



**Release Notes
9555 Firmware
Version HT10017**



Iridium Satellite Product Firmware Technical Release Notes

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Iridium Subscriber Equipment Firmware Engineering

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1 Release description and purpose

This note covers the 9555 Firmware Release HT10017. The last official release was HT10012.

This HT10017 contains enhancements and fixes defects noted below in Changes chapter 4.

2 Version Information

The release version information is as follows:

9555 Firmware	HT10017, built: 16-Nov-2010 20:51 GMT
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3 Upgrade Tool

This section explains how to upgrade an Iridium 9555 handset to HT10017 from HT08008, HT09007, HT09014, HT10001 or HT10012. For updated information regarding upgrade from other, or pre-production 9555 firmware releases in use by beta test, please contact your Iridium Service Provider.

A full upgrade is expected to take from 6 to 15 minutes, (a few more minutes longer from HT08008). During each of the upgrade steps, the upgrade application will show you progress, and the display on the 9555 handset will vary. For example it may show an upgrading message, or blank during the other portions of the upgrade, or showing the start up animation as the handset is rebooted.

As the upgrade proceeds you may see “Inconsistent firmware. Please run upgrade tool” displayed on the Iridium 9555 handset screen. Please ignore this message while the upgrade is still in progress.

Note: This version of the handset upgrade tool produces much more detailed logging, and does not overwrite its previous log files if run multiple times. If irresolvable problems are experienced with the upgrade, all the log files may be collected from the upgrade tool directory and provided to your Service Provider if requested.

3.1 Requirements

Before you start, ensure you have the following:

- Iridium 9555 Handset, currently running HT08008, HT09007, HT09014, HT10001 or HT10012 firmware. This may be verified by selecting Menu, Setup, Phone Information on the Iridium 9555 Handset. The firmware version is displayed and should say HT08008, HT09007, HT09014, HT10001 or HT10012. For upgrade from other firmware versions, please contact Iridium Support.
- PC running one of:
 - Microsoft Windows XP SP2
 - Microsoft Windows XP SP3
 - Microsoft Windows XP 64b
 - Microsoft Windows Vista
 - Microsoft Windows Vista 64b
 - Microsoft Windows 7

- Microsoft Windows 7 64b
- For updated information regarding upgrade tool compatibility with other Windows® operating systems, please contact your Iridium Service Provider.
- USB cable
- Charger
- Firmware upgrade archive unpacked to a local disk folder on your PC

The upgrade tool needs to be able to write to the folder it is being run from, **do not** run it from a shared network drive or CD; copy the firmware upgrade package to a local folder on the PC being used for the upgrade, eg C:\Iridium. (Subsequent references to path will assume C:\Iridium.)

Warning:

- If you have a Bluetooth device enabled on your PC, you will need to disable it while you do the upgrade. For example if you have a Bluetooth dongle please unplug it, if you have built-in Bluetooth please turn it off. For example on an IBM Thinkpad, the Fn plus F5 keys bring up a screen that lets you turn the Bluetooth on or off.

Not absolutely required, but for best results:

- Remove the SIM prior to upgrade
- If the SIM is allowed to remain in place, be sure SIM Lock is disabled.
- Turn off Phone Lock if currently enabled
- Connect charger, (or ensure full battery charge).
- Disconnect external docking antenna, perform upgrade inside (no satellite network connectivity).

3.2 Performing the upgrade from HT08008

1. Plug charger into handset. Do not have USB connected.
2. At the idle screen, dial *#888# <green key>
3. The phone will reboot into “DFU mode” and display "Upgrade in progress"
4. Connect the USB cable, if prompted to install drivers install the DFU drivers found here:
C:\Iridium\HT10017\tools\windows_usb\DFU.
5. Run the upgrade tool: C:\Iridium\HT10017\upgrade_tool\H2Upgrade_HT10017.exe
6. The handset will be detected in DFU mode. Select it and press Start.
7. The application processor upgrade will run, once the handset reboots after this you may be prompted to install drivers again, at this point install the following driver:
C:\Iridium\HT10017\tools\windows_usb\VCOMPORT.
8. Continue the upgrade process as normal (if the tool timed out at the end of step 7 while the drivers were being installed just re-run the tool).

3.3 Performing the upgrade from HT09007, HT09014, HT10001 or HT10012

- 1) Power the Iridium 9555 handset on.

- 2) Connect the Iridium 9555 handset to the charger.
- 3) Connect the USB cable between the PC and the Iridium 9555 handset.
- 4) If you have not used the PC for data connections using the Iridium 9555 handset before, proceed to step **b)**. If you have used the PC for data connections using the Iridium 9555 handset before or installed Iridium firmware before and are having problems upgrading, proceed to step **a)**.
 - a) You need to remove the previously installed drivers.
 - i) Set the phone to DFU mode by entering the following on the keypad ‘*#888#’ <green key>
 - ii) Go to your *Start* menu or the newly renamed *Pearl* menu, locate *Computer*, right click on it and select *Properties*.
 - iii) On older versions of Windows select the *Hardware* tab, then select *Device Manager* (a link on newer versions of windows), expand the *Ports (COM & LPT)*, *Universal Serial Bus controllers*, and *Other devices* ‘trees’, and then select **Show hidden devices** from the *View* menu.
 - iv) Locate any entry containing *Iridium* under the *Universal Serial Bus controllers* ‘tree’, right click on it, and select **Uninstall**. If an option exists to delete the driver, select this also. Respond *Ok* to any “Are you sure” prompts.
 - v) Remove and replace the battery from the phone to get out of DFU mode. Restart the phone (Which should still be connected to the PC by the USB cable).
 - vi) Locate any entry containing *Iridium* under the *Ports (COM & LPT)* ‘tree’, right click on it, and select **Uninstall**. If an option exists to delete the driver, select this also. Respond *Ok* to any “Are you sure” prompts.
 - vii) Unplug and re-plug the phone from the USB cable. This should trigger the *Found New Hardware* wizard.
 - b) The next steps depend on which version of Windows you have:

Windows XP

- i) A window titled *Found New Hardware* will appear
- ii) Select *No, not at this time*
- iii) Click *Next*
- iv) Select *Install from a list or Specific Location (Advanced)*
- v) Click *Next*
- vi) A window titled *Please Choose Your Search and Installation Options* will appear
- vii) Select *Search for the best driver in these locations*
- viii) Uncheck *Search Removable Media. (Floppy, CD-Rom...)*
- ix) Select *Include this location in the search:*

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- x) Click the *Browse* button and browse to the VCOMPORT driver's location. i.e.
C:\Iridium\HT10017\tools\windows_usb\VCOMPORT
- xi) Click *Ok*
- xii) Click *Next*
- xiii) A window titled *Complete the Found New Hardware wizard* will appear
- xiv) Click *Finish*
- xv) On the Iridium phone, press *#888# then the green button to manually put the phone in DFU mode. At this time windows will see a new hardware device.
- xvi) Refer to the VCOMPORT instructions above and substitute the DFU directory and driver instead of VCOMPORT. When finished restart the phone and continue with the upgrade process.

Windows Vista

- i) A window titled *Found New Hardware* will appear
- ii) Click *Locate and Install Driver Software (Recommended)*
- iii) If a *User Account Control* permissions window appears, click *Continue*.
- iv) Click *Don't Search Online*.
- v) Click *I don't have the disk, show me other options*.
- vi) Click *Browse my computer for driver software (Advanced)*
- vii) Click the *Browse* button and browse to the VCOMPORT driver's location. i.e.
C:\Iridium\HT10017\tools\windows_usb\VCOMPORT
- viii) Click *Ok*
- ix) Click *Next*
- x) Note a windows security box will usually appear stating that "Windows can't verify the publisher of this driver software" Click *Install this driver anyway*.
- xi) Click *Close*
- xii) On the Iridium phone, press *#888# then the green button to manually put the phone in DFU mode. At this time windows will see a new hardware device.
- xiii) Refer to the VCOMPORT instructions above and substitute the DFU directory and driver instead of VCOMPORT. When finished restart the phone and continue with the upgrade process.

Windows 7

Note: Difficulties have been reported opening zip files in Windows 7. It is recommended that all zip files be expanded *prior* to copying to the Windows 7 host.

[A message balloon will appear in the lower right hand corner indicating that driver software could not be installed.]

- i) Click on the windows *Pearl*
 - ii) Mouse Over and then right click *Computer* and select *Manage*
 - iii) A window titled *Computer Management* will appear
 - iv) Click the *Device Manager* link.
 - v) Expand the *Other devices* tree
 - vi) Locate the *Iridium 9555 Handset* and right click on it and select *Update Driver Software*
 - vii) Click *Browse my computer for driver software*
 - viii) Then click the *Browse* button and browse to the VCOMPORT driver's location. i.e.
C:\Iridium\HT10017\tools\windows_usb\VCOMPORT
 - ix) Click *Ok*
 - x) Click *Next*
 - xi) Note a windows security box will usually appear stating that "Windows can't verify the publisher of this driver software" Click *Install this driver anyway*.
 - xii) Click *Close*
 - xiii) On the Iridium phone, press *#888# then the green button to manually put the phone in DFU mode. At this time windows will see a new hardware device.
 - xiv) Refer to the VCOMPORT instructions above and substitute the DFU directory and driver instead of VCOMPORT. When finished restart the phone and continue with the upgrade process.
- 5) Run the upgrade tool application from within the release folder on the PC (eg C:\Iridium\HT10017\upgrade_tool\H2Upgrade_HT10017.exe), by double clicking on it.
 - 6) The upgrade tool application will automatically search for devices connected to the PC. If more than one handset is found, the upgrade tool application will prompt you to disconnect other devices and re-start the tool to re-scan for devices.
 - 7) Once the Iridium 9555 handset is located, select it and press the Start button; select the "Yes" button when you see the "Are you sure" message.
 - 8) The upgrade application will automatically detect which firmware components need upgrading on your Iridium 9555 Handset and will run through each of the required upgrades in turn, rebooting the handset automatically between each one.

NOTE: There have been reports of Windows 7 (32 & 64 bit) failing to get the handset to restart after step one or two, and the upgrade timing out, and exiting. If this happens, see the *Troubleshooting* guide below under *General*.

- 9) At the end of a successful upgrade the upgrade tool application will pop up a window saying “All upgrades complete”, click on the *OK* button. To check that you have the correct firmware release on the Iridium 9555 Handset view the Phone Information Menu (Menu -> Setup -> Phone Information), this will show the new release (F/w:HT10017).
- 10) You can now disconnect the handset from the USB and the charger.

3.4 Troubleshooting

3.4.1 General

If you have trouble with the upgrade tool not being able to restart the handset, try the procedure with a full battery, and no charger attached.

If the handset still won't restart, try restarting the upgrade procedure, and when time to restart arrives, remove and replace the battery while the phone is still plugged into the USB cable and the upgrade tool is still waiting for a restart. This will force the phone to power cycle which will look like a restart to the upgrade tool, and the up/down-grade should proceed normally. It is possible that this kind of a forced restart might need to be done 2-3 times back to back to get a handset to complete the upgrade, as the upgrade tool forces several restarts one after another to make sure the handset is actually restarted.

The problem described above has happened mainly on Windows 7 versions, but can occur on other versions of Windows as well.

3.4.2 No Handsets in the Handsets List

- Try removing the SIM from the handset.
- Try hard power-cycling the handset (disconnect from USB and charger, power down handset, remove battery, count to 15, replace battery, power handset on again, replace USB connection).
- Try rebooting your PC (especially if you have previously had an upgrade that failed). This ensures that the COM ports have not been left in an inoperable condition.

3.4.3 Upgrade tool fails

- Ensure the upgrade application is closed.
- Disconnect the USB cable from handset.
- Reboot the PC.
- Disconnect the charger from the handset.
- Remove the battery from the handset, count to 15, replace the battery.
- Reconnect the USB cable between the handset and PC.
- Reconnect the charger to the handset.
- Switch on the handset.
- Re-run the upgrade tool.

4 Changes

4.1 Revision History

4.1.1 HT10017

4.1.1.1 Enhancements and Improvements

- **9555 allows Resend of SMS from Outbox**
- **9555 implements MSISDN assignment/report capability via shortcode**
 - **#07#<green> - report MSISDNs on SIM, if any*
 - **#07#<n>#<number>#<green> - store number as MSISDN <n> on SIM*
- **9555 includes Hebrew menus**
- **9555 offers # of rings before fwd to Voicemail configurable**
- **9555 Implements AT+CBC**
- **9555 Implements AT+CBC**
- **9555 Increases battery temperature threshold from 40C to 45C**

4.1.1.2 Bugs fixed

- 3205 9555 shall include updated Simplified Chinese menu translations
- 3211 Display after entering PUK incorrectly 10 times is uninformative
- 3447 Emergency calls do not complete with Phone Lock set
- 3315 When in a dock, "Searching for network" message sometimes persists after registration
- 3370 Incorrect SBD MT Queue Reported Following Queue Flush
- 3126 Insert symbol menu will not let you select all characters.
- 3125 MMI allows Non-GSM default alphabet symbols in SMS
- 3409 VCOMPORT driver Windows Logo testing to suppress warnings
- 2860 Short codes for Call Forwarding are switched
- 3380 Update AT Command Spec to include AT command changes
- 3264 Extra prevention for upgrade hang during Application bd. "bricking" phone
- 3419 USB reports self-powered but requests 250mA from bus
- 3468 Help text for Multitap text entry is displayed in wrong language
- 3476 Upgrade tool sometimes hangs, stability improvements since HT10012

4.1.2 HT10012

4.1.2.1 Enhancements and Improvements

- **In case phone audio amplifier is activated, mic bias voltage becomes available as well to enhance docking station integration**

4.1.2.2 Bugs fixed

3315 Incorrect "searching for network" messages sometimes displayed in docking cradle

2439 Handset does not disconnect after using Short Code 1234, handset reports "Error, Call Ended Remotely" but doesn't terminate. It continues to play test recording and you can only disconnect by removing battery or losing coverage.

3294 Mute function doesn't work properly, the other party can still hear your voice when "Mute" option is selected.

2833 Handset doesn't beep when on, and charger is plugged in.

3052 Iridium AT documentation indicates AT+CLCC will give 005 result for call waiting, reports 000 instead. Only applicable when call waiting is supported by network and provisioning, not yet widely available.

3258 NO CARRIER seen in Quiet mode. When enabling quiet mode (ATQ1) and with no Iridium antenna connected, if a voice or data call is set-up using ATD, NO CARRIER appears after 10 seconds when the call fails.

3198 MO call to busy PSTN results in AT interface unresponsive for 5 minutes with Telstra SIM card

3266 Repeatedly enabling and disabling the charger (ex. docking station charging) leads to a state in the firmware where the charger will not be successfully re-enable and prevents charging until a power cycle occurs

3353 A customer trying to use the call meter to record the number of minutes used for a rental period reset the meter to 0. When a power cycle occurs, the call meter reverts back to the previous call timer value prior to the reset.

4.1.2.3 Known issues

- *Downgrade* from HT9004 or higher to HT08008 unreliable.
- DirectInternet 2.0.2 software not supported on Windows XP 64b, Windows Vista or Windows 7, update planned by FY10, Q4

4.1.3 HT10001

4.1.3.1 Enhancements and Improvements

- **Windows OS Support is added for data services, firmware upgrade tool.**
 - The USB drivers, firmware update tool, and firmware upgrade instructions have all been updated to support these new Windows OS versions:

- ✓ XP 64b
- ✓ Vista SP2
- ✓ Vista 64b
- ✓ Win7 32b
- ✓ Win7 64b
- **OS support for added for data services on MacOS version 10.4 or later**
 - 9555 is now plug and play on MacOS, no USB driver needed
- **Mic Bias now disabled when not in a call**
 - Voltage bias now only present when calls are up to support partner cradle design
- **Default SMS Expiry Period now 7 days**
 - SMS delivery now tries for 7 days to deliver to frequently offline recipients
- **Iridium's SMS Service Center number now provided as the pre-programmed default**
 - Any other Service Center number may still be programmed exactly as before
- **One-touch access now available for Voicemail**
 - Voicemail may now be accessed by pressing and holding the '1' key.
- **ip_audio_routing_req DPL command implemented for 9555**
 - Audio routing control now available for 9555 through DPL. (See 9522B DPL Protocol and Hardware Spec C7818-S-013.pdf)
- **Warning now issued when SMS memory full**
 - Users now notified of the need to delete unneeded messages from Inbox and Outbox so that new messages may be received. When SMS memory is full, the following message will appear: "SMS memory full. SMS cannot be received or stored until messages are deleted."

4.1.3.2 Bugs fixed

- 1456 AT+CMUT command fixed
- 2783 When data call fails, phone now returns to idle screen
- 2862 Call Timers now work on MT handset.
- 2883 Removing USB while data call is up now terminates data connection
- 3012 Spanish menu translations improved
- 3036 Data calls are now metered.
- 3064 Problems fixed maintaining MyPhonebook once it has been filled
- 3072 Missing Symbol chars lost in prior release restored to table in "Insert Symbol" screen
- 3082 Entries added by Phonebook Tool now correctly sorted
- 3089 Handset start behavior of on/off button problem fixed, made more reliable

4.1.4 HT09017

4.1.4.1 Enhancements and Improvements

- **Predictive text entry for English, French, Spanish**
 - Predictive text entry capabilities are now contained in the 9555.
- **Call Waiting**
 - 9555 user on a call now signalled of incoming 2nd call, provided menu options to hold 1st call and answer 2nd call, give 2nd call busy signal, answer 2nd call and terminate 1st call.
- **Arabic language menu support**
 - The 9555 now may be configured to display all menus in Arabic.
- **More functions now assignable to Convenience Key**
 - The convenience key can now be associated with No Action, Start Call, End Call, Redial, SIM Phonebook, My Phonebook, Messages, Call Voicemail
- **Call Hold**

Call Hold menu options are now accessible during a call.
- **Font size increased for dialled digits**
 - Dialled digits on the 9555 now display in a larger font, which reduces in size as many digits are entered.
- **Long SMS now supported on 9555**
 - 9555 now can edit and send text SMS of up to 1,000 characters.
- **New text entry configurability selection menu in languages menu**
 - The Language Settings menu now contains a choice which will allow text entry capabilities to be configured as English, French or Spanish predictive text, or traditional multi-tap.
- **Dialled digits displayed in Czech, Russian, Greek, Polish, Hungarian modes**
 - Display improved for dialled digits in these languages modes
- **Default SMS delivery notification changed to be "OFF"**
- **AT+KEY now implemented to enable unsolicited AT result code to indicate keypresses**
 - See Iridium ISU AT Command Reference v2.25 for details about AT+KEY

4.1.4.2 Bugs fixed

- 2462 AT command interface adjusted to support phonebook tool
- 2635 AT+CGMM command is not followed by a line feed as other commands are
- 2634 AT+GMM reports wrong product number
- 2480 Audio loopback test does not work in headset mode
- 1766 Low battery warning, shutdown behavior corrected
- 2501 Battery status on DPL handset does not update
- 2751 MT data call problem while using AT+CAR=2 fixed
- 2479 Enable call status on 9555 LCD display for DPL calls
- 2688 Cannot generate DTMF while in FULL_ACTIVE call
- 2630 Change call barring PIN does not work correctly

- 2664 Date, time setup not persistent over power cycle
- 2006 DPL connection sometimes closes and re-opens unexpectedly; DPL times out
- 2477 DPL handset erratic behaviour
- 2152 Messages Expiry Period has no default option selected
- 2160 Failure of AT-MSVLS=1 DTMF mute AT command
- 2675 9555 does not work with Direct Internet software
- 2525 9555 Handset Timeout with MO SBD Msg Write using AT+SBDWB
- 2363 9555 Resets when Reading 1960 Byte SBD MT message
- 2460 9555 standby time lower than 9505A when weak signal conditions
- 2737 ISU may reboot after 7 weeks' continuous running
- 2760 Long SMS from 9555 to email never arrive
- 2788 Long SMS to GSM cell not reassembled
- 2414 MO call with handsfree headset, no sidetone
- 2522 No way to return to SMS message editor after entering send screen
- 2677 On new SMS arrival/read, "Delete All" causes phone to hang
- 2486 Reading an empty plain text SMS message causes handset to restart
- 2365 Call rejected in MMI continues ringing
- 2759 Problem with multiple addressees in short SMS to Cell # and email
- 2705 Updated logic to improve startup performance
- 2680 Symbol table softkeys missing when entering email address in phonebook
- 1750 USB Voice calls do not prevent other MMI activity (should be same as data calls)
- 2379 Using red key to cancel some events causes audio to be routed wrongly

4.1.5 HT09007

4.1.5.1 Enhancements

- 2428 – Windows XP Service Pack 3 support

4.1.5.2 Bugs fixed

- 1456 - Additional AT commands now handled:
 - AT+CMUT, Mute Control
 - AT+CLVL, Loudspeaker Volume Level Control
 - AT+CAR(except AT+CAR=0), Audio Output Control on 9522A (“Daytona”)
- 1739 - If "Loudspeaker" pressed during call set-up, softkey labelling once connected now correct
- 2160 - Fixed “AT-MSVLS=1” DTMF AT command to mute while in a call
- 2321 - Draft SMSes longer than 480 characters no longer truncated
- 2383 - SMS send to email - help text made to match actual functionality

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- 2385 - Long SMS from another 9555 no longer causes handset to reset
- 2387 - SMS sent/failed messages no longer jump you out of current activity (back to idle screen)
- 2391 - SIM Phonebook – now can Call or SMS or both without returning to idle screen
- 2411 - Changes made to achieve improvements in MOS audio quality score
- 2468 - DPL Peripheral detection limit to one device corrected, will now poll for multiple devices
- 2498 - Volume keys on side of handset now alter PCM audio level, previously did not
- 2505 - Satellite communications process changed to reduce numbers of call fades
- 2534 - 9555 problem sometimes showing yesterday's date fixed to always show correct date
- 2528 - Corrected problem preventing "New Voicemail" from appearing
- 2606 - Improved Japanese menu translations

4.1.6 HT08008 (Product Launch)