FlexRadio

SmartSDR™ for Windows v2.2.8 Release Notes

May 15, 2018

This is a general release intended for use with the FLEX-6400™, FLEX-6400M™, FLEX-6600™, FLEX-6600M™, FLEX-6300™, FLEX-6500™, FLEX-6700R™ and FLEX-6700™ software defined radios that includes new features and addresses software defects.

Please consult the SmartSDR Software Users Guide for details on using the new and updated features of SmartSDR for Windows for the optimal operating experience.

Please see the "Important Release Details" section before upgrading. There are also several best practice recommendations that will facilitate a smooth transition to the new version of SmartSDR for Windows.

What's New in SmartSDR v2.2.8

New Program Icons: Due to the current marketing effort associated with the rebranding of FlexRadio, the SmartSDR for Windows, SmartSDR CAT and DAX program icons have a new look and color scheme.

Performance Improvements: Firmware modifications drastically improved RX->TX->RX switching speed along with other internal performance enhancements.

Slice "Flag" and Panadapter Enhancements: Added peak indicator to the S-Meter. Added the ability to switch from dBm to S units for the S-meter digital readout by clicking on the readout. When a slice flag is minimized, the frequency readout is displayed. The area below the spectrum display is now color filled with user-selectable colors and intensity.

Enabling Split Mode Made Easier: On the Slice "flag" there is a SPLIT button that makes creating a new "split" (child) slice from the parent slice. Clicking on the SPLIT indicator will remove the split child slice. The Split command has also been added to the FlexControl.

Modified TURF Files: The TURF files for Belgium (EU04) expanded the 160m band allocation to 1.810 - 2.0 MHz, for the Netherlands (EU13), the new IARU Region 1 60m allocations have been added and for IARU Region 2, transmit is now allowed on the frequencies used by the Caribbean Disaster Emergency Response Agency.

Default Microphone Profile Change: The Default mic profile now uses the FMH-2 mic profile rather than the older FHM-2 profile to improve the "out of box experience" when using the supplied hand mic.

Persistence and Profiles: Fixed persistence issue when restoring XVTR Slices. Underscore character now displays properly in TX Profile Name. Profiles are not properly sorted in alphabetical order (not case sensitive). Profiles are now displayed after import without requiring a reboot.

Boot up logic fixed for M Model Radios: Inconsistencies with M model radios not booting directly to SmartSDR and showing the Select a Version Screen have been resolved.

CAT User Interface Changes: The user interface has been enhanced to show the radio connection state and display the connected radio. A Settings icon in the menu bar of the application will allow you to easily configure the application startup parameters.

CAT and DAX No Longer Automatically Start when the PC is Booted: A change was made to the automatic startup behavior of CAT and DAX. They no longer start when the PC is booted, reducing the network load on the radio when SmartSDR for Windows was loaded on multiple PCs and neither of the applications was actively in use. CAT and DAX now start when SmartSDR for Windows is started and closed when SmartSDR for Windows is closed (the default behavior). You can change this behavior and not have CAT and DAX automatically start if you desire to manually start the applications.

AGC Applied to AM and SAM modes after Demodulation: Previously in AM mode, the AGC was before the demodulation stage and would act on carrier changes rather than changes in the demodulated signal. This issue has been corrected.

Popout Window Enhancements: Popped out window size and placements are now properly remembered when SmartSDR is shut down. The CWX F1-F12 macros now work properly when the focus is on a popped out Panadapter or TX Panel.

CW Pitch Frequency Improvements: The frequency of the CW Pitch can now be changed in 10 Hz increments.

RIT/XIT Adjustment Enhancement: For the M models, when changing RIT or XIT, the frequency is now left on 50 Hz boundaries.

SmartLink Login Improvements: Additional changes were made to the SmartLink login process to ensure changes to the Auth0 authentication protocol will not result in the inability to login to your SmartLink account.

Diversity Reception Enhancement: For radios capable of Diversity reception, if using a FLEX-6700 with a Maestro or a FLEX-6600M, the AF knob now changes diversity (child) slice volume too.

Bug Fixes: There have been numerous bug fixes in this release. Please see the SmartSDR ChangeLog for a complete listing.

Important Release Details

Updated Ethernet MAC: Starting in v2.1.30 and going forward, the Ethernet MAC address used by the radios and Maestro in the radio will all start with a FlexRadio OUI (00:1C:2D). **Due to this change, any existing Static DHCP assignments in Local Area Network routers that rely on the old MAC address will need to be revisited.** If a static IP address is assigned to the FLEX-6000, a reboot of your router may be needed to clear routing and ARP tables. Also, if the IP address of the radio changes as a result of this (which is very likely), **be sure to check any manual Port Forwarding settings related to SmartLink.**

SmartSDR v2 requires a software license installed on the radio before it can be used with a FLEX-6000: The following have been pre-authorized for SmartSDR v2 and do not require the purchase of a license:

- Limited Edition (LE) FLEX-6700 and FLEX-6500 radios
- All radios sold after May 19, 2017

All other radios require the purchase of a software license for the radio. Please see the section "Purchasing a SmartSDR Software License for your FLEX-6000" for instructions on how to purchase a license.

Backup your profiles before upgrading: This is covered in detail below in the *Best Practices for Installing / Uninstalling SmartSDR* v2 section. Having a good backup of your profiles is always a best practice before doing any SmartSDR software upgrade in the event you must revert to a previous version of the software or need to do a factory reset of the radio.

Cold boot the radio after upgrading to SmartSDR v2.2.8: A "cold boot" is accomplished by shutting down the radio and then removing DC power from it momentarily. This process is covered in detail in the *Best Practices for Installing / Uninstalling SmartSDR v2* section but is added here for emphasis. There are several internal processor subsystems that are upgraded by SmartSDR v2.2.8 and it is imperative that they all restart properly after the upgrade.

Upgrading FLEX-6400M and FLEX-6600M Front Panel: If you are upgrading a FLEX-6400M or a FLEX-6600M using SmartSDR for Windows, this process will not upgrade the Front Panel software at the same time. After doing the radio firmware upgrade, shut down SmartSDR for Windows, Connect to your radio from the Front Panel. The Version select screen will be displayed. Select SmartSDR v2.2.8 to download and install SmartSDR for the M Model Front Panel. After the Front Panel has been upgraded to SmartSDR v2.2.8, all radio and client components will have been upgraded to SmartSDR v2.2.8.

For a detailed description of the SmartSDR for Windows software upgrade process, please refer to the SmartSDR Software Users Guide

Purchasing a SmartSDR Software License for your FLEX-6000

Obtaining a SmartSDR software license is easy and convenient. Download the latest installer for SmartSDR and run it to install the software on your PC. Using the new software, update the radio with the new firmware. Start SmartSDR then select the radio in the radio chooser window and press the yellow Update button.

Once the update completes, if the radio you are upgrading requires a license, the radio status will show "License Required" and you will be presented with a Buy button that will launch a web browser which will take you through the steps to purchase the license.

Note: New radios purchased include a SmartSDR license for the current major version and will not see the "License Required" indicator.

Once you have purchased a SmartSDR license for your radio, click the blue circular refresh button in the radio chooser window to update the license information for the radio. It may take up to a minute after the purchase completes before the radio acquires its license and cycling the power on the radio may be required.

Note: The radio (not just the computer) will need internet access in order to obtain the newly acquired license. Please ensure that the radio is plugged into a network that gives internet access.

Best Practices for Installing / Uninstalling SmartSDR

Best Practices for Installing a New Version of SmartSDR for Windows

In preparation for the upgrade to SmartSDR for Windows, *always* backup your Global, TX and Microphone Profiles. Please refer to the *SmartSDR for Windows Software User's Guide* for detailed instructions related to exporting your profiles to a file on your PC. Whenever you upgrade to a newer version of SmartSDR for Windows, a database conversion program runs automatically to convert an older version of the Profile database to the new format or schema. *However, the reverse is not true.* If you must revert to a previous version of SmartSDR for Windows, the older version may not be able to downgrade the database schema. To recover your previously created profiles after a software version downgrade, an import of profile data created using the version of SmartSDR for Windows you are downgrading to is required for proper operation of your radio.

Ensure your Windows operating system is up to date before installing SmartSDR for Windows. The proper operation of SmartSDR for Windows and its associated drivers rely on having an up to date Windows operating system including the root security certificate. It is highly recommended that you run Windows Update and install all mandatory and optional updates before installing SmartSDR for Windows.

Shut down all third-party programs running on your PC that utilize a sound card. If necessary, the SmartSDR for Windows installer may install or upgrade the virtual sound card DAX drivers. As part of this process, it will uninstall the older drivers first. If there is an application open on your PC that is using one of the DAX drivers, uninstalling of the existing DAX driver will fail which may result in issues installing the updated DAX drivers. Examples of these types of programs include, but are not limited to digital mode programs, Windows Media Center, web browsers and audio players.

Shut down all third-party programs utilizing virtual com ports. The installation of SmartSDR CAT may also install new or recreate existing virtual com ports as part of the installation process. Shut down any program that may use the FlexVSP virtual serial port driver. Examples of these include but are not limited to any digital mode programs, loggers, and spotting programs that interface through a virtual com port.

Managing SmartSDR installed on other devices. If using Maestro or other PCs running SmartSDR for Windows, updpate all devices at the same time to ensure a consistent operating experience and to avoid radio firmware upgrade/downgrade delays.

Power off the FLEX-6000 before installing new a new version SmartSDR for Windows. To ensure a seamless upgrade of the entire SmartSDR software ecosystem, it is recommended that you power off your radio before installing the SmartSDR for Windows software on your PC.

Power Cycle your Radio after upgrading the firmware. When upgrading the radio firmware, there may be updates to several of the internal subsystems. Powering off the radio, disconnecting it from DC power for several seconds, reconnecting DC power and powering up the radio after updating the firmware ensures that all processors reboot properly.

What to do if the firmware updates do not finish after 5 minutes? On rare occasions, the update status may not recognize the completion of the firmware update. If the radio has not successfully completed the firmware updates after 5 minutes, power off the radio by pressing the power button. The firmware update should complete normally.

Note: It would be rare that a single press on the power button did not shut down the radio. If this occurs, remove the DC power cable from the radio to force a power down to reset all processors. Wait about 5-10 seconds and restore DC power and reboot the radio. The firmware update should complete successfully.

Uninstalling Previous Versions of SmartSDR for Windows – Is It Necessary?

This is a frequently asked question that does not have a simple "yes/no" answer. **In general, the answer is no, but there are some special considerations:**

Each version of SmartSDR for Windows is installed in such a manner that running a previous version is a simple matter of running an older version of SmartSDR for Windows and allowing the radio firmware to downgrade automatically. This method of installing unique versions of software on your PC rather than upgrading a previous version allows for an easy and convenient way to switch to a previous version if you so desire.

Unfortunately, there are exceptions that result in release specific caveats. In the case of SmartSDR for Windows v2.2.8, there are **no** release specific caveats that require removing previous versions of SmartSDR for Windows.

In addition to any release specific caveats, there are shared components of the SmartSDR ecosystem used by multiple versions of SmartSDR for Windows. Operationally this typically does not result in any issues, but if a previous version of SmartSDR for Windows is uninstalled while there is a newer version installed, the possible removal of one or more of these shared components may make newer versions of SmartSDR for Windows inoperable. *Therefore if you desire to uninstall older versions of SmartSDR for Windows, it is highly recommended that you uninstall all older versions of SmartSDR for Windows before installing a new version of SmartSDR for Windows.*

Removing the DAX and FlexVSP drivers are not recommended unless explicitly instructed to do so in the Release Notes or by FlexRadio Support.

If you chose to uninstall several previous versions of SmartSDR for Windows prior to installing a new version, you may want to perform a comprehensive removal of the SmartSDR ecosystem from your PC. This is not a requirement, but it will ensure that all SmartSDR for Windows applications and hardware drivers have been removed allowing for a clean install of SmartSDR.

This is a multi-step process that is outlined in the HelpDesk article How to do a Complete uninstall of SmartSDR for Windows from your PC.

Known Issues

1. In some situations, due to some deficiencies with Windows, the FlexControl may choose a COM port that has already been assigned to a virtual COM port or another device. It may be necessary to move the FlexControl to a different COM port and disconnect/reconnect the FlexControl to resolve this issue. Follow these instructions: https://helpdesk.flexradio.com/hc/en-us/articles/202479329-How-to-Change-the-Com-Port-Assignment-for-a-FlexControl

2. FLEX-6700 only: There is a known issue (#280, #1527) where changing bands on one panadapter may change the frequency of another panadapter when going to or from 2m (or an XVTR using 2m as an IF). This happens due to hardware constraints that require each Antenna to be on only one of 2 possible Nyquist zones (below or above 122.88 MHz) and an interaction with persistence when recalling the antenna selection of the selected band. One way to work around this issue is to use the Band buttons instead of setting the Antenna on the Panadapter or Slice, and then entering the desired frequency into the Slice in order to tune into (or out of) the 2m band (or an XVTR using 2m as an IF).

SmartSDR Documentation Available at www.flexradio.com

The following documentation and how to guides for SmartSDR v2.2.8 are available as a convenient download from the FlexRadio website.

SmartSDR for Windows Software User's Guide
http://www.flexradio.com/downloads/smartsdr-software-users-guide-pdf/

FLEX-6400M and FLEX-6600M User's Guide
http://www.flexradio.com/downloads/flex-6400m-and-flex-6600m-user-guide-pdf/

FLEX-6000 Signature Series Hardware Reference Manual
http://www.flexradio.com/downloads/flex-6000-hardware-reference-manual-pdf/

FLEX-6400 and FLEX-6600 Hardware Reference Manual
http://www.flexradio.com/downloads/flex-6400-and-flex-6600-hardware-reference-manual-pdf/

FLEX-6000 Signature Series Quick Start Guide
http://www.flexradio.com/downloads/flex-6000-family-qsg-single-page-pdf/

SmartSDR CAT User Guide
http://www.flexradio.com/downloads/smartsdr-cat-user-guide-pdf/

SmartLink for SmartSDR Quick Start Guide
http://www.flexradio.com/downloads/smartlink-quick-start-guide-for-smartsdr-pdf/

D-STAR Waveform How to Guide
http://www.flexradio.com/downloads/d-star-waveform-how-to-guide-pdf/

FreeDV Waveform How to Guide
http://www.flexradio.com/downloads/freedv-waveform-how-to-guide-pdf/

USB Cable Interface Guide
http://www.flexradio.com/downloads/usb-cable-interface-guide-pdf/

Obtaining Technical Support

If you encounter any issues installing or operating SmartSDR for Windows with FlexRadio Systems' Signature Series software defined radios, please use our online Community (https://community.flexradio.com/) to query for information about SmartSDR for Windows and the FLEX-6000. If you need assistance using the Community, please refer to the community topic "How to use the FlexRadio Systems Support Community".

If you are unable to find an existing answer to your issue in the Community, please contact FlexRadio Systems Technical Support by opening a HelpDesk support ticket online at https://helpdesk.flexradio.com/

For details on how to submit a HelpDesk support ticket, please refer to the following URL: https://helpdesk.flexradio.com/hc/en-us/articles/202118688-How-to-Submit-a-Request-for-Technical-Support.

Hours of Operation: Our Technical Support engineers are available Monday-Friday from 9:00am-5:30 pm Central Time. If you open a HelpDesk ticket after business hours, on a holiday or weekend, we will respond to your request for assistance during regular business hours in the order your HelpDesk ticket was received.

Copyrights and Trademarks

FlexRadio Systems
4616 W. Howard Lane
Suite 1-150
Austin, TX USA 78728
+1 (512) 535-4713
www.flexradio.com