the slave workstation and attempt to connect again.

- **No Autotransmit of "Splash" to Observer for Adjust Fire, Battalion Mass Missions**. AFATDS automatically sends a "splash" to the observer for most cannon missions. It does not automatically send "splash" for the "fire for effect" phase of "adjust fire, battalion mass" missions (i.e. missions with multiple fire units in the FFE phase). The operator at the adjusting unit can send "splash" manually by selecting the "splash" button on the Weapon Status Monitor window at the appropriate time.

- **Attack Option Number on the Rocket Missile Solution Tab is Always Numbered "1":** When the operator selects a rocket/missile attack option on the Intervention window, and selects the Rocket/Missile Solution tab, the solution for the selected attack option is displayed, but the "attack option" column always shows a "1", regardless of the option number selected on the Intervention window. Operators should simply ignore the attack option number on the Rocket Missile Solution tab.

- **Multi-Workstation OPFAC won't Start if System Time on Slave Workstation is Greater than Time on Master Workstation**: If you are having difficulty activating a Multi-Workstation OPFAC, check the times displayed on the COE menu bar for the two workstations. If system time on the slave is ahead of time on the master, you can either "reverse roles", and start the slave as the master workstation, or start one of workstations singly, adjust the system time, exit AFATDS, and restart as a multi-workstation OPFAC.

- **Using "All On" Selection on Comm Networks Window Doesn't Activate FCS Net:** FCS networks must be individually activated.

- **Missions on Paladin Weapon Status Monitor Not Always Cleared when EOM Received**: This problem has been observed most frequently during when there is a heavy volume of fire missions. Closing and re-opening the window clears up the ended missions.

- **AFATDS Does Not Check for Duplicate Hostnames when "All On" is Selected:** AFATDS is designed to prevent the operator from activating a 188-220 net whose hostname duplicates the hostname of an active 188-220 net. It is not possible to communicate when two or more 188-220 nets have the same hostname. This "duplicate hostnames" check does not occur when the operator activates the 188-220 nets simultaneously using the "All On" selection on the "current networks" window. This problem can be avoided by starting 188-220 nets individually.

- **Fire Plans and Schedules of Fire Not Sent as Part of Fire Support Plan:** If an operator uses the "Transfer Plan" window to send a fire support plan to another OPFAC, and the fire support plan contains one or more fire plans or schedules of fire, the fire plan/schedule of fire portion of the plan transfer fails. The operator at the receiving OPFAC sees an alert stating the Fire Support Plan reception was partially successful (Targets failed to transfer). Operators can overcome this problem by conducting plan transfer without fire plans and schedules of fire. Once plan transfer is complete, fire plans and schedules of fire can be successfully sent using the "send" button on the fire plan and schedule of fire windows.

- **AFATDS Gives Unexpected Reason for Target Scheduling Failure**: If you attempt to build a schedule of fires in the current context that includes fire units with no ammunition on hand, AFATDS will not schedule them. But the exception reason given will be "range" rather than "ammunition". This is because of the way AFATDS performs attack analysis. It first checks to see if fire units are within range of a target. Range varies based on the ammunition type being fired, so AFATDS first looks to see what ammunition types are available, and determines maximum range accordingly. A unit with no ammunition on hand has what amounts to a "zero" range capability. Hence, this condition produces a "range" exception.

- **Rounds Complete Not Sent From AFATDS to Pkg 11 FOS When Mission Includes FFE2 Munition**: When a fire mission includes an FFE2 munition, and the mission observer is a Pkg 11 device, AFATDS does not always forward the "rounds complete" message to the observer. Other mission messages flow normally. The message can be sent manually by opening the "fire mission commands" window and sending the "rounds complete" command.

- **Fire Order Transmission Fails With Effects Target and Naval Gun System**: When AFATDS processes a fire mission for an "effects" type target, and selects a naval gun system to fire, transmission of the fire order to an external system fails. AFATDS is not populating the fire order with required volume of fire

information. This problem can be overcome by entering naval gun attack method guidance for the target type in question, and reprocessing the mission.

- **Dragging and Dropping Large Numbers of Units Produces Anomalous Behavior**: If you "lasso" a large number of unit icons (100 or more) and then "drag and drop" the icons to a new location, errors in AFATDS processing may result (e.g. unit locations will change on the map, but may not change at an attached EMT client, and may not change in the basic unit data window for the unit). The problem is most often seen when an EMT client is connected to AFATDS. This problem can be easily avoided if you limit "drag and drop" moves to a small number of icons (10 or less) at a time.

- **Selecting "Cancel" Button on Denied Missions List Window Desensitizes Deny Icon:** This may occur when multiple missions are displayed on the window. If "Cancel" is selected, the window closes, but selecting the Deny Icon no longer launches the Denied Mission List Window. The Icon becomes sensitized again whenever one of the mission status icons is updated (e.g. a new mission is received at IP, a new mission populates the Deny Icon). Exiting Current Situation also sensitizes the icon.

- **Recalculation of Segmented ATACMS BAT Missions Changes Number of Rounds to Fire**: Recalculating a segmented ATACMS BAT mission may cause the number of rounds to fire (as displayed in the Basic Target Information window) to increase. The number of rounds to fire is still displayed correctly on the Attack Options tab and Missile Information tab. The fire order message for the MLRS launcher also contains the correct number of rounds to fire. If operators happen to review the Basic Target Info window - Munitions tab under these circumstances, they should ignore the number of rounds displayed there, and rely on the information shown on the Attack Options and Missile Information tabs.

- **AFATDS Screen Goes Blank and Recovers:** On rare occasions, the AFATDS screen (or JMTK map display) will "blank out" for no apparent reason. This usually means the computer process that controls the screen display has experienced a problem. AFATDS is designed to recover quickly from process failures. In most cases, all the operator has to do is wait for the screen to return to normal, which typically takes less than a minute. The system continues to operate normally while the screen recovers. Operators sometimes "panic" in this situation, and reach for the workstation power switch. This is a bad idea! Interrupting power to the computer may cause loss of memory, and will certainly require a complete reboot and restart of AFATDS.

- **LAN Connection on Slave Workstation May Cause Failure**: The following problem arises on LAN networks with multiworkstation OPFACs, when the physical LAN connection is made to the slave workstation. If a test message is sent to a destination unit that has no communications route established, the slave workstation may fail, and have to be restarted. This problem can be avoided by making all physical LAN connections to the master workstation.

- **Registration Missions Sometimes Remain in Scheduling Queue When Mission Is Ended**: The following problem may be encountered when conducting registration missions. If you end a registration mission, and try to reinitiate a mission against the same target, and AFATDS does not generate a solution, inspect the Scheduling Queue (Mission Processing => Scheduling Queue). Remove the mission from the Scheduling Queue (Options => Remove Target) and it should now be possible to initiate a new mission.

- **"No ASR Numbers Available" Alert Sometimes Displayed Even When ASR Number Block Has Been Established:** This problem has been encountered intermittently. AFATDS processes an air support request, and the "No ASR Numbers Available" alert is displayed. This alert provides the operator with an "ASR Number" button which launches the ASR Number Block window. Select the "ASR Number" button, okay the ASR Number Block window, and continue processing the mission. If the "No ASR Numbers Available" alert is displayed again, select the "ASR Number" button, edit something on the ASR Number Block window (e.g. reduce or increase the ASR number range by 1), okay, and try again.

4.2 KNOWN PROBLEMS WITH EFFECTS MANAGEMENT TOOL (AFATDS CLIENT)

- **External Clients May Login with Same Name & Password:** If a client attempts to login into AFATDS using the name and password of another client who is already connected, AFATDS correctly refuses the connection. If the client tries to login a second time, however, using the same name and password, AFATDS allows the connection, and the client can perform normal client functions. This does not affect any processing, but may cause confusion. The problem can be avoided by assigning and using unique user names and passwords for all external clients.

- **Creating Target from Enemy Unit at AFATDS does not Update Client Target Display**: If the AFATDS operator creates a target from an enemy unit using the map icon pulldown menu, AFATDS correctly places a target on the ONCALL target list. But the target display at the EMT client is not updated with this new target. In this case, the only way to update the client display with the new target is to have the client log off and log on again.

- **Timeline Recording/Playback Does Not Work**: The Timeline Recording and Playback feature cannot be activated in AFATDS 6.3.1.0. This feature is not sufficiently mature for use in the fielded system. This feature will be available in the AFATDS 6.3.2 release.

- **Copied Target from Client Shows "Unknown Enemy" as Target Originator at AFATDS**: If the client operator copies an existing target onto a another target list, and the AFATDS operator reviews the target information, he will see "Unknown Enemy" displayed in the Originator field of the Basic Target Information window. This is strictly a display error, and does not affect any subsequent target processing.

- **Target Data Cannot Be Deleted From Client**: Client operators may encounter difficulties deleting target information. If this problem is encountered, take the following action. Contact the AFATDS operator and have him open the Target Accumulation window, set the value to zero, and okay the window. Okay the window even if the window already displays zero. Now it should be possible to delete targets at the client. Internal AFATDS processing sometimes causes the Target Accumulation value to be set to 1 hour. Resetting this value to zero should correct the problem.

- **Friendly Firing Vectors Remain Displayed at Client Even When Mission Goes Inactive**: If friendly firing vectors are displayed on the client map, the vectors sometimes remain displayed even when missions change from an active to an inactive status. This problem is most often seen when there large numbers of missions are processed. The only sure way to update the client display is to have the client operator log off and log on again.

4.3 OPERATOR NOTES

This section describes perceived problems that commonly arise from lack of understanding regarding AFATDS behavior and new software features. The following items may help the operator avoid frustration when confronted with new and unfamiliar system behavior.

1. Target Lists are now paged. Two key changes in the behavior of the Target List windows have been made that improve the speed of these windows dramatically. The columns are still configurable by the operator, but the width of the window is now fixed to about 110 characters, not the previous 400 characters. Eliminating the horizontal scroll was needed to increase the speed of opening this window. In addition, the Target Lists are now paged in a manner similar to the Master Unit List window, where 100 targets are displayed within each page.

2. Current Situation disappears when exiting a plan. The new JMTK software automatically brings the "System" tab to the foreground of the map whenever a map tab is removed. Typically this will happen whenever you exit a Planning Situation. This may look to the operator as if the Current Situation has disappeared or died. This is not the case and the Current Situation can be easily returned to the foreground by clicking on the "Current" table in the map window.

3. CMP Mailbox does not refresh. CMP windows behave a little differently from other windows within AFATDS. When the CMP window is opened by selecting the Mailbox icon, this window should NEVER be exited using the "File => Exit" option. This actually terminates the CMP application and causes AFATDS to have to restart CMP (which it does automatically). The recommended approach to get rid of the window is to close the window using the "X" button in the upper right corner of the window frame. You can also "minimize" the window using the "dash" button on the upper right corner of the window frame. If you "minimize" the window, however, do not use the "icon tray" at the bottom of the screen to reopen the window. The CMP window will not refresh properly if this is done (i.e., the window will appear blank). The recommended procedure is to always select the Mailbox icon in the Main Menu bar to re-open the CMP window.

4. Non-standard G/VLLD codes can be sent to IFSAS by AFATDS. AFATDS allows the operator to enter G/VLDD codes that are not valid for the G/VLDD device itself. The AFATDS value range is based on the VMF Message standard, which is designed to support many laser designator devices. Some of these devices support more values than the G/VLLD. . If this is done, the message will fail at the IFSAS whenever this data is sent from AFATDS. Operators need to ensure that a correct G/VLLD code is entered. Correct codes are 3 digit numbers composed solely of the digits between 1 and 8 inclusive.

5. Geometries received from external systems. If an external system (such as an IFSAS) sends a geometry to AFATDS, then the sending unit becomes the establishing unit for the geometry and the data sent with the geometry updates the data within the AFATDS database. If the transmitting system does not provide values for all fields, then AFATDS will fill these fields with default data (e.g., minimum altitude default is –32797 feet).

6. Modem channel failures. Modem channel failures may occur and will require the operator to re-enable the affected network. These failures usually indicate some problem in the environment that is interfering with the radios, such as a radio locked in transmit mode. There is a known problem with the SIP radios when set to 16K SC/PT mode where it can get locked in transmit mode. This mode should not be used if possible so this problem can be avoided.

7. AFATDS Login protection. A situation can occur where the operator cannot log-in using his/her username/password. This is actually a result of a security feature that is invoked whenever the operator fails three consecutive log-in attempts. This is not a problem with the software but may be interpreted as one if the operator is unaware of this security feature. If this happens, the security manager must "unlock" the user profile:
   - Log-in as secman
   - open an X-Term
   - type "cd /h/COE/Comp/PSM/bin"
   - type "./PSM_unlock username" (where username is the operator's username)

8. **Weapon Numbering: When building Paladin cannon and MLRS launcher "single weapon" units in A99, be sure to designate the Paladin/MLRS launcher as weapon number ONE in the weapon data window. AFATDS will automatically select weapon number one for you when you create the unit and enter weapon data. Errors in processing may result if weapon numbers other than one are used for Paladin and MLRS launcher units.**

9. **Unit & Weapon Azimuth of Lay: The azimuth of lay for AFATDS cannon units appears on both the Detailed Unit Data screen and the Weapon Data screen. The Detailed Unit Data azimuth of lay is used to define the unit's range fan, which is used in AFATDS tactical fire control processing. A target must lie within a unit's range fan in order for AFATDS to select that unit for firing. The weapon data azimuth of lay is used in ballistic calculations, and must be entered for each individual weapon. It is essential that azimuth of lay be entered for each weapon AND on the detailed unit data screen, and that all of the entries be equal!**

10. Massing large number of Fire Units on a single target**:** When generating "mass attack" options, AFATDS is limited to a maximum of 20 units per mission. If your OPFAC is running Detailed Attack Analysis and you are analyzing more than 20 Fire units (Example - you are a DIVARTY FDC controlling 3 Paladin Battalion with 18 individual Paladin Fire units each. This is 54 Fire units.), then AFATDS will not generate a capable option for a "DIVARTY" massed option. This is because AFATDS wants to mass all 54 Fire units (remember each individual paladin is a separate fire unit when running Detailed Attack Analysis), but is constrained from adding more than 20 units to the option. Since 20 is not 2/3 of 54 (at least two thirds of the required number of tubes must included in the option before AFATDS considers it "capable") then AFATDS indicates that no capable mission solution could be generated (red gumball). This problem can be overcome by using Unit Attack Analysis The reason Unit Attack Analysis was developed was to support attack analysis at "higher echelon" FA CPs. Massing the DIVARTY will not be a problem if you run Unit Attack Analysis at the DIVARTY AFATDS, because subordinate FA CPs are analyzed and considered in the attack option, rather than individual fire units. Remember that ammunition and weapon summary data must be sent from subordinate FA CPs to the commanding FA CP that is running Unit Attack Analysis.

11. Point locations in geometry windows and SPLL Commands window may differ: The operator can send deployment commands to an MLRS launcher using the SPLL Commands window, accessed through the unit data window, or the map icon. When the operator selects a point ID in this window, AFATDS automatically populates the location field with point's current location. If the operator selects "okay" or "send", the location and point ID are stored with the unit data. This provides the operator with a record of the location last sent (or stored) for a particular MLRS launcher. For example, if the operator opens the SPLL Commands window for launcher 1/1/A/2 /20, and selects Firing Point A2, AFATDS populates the location field with A2's current location (e.g. 6 51200 034 54300 130 +14). If the operator selects "send", AFATDS generates and sends an MLRS COMD message to the launcher, directing it to move to A2/6 51200 034 54300 130 +14, and saves the data in the SPLL Commands window with the unit data for 1/1/A/2 /20. If the operator subsequently updates the geometry point location for Firing Point A2 (e.g. 6 55000 034 55000 150 +14), and then reviews the SPLL Commands window for launcher 1/1/A/2 /20, the window still displays the last data entered in the window (i.e. A2 6 51200 034 54300 130 +14). If the operator wants to send the launcher to the "updated" firing point A2 location, he must "deselect" and "reselect" A2, which will cause AFATDS to populate the location field with the current point location stored with the geometry data (6 55000 034 55000 150 +14), and then select "send".

12. Accidental mouse clicks on the map can cause the map menus and tool icons to disappear from the Map Window. The operator can right click on the ICON in the upper left corner inside the map window and select:

    VIEW >> STATUS BAR TOGGLES >> TOGGLE MENUBAR and
    VIEW >> STATUS BAR TOGGLES >> TOGGLE TOOLBAR

    If the menu bar still does not appear correct select:

    VIEW >> RELOAD DEFAULT MENUS

13. Updating Geometries. AFATDS linear and area geometries are defined by multiple points. When AFATDS processes an update for an existing geometry, whether input by the operator or received from an external system, the update is performed on a point-by-point basis. Existing points that are not changed by the update remain part of the geometry. This behavior may lead to confusion if its consequences are not understood, however. For example, AFATDS receives a ZOR "99DIV" from an IFSAS device, which consists of 15 points, numbered 1 thru 15. Later, AFATDS receives another geometry message from IFSAS with an update for ZOR "99DIV", which includes new locations for points 1-12. Points 13 - 15 are still part of ZOR "99DIV", as far as AFATDS is concerned. If the locations for points 1-12 have changed substantially, then the new "99DIV" ZOR could have a very odd shape indeed. When modifying an existing geometry, the safest course is almost always to delete the existing geometry, and then enter and disseminate a new one.

14. Do Not Select Recalculate Option When Changing the Size or Attitude of a Large Target: AFATDS segmentation rules are complex, and vary according to weapon system and ammunition type. If you are dealing with a large target that may require segmentation, and you must modify the target size or attitude, it is best not to rely on the Recalculate option on the Intervention window. In most cases, it is better to deny the mission and initiate a new one with the correct target information.

4.4 FIRE DIRECTION TROUBLESHOOTING GUIDE

The following table is designed primarily for echelons that perform cannon technical fire direction. It also contains guidance on multiworkstation operations, communications, and Digital Communications Terminal (DCT) operations.

Troubleshooting Map This section provides a number of tables that group problems by operational function. The **Troubleshooting Map** provides a guide to the correct table. Start troubleshooting here.	
Type of Problem	**Go to Table…**
Accuracy problems.	Table TS2. Firing Data Troubleshooting.
DCT message problems.	Table TS5. DCT Messaging
Fire missions at intervention not providing desired results.	Table TS1. Technical Fire Direction Troubleshooting.
Communications Troubleshooting	Table TS4. Communications Troubleshooting
Multi-workstation troubleshooting	Table TS3. Multi-Workstation troubleshooting.

TS1. Technical Fire Direction Troubleshooting	
SYMPTOM	**POSSIBLE CAUSE/SOLUTION**
No firing data computed: TIME 0.0, DEFLECTION 0, QE –400 on **Intervention Cannon Tech Soln Tab**	• **Guidances, FS Attack, System Attack Parameters** has your unit ID as the **FA Cannon Route To** unit / remove your unit from this guidance.
Intervention Attack Options tab range is within ammunition capability but red option for range and ammunition displays.	• Duplicate propellant, fuze or shell lot codes stored for your unit/ edit and correct the ammunition inventory.
Intervention Attack Options tab indicates one weapon red for **Restricted Unit** check.	• Same lot letter stored for different propellants in unit's MVV folder/ edit and correct MVV data. • This weapon has mask data stored with a **Range To Mask** of 0/ edit your unit and correct weapon's mask data. • This weapon has mask data stored with the same value entered for the **Left Az** and **Right Az** to the mask/ edit your unit data and correct the weapon's mask data.
Intervention Attack Options tab indicates all	• **Guidances, Miscellaneous, Target Decay Time** set to 0 for this target type/ correct target decay time and

TS1. Technical Fire Direction Troubleshooting	
SYMPTOM	**POSSIBLE CAUSE/SOLUTION**
weapons red for **Response Time Capability** check.	re-initiate fire mission.
Intervention Attack Options tab indicates first listed weapon red for **Appropriate System for Mission Type**.	• Target at extreme limit of charge capability, recompute with a higher charge. • MET data stored with extreme values for wind direction, speed, temperature or pressure or 0 entered for temperature or pressure.
Copperhead mission **Intervention Attack Options** tab indicates first listed weapon red for **Appropriate System for Mission Type**.	• No observer assigned to mission or observer has no **Laser Code** stored in his **Detailed** folder/ correct observer data and recalculate mission. • Observer cloud height or visibility too limited/ verify observer cloud height and visibility. • MET data stored with extreme values for wind direction, speed, temperature or pressure or 0 entered for temperature or pressure.
Copperhead mission **Intervention Attack Options** tab indicates all weapons examined, one weapon red for **Munitions Capable** check.	• **Edit This Unit, Weapon** folder has no weapons selected as **Copperhead Capable**/ edit your unit data and select the weapons to be considered for Copperhead missions.
Intervention Cannon Tech Soln tab provides data for some but not all guns.	• Missing weapons are assigned a status other than **Ready**/ edit your unit and correct the weapon's status.
Adjusting piece was specified but another piece was designated by AFATDS.	• Adjusting piece is out of action/ edit your unit data and verify piece status. • FFE pieces were specified and the adjusting piece specified was not one of them/ recalculate the mission and ensure the adjusting piece is one of the FFE pieces.
Red option, **Intervention Attack Options** tab indicates red for **Meets Mission Cutoff**	• Mission value insufficient/ verify **Guidances, Target, High Value Target List** and **TMM** and **Mission Prioritization** are correct and as desired by the supported FSCC.
Gun-target vectors on AFATDS map originate from a location other than the battery map symbol location.	• The battery symbol has been dragged to a new location; gun locations remain unchanged to prevent unsafe firing data computation/ verify battery location.
Status window shows GDU's as "Unknown Unit"	• GDU units have been deleted from the master unit list by the operator/ This will correct automatically if AFATDS is restarted.
Deflection for all guns appears incorrect by the same	• Az of Lay is incorrect. Ensure AOL for *each weapon and Detailed information* matches. If you relay on a

TS1. Technical Fire Direction Troubleshooting	
SYMPTOM	**POSSIBLE CAUSE/SOLUTION**
difference on each gun.	new azimuth without displacing you must change the AOL for both the displayed range fan (detailed data) and each weapon (weapon data).
TSS filter check failure, Recommendation is to Deny.	• Target TLE and/or age of report exceed TSS Guidance. • To turn this check off: Click **Guidances, Target, and TSS**. Turn off TSS check by clicking the **Check Fire Missions Against TSS**.
Initiate Fire Mission window will not allow a selection to be made from a list such as to add an FFE unit. List displays, but when a selection is made, selection is not added to IFM window.	• Exit and re-start AFATDS

TS2. Firing Data Troubleshooting	
Problem	**Possible Solution**
Single piece out of sheaf.	Determine which piece by firing a battery or platoon right or left by piece. ❑ Check piece location. ➢ Click **Units, Edit this Unit**. Click **Locate Weapons** and re-enter piece lay data. ❑ Check piece muzzle velocity data. . ➢ Click **Units, Edit this Unit**. Click **MVV Data.** ❑ Check piece propellant temperature. ➢ Click **Units, Edit this Unit**. Click **Weapons.**
Pieces group in sheaf, sheaf off target.	❑ Are all non-standard conditions accounted for? ➢ Yes, continue to troubleshoot. ➢ No, achieve more accurate database with meteorological and MVV data or register. ❑ Did accuracy decline after reception of a MET;CM? ➢ If a registration is in use, was concurrent met procedure carried out properly? ❑ Check piece locations. ➢ Click **Units, Edit this Unit**. Click **Locate Weapons** and ensure OS locations are correct. ➢ Re-enter lay data and re-compute piece locations. ❑ Check meteorological message data. ➢ Click **MET**, **View METCM**. Ensure met message is in use. ➢ Ensure the MDP altitude is reasonable. ❑ Check registration data. ➢ Are the range and/or deflection correction larger

TS2. Firing Data Troubleshooting	
Problem	**Possible Solution**
	(range correction over 5% of chart range or deflection correction greater than 10 mils)? ➢ Was the registration validated by firing a check round at a surveyed target with another gun? ❑ Check projectile weight. ❑ Check map datum. ➢ Is the correct datum assigned to both the observer? Click **Units, Edit** and select the observer. ➢ Is the correct datum assigned to both the battery/platoon? Click **Units, Edit this Unit**.

TS3. Multi-workstation Troubleshooting	
SYMPTOM	**POSSIBLE CAUSE/SOLUTION**
Slave workstation shuts down on start-up.	• Master and slave workstations have same hostname. • Master and slave have same IP address.
Slave station starts as stand-alone workstation	• Multi-Workstation OPFAC name different or missing on one or both workstations; exit and restart AFATDS.

TS4. Communications Troubleshooting	
Problem	**Possible Causes/Solutions**
Comm alert: Subnet reaching saturation level. Subnet *net name* at *number* % of queuing capacity.	Number of transmitted messages on a package 11 or JVMF net exceeds the network's ability to transmit. ➢ This alert is usually followed by a communications alert indicating: Subnet below saturation level. Subnet *net name* at *number* % of queuing capacity. ➢ If problem persists, contact net control. Recommend changing net local transmission load to heavy.
Comm alert: Multi-hop message dropped enroute. A msg bound for the destination could be forwarded by the intermediate station: Intermediate Unit ID: *(unit ID)* Destination Unit ID: *(unit ID)*	❑ A message was transmitted via an indirect route. One of the relaying stations failed to received an ack on the message. ➢ Contact the Intermediate Unit ID to troubleshoot communications.
Comm alert: Received clear data over secure UDP	❑ The station using the IP address in the alert has security set to **Clear** on their network window and

TS4. Communications Troubleshooting	
Problem	**Possible Causes/Solutions**
network. Source address: *(ip address hostname)*	your corresponding network is set to **Secure**. ➢ On the Click the **Current Communications Configuration** icon and verify the security level on your IP network is correct. ➢ Contact the transmitting station and have that station verify the network security setting. *Note data communications transmitted from a secure to a clear network computer are ignored by the AFATDS set to the lower security level. Another network or voice communications is required.*
Comm Alert: Communications modem device failure on workstation. Experienced failure (and subsequent reset) of subnet.	❑ SP-TCIM was manually ejected from CCU2 ➢ Replace **SPTCIM** and re-boot the computer. ❑ SP-TCIM suffered hardware failure. ➢ Move network to another SP-TCIM: On the **Current** menu bar, click the **Current Comm Configuration** button and select **Network, Assign Channels**. ➢ Replace failed SP-TCIM.
Comm Alert: Transition to alternate route *(route name or blank)* Destination Unit ID:	❑ Communications failure has resulted in disabling of the current route and transition to an alternate route or to an "off" status if the alternate route is blank in the alert. ❑ On a package 11 or JVMF net or a net using DSVT or DNVT, the destination unit has turned off his communications network or shutdown his AFATDS.
Comm Alert: Re-establish route for unit. Destination Unit ID:	❑ A unit for which the route was disabled, has successfully communicated on that route. AFATDS has turned the route on as a result. No action is required.

TS5. DCT MESSAGING.	
DCT MESSAGES SENT TO AFATDS	
DCT SENDS…	**AFATDS GETS…**
OBSERVER LOCATION	AFATDS updates existing data: Location Cloud Height Visibility: 0= no change, 1=2000. 2= 4000, 3=7501 Laser Code
ATI	Stores in Suspect Target list if fails TSS, otherwise stores in Inactive Target List or,

TS5. DCT MESSAGING.	
DCT MESSAGES SENT TO AFATDS	
DCT SENDS…	**AFATDS GETS…**
	if HPT, initiates a fire mission.
FLOT	Creates a FLOT named using observer's TACFIRE alias.
PLAN	Creates a TGT icon indication of a received target list; target is stored in the Current Planned Target List. If Fire plan name is a future plan alias, target stores in that plan's Master target list.
DCT MISSIONS SENT TO AFATDS	
DCT MISSION…	**AFATDS RESPONSE…**
TOT	• Mission queues in MORE DATA for TOT • MTO to DCT shows UNITS as number of guns • If mission is less than 10min out, GDU status shows count down timer; if more than 10min, TOT displays in STATUS • READY is not sent to the observer. • If the TOT is more than 10 minutes out, the fire commands must be sent by the AFATDS
SMK – Observer selects HC SMK	• Mission queues in MORE DATA for Quick Smoke data. • MTO indicates UNITS: (number of guns) • If M825 is fired, 1ST SF: OTHER displays.
REGISTRATION: Must be initiated at AFATDS and DCT receives MTO: - MTO indicates MOE: LOW vice LOW/REG; FO must be notified by freetext.	• READY cannot be sent digitally from the DCT. • Changes in VOF are not applied, observer must send a new SUBS ADJ for each change in volume of fire. • Change to TIME and RECORD AS RP, REC AS TI RP are not recognized and result in invalid message alert. • **This mission must be done using voice procedures!**
HB registration: Must be initiated at AFATDS and DCT receives MTO:	• No way to send READY • HB SUB ADJ is not recognized

TS5. DCT MESSAGING.	
DCT MESSAGES SENT TO AFATDS	
DCT SENDS…	**AFATDS GETS…**
- MTO indicates MOE: LOW vice LOW/REG; FO must be notified by freetext. - MTO is normal mission MTO, no orienting data.	• **This mission must be done using voice procedures!**
QUICK FIRE	• If target is not on Current Oncall Target List, AFATDS automatically returns a freetext "(TGT NUMBER) TARGET COULD NOT BE PROCESSED • If target is on Oncall Target List, WR/FFE mission results.
MINEFIELD MISSION	• Must be recalculated and time FUZE and FASCAM density assigned.
FIRE command for AMC mission	• Works
COORD ILLUM	• Creates two one gun missions • If sent directly to firing battery, MTO for second mission is returned to FO, FO can associate with an empty mission buffer at DCT.
EOM&SURV	• RAT stores target in INACTIVE TARGET LIST