IXEG

international x-plane engineering group

737 CLASSIC

Bug Reporting Protocol

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GENERAL / BACKGROUND

When IXEG refer to *bugs*, we generally are referring to problems that stem from our custom programming code. It is anticipated that nearly 90% of all bugs, if not more, will relate to the FMS and FMS usage and this guide is geared mostly towards that scenario. Any bugs not relating to the FMS, in general, can be reported to IXEG by email or by posting in our forums and simply describing the problem. What follows are procedures for reporting FMS related bugs.

In order to facilitate effective communication between testers and IXEG when reporting bugs, it would aid greatly if you would become familiar with, and utilize, the following common terms/definitions when reporting bugs.

- *CTD* - "Crash to desktop" X-Plane crashes and closes. This is not terribly common, but is the highest priority situation to report.
- *Soft Crash* - Gizmo displays a big console window with lots of text in it. This is the 2nd highest priority situation to report. X-Plane continues to run but the FMS is generally untrustworthy at that point, even though it may not appear to be.
- *Bug* - Any anomaly to be fixed NOT resulting in a soft crash as described above.
- *Gizmo Console* - A pop-up window that appears when you encounter a *soft crash*. It can be closed or made visible at any time however.
- *Gizmo side menu* - A small menu that appears on the right side of the screen when the mouse is moved to the right edge of the screen.
- *Reboot* - The act of accessing the Gizmo menu and selecting the *RebootButton* option. This will reset the entirety of the aircraft systems state. (Alternate reboot methods given below)
- *Gizmo Error Message* - a line of red text in Gizmo's console window after a soft crash.
- *Flight event* - A instantaneous event during automated FMS flight (with no pilot input) where a possible change in a speed or altitude targets could be effected such as:
  - passing a waypoint.
  - crossing the speed restriction altitude.
  - passing Top of Descent (T/D) point.
  - passing a deceleration point.
  - Crossing runway threshold waypoint during a missed approach.
- *CDU event* - The pressing of a button on the CDU.
- *EXEC* - The act of pressing the EXEC button to calculate a route.

The heart of the IXEG 737 simulation is found in its custom programming, which is done via the Gizmo/Lua scripting engine. These code scripts are loaded and run whenever the 737 is loaded and Gizmo is *rebooted.* Gizmo reboots whenever:

- X-Plane is initially loaded.
- A reboot button is pressed (there are two: one in the Gizmo side menu on the right of the screen, one in the upper left corner of the Gizmo console window)
- An IXEG start state is selected. (via *preflight* menu)
- Optionally, (via the *preference* menu) whenever the aircraft is relocated using the X-Plane menu. (disabled by default).

Rebooting Gizmo will reset the state of the aircraft systems. If you encounter a *soft crash,* then you must *reboot* Gizmo in order to reset the aircraft state. If you have enabled the preference to *reboot on relocation*, then you may, alternately, relocate the aircraft using X-Plane's menu and the relocation will trigger Gizmo to reboot. The best practice when encountering a *soft crash* is to reload the aircraft using X-Plane's "open aircraft" menu, and re-select the 737.

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BUG TYPES

With regards to FMS usage, there are 5 types of bugs to keep an eye out for. When reporting a bug, please use the term provided in blue to describe the category of bug if applicable.

- *Incorrect Data:* A '*incorrect Data bug*' is when data on the CDU screen is not as expected. For example:
  - Cruise altitude is written as 'FL120' when it should be '12000'
  - A waypoint has a <SEL> label when it should be <ACT>
  - Calculated speed for a waypoint does not heed a limiting restriction from another waypoint.
  - LSK Navigation line should say TAKEOFF> but says PERF INIT>
  - Calculated altitude for a waypoint is glaringly wrong.
  - A data line should have information it does not have or the information is wrong.
  - The title of a page has the wrong or missing information.
- *Incorrect CDU Logic:* A '*incorrect CDU Logic bug*' is when the CDU does not behave as expected when you select a button or should automatically change. For example.
  - When transitioning from the CLIMB to CRUISE flight phase, the CDU page does not sequence from climb page to the cruise page automatically (which it should).
  - You press the N1 Page button, but the PERF INIT page appears instead.
- *Incorrect LNAV route.* This bug is when the LNAV route does not draw as expected and will manifest itself as you are entering routes and procedures on the CDU. You will usually have to use the plan mode STEP function to inspect the route. In most cases, you can edit the route easily to fix the issue, but we use such cases to work with the nav data provider to examine and improve the database if need be. Examples of problems are:
  - The route may have a sharp point or 'kink' in the route.
  - The route has a “loop-the-loop” in it.
- *Incorrect VNAV tracking*. Any bugs in this category will be seen during the climb, cruise or descent phases of flight. Examples of incorrect VNAV tracking are:
  - Wildly varying deviation altitude as you cross waypoints or significant altitudes like the SRA and MSA.
  - Aircraft does not track the vertical path properly.
  - Aircraft does not heed the entered speed when in SPEED descent mode.
- *Gizmo soft crash.* This is a most serious bug and is manifested by a “pop up window” with red text shown in the window. Pause the sim and generate a bug report per the protocol below immediately.

GENERATING THE BUG REPORT DATA

For effective utilization of the beta process, it is imperative that IXEG receive all the pertinent data required to debug problems you may encounter. To aid in this process, IXEG have provided a mechanism, via the CDU keypad, for you to export out a text file to send to IXEG when reporting bugs. When encountering any of the above bugs, the procedure to report them is:

1. ENSURE that the preference *Turn on Debug Mode* is enabled in the IXEG preference menu. Otherwise, the following steps will not work.
2. Pause the sim.

NOTE: When you encounter a Gizmo soft crash, the following step 3 may not work. Look for the confirmation message on the CDU to determine if this step was successful.

3. Press the period key on the left CDU four times in a row, i.e. " . . . ." This will cause a file called, "*IXEG_debug_01.txt*" (_02, _03 ..... and so forth for subsequent debug files) to be written into the root directory of the 737. The highest numbered suffix will be the most recently generated file. A confirmation message, "*DEBUG EXPORTED*" will appear on the CDU scratchpad to confirm a successfully exported debug text file. If the confirmation message does not appear, then you probably encountered a soft crash, rendering the debug output inoperable. Ignore step 3a below in such cases.
4. Create a folder to contain the debug files and give it a unique name, and include in the folder:
   a) The exported IXEG_debug_##.txt file
   b) A copy of the Gizmo Log file, (*GizmoLog.txt*, in the root X-Plane folder)
   c) A text file with a short description of the problem, using the standard bug names and common definition terms. This text file description, in conjunction with the above two text file, will comprise the "bug report".
   d) OPTIONAL. Any screenshots to help illustrate the problem.

You may generate a IXEG debug file at any time using the CDU; however, best practice is to pause the sim and generate the IXEG debug file immediately after observing the bug you wish to report and put it in a folder as outlined above. You may; however, accumulate several such "*bug folders*" before sending a group of bug folders to IXEG en masse.

If you are reporting a *soft crash* bug, then after generating the IXEG debug file (if successfully generated), you can simply relocate the airplane and/or reboot Gizmo manually to reset the aircraft state and conduct another flight. It is perfectly acceptable to reboot Gizmo in the middle of a flight and begin the route entry process again; however, once you receive a soft crash Gizmo window, nothing is guaranteed to work properly until Gizmo is rebooted.

SUBMITTING THE BUG REPORT

Once you have a folder with the relevant files in them, Please submit the report and package to support@x-aviation.com.