SmartSDR™ for Windows v2.7.3 Release Notes

May 4, 2021

SmartSDR v2.7.3 is a general availability release intended for use with the FLEX-6400™, FLEX-6400M™, FLEX-6600™, FLEX-6600M™, FLEX-6300™, FLEX-6500™, and FLEX-6700™ software defined radios which contain some new features and software defect fixes identified in previous versions of SmartSDR.

This document covers SmartSDR for Windows, SmartSDR for the "M" Model FLEX-6000s, and Maestro. Please consult the SmartSDR Software Users Guide V2 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. Several best practice recommendations will facilitate a smooth transition to the new version of SmartSDR.

What's New in SmartSDR v2.7.3?

CAUTION: If upgrading from SmartSDR v2.6.2 or below, this release of SmartSDR will result in two firmware update processes occurring on the FLEX-6000. The radio's LED indicator will turn purple twice and the radio will reboot after each firmware update. Due to a software change that is specific for M model radios, the firmware upgrade may hang after the 2nd time the power button LED turns purple which will require resetting the radio as described in the **Best Practices for Installing a New Version of SmartSDR for Windows section** below.

If you are updating a remote radio using a VPN, having the ability to turn off and on the DC power supply and being able to reboot the radio using the REM ON connector should be a prerequisite before upgrading the FLEX-6000.

FLEXVSP NOTE: If upgrading from SmartSDR 2.6.2 or below, this version of SmartSDR will update the FlexVSP driver. The SmartSDR installation software will automatically remove the previous FlexVSP driver and install the new one. Please reboot your PC when prompted at the end of the SmartSDR v2.7.3 installation process to ensure the FlexVSP driver is installed correctly. **The new FlexVSP driver is not backward compatible with previous versions of SmartSDR CAT. An unhandled exception error will occur when using previous versions of SmartSDR with the new FlexVSP driver.**

New Features and Bug Fixes in SmartSDR v2.7.2

Improved Internal Latency Performance and Reliability: SmartSDR v2.7.3 incorporates many new internal improvements that enhance latency performance and reliability. These changes result in lower RX->TX-RX transition times, improves firmware stability, provide for greater reliability, and resolve several CW timing issues. (#J8092)

Updated FlexVSP Driver: This version of SmartSDR for Windows contains an updated FlexVSP driver (v5.8.1) that is used with SmartSDR CAT to create virtual serial ports. The new FlexVSP driver is less susceptible to driver corruption related to Windows 10 updates and has greater stability and performance characteristics. (#J8956)

Multiple ATU Fixes: The ATU issues introduced in a previous version of SmartSDR v2 have been fixed. These include greatly improved tuning consistency and ATU memories are now properly restored when the memory feature is turned off and back on. (#J7956, #J7732)

New Panadapter Zoom Feature: The ability to zoom in and zoom out the panadapter display using the mouse wheel has been added to SmartSDR for Windows by pressing the <CTRL> key while adjusting the mouse scroll wheel. (#J8048)

USB Bit Cable Setting using Slice as the Source Fixed: The defect where selecting Slice as the source for a bit cable control line (pin) has been fixed. (#J7624)

Additional SmartSDR Fixes: In addition to the notable ATU, USB Bit Cable, and CW fixes, there are additional SmartSDR firmware fixes that are of importance. They include disabling VOX when in CW mode, Intermittent DAX and SmartSDR crashes, a crash using the Auto-Connect feature, Fixed setting the RF Gain when using a FlexControl, The user can no longer log in to a SmartLink account if there is no Internet access, corrected the S-Meter accuracy when receiving strong signals, fixed a crash when using FlexSatPC, and fixed a frequency rounding error in the Memory form when using transverter bands. Please see the Changelog for a comprehensive listing of fixes contained in SmartSDR v2.7.3. (#J7740, #J8222, #J8170, #J7767, #J7537, #J8077, #J7702, #J7790)

Multiple Maestro and M model FLEX-6000 UI improvements: There are several UI (user interface) enhancements and changes with SmartSDR v2.7.3. They include an updated SmartLink login windows that makes it much easier to enter SmartLink account credentials, the screen for setting SmartLink network settings is no longer obscured, the Info screen now contains the front panel IP address and MAC information, added buttons for finer grain control when setting slider values, double-tapping now opens memory entries and selects profiles, the Slice menu now stays open on band changes, A partially entered manual frequency change is cleared when closing the slice menu and added controls to enable or disable the Auto Connect to a Radio feature. (#J8068, #J8197, #J8061, #J7511, #J8103, #J8035, #J8002, #J8101, #J8008)

Multiple Maestro and M model FLEX-6000 Fixes: There are many software fixes for the Maestro and M model radios. The following are just several of them. The Version Select menu is now properly sorted by latest to oldest order, fixed auto-connect issues if another station is connected to the radio, fixed issues that caused an available slice not to open correctly, and fixed a crash when selecting an audio input. (#J3199, #J8316, #J8193, ##J8022)

New and Updated TURF Files: SmartSDR v2.7.3 contains a new TURF file for operators in Spain who are members of Protección Civil en España (REMER), expanded bands for Japan, and added a new TURF for Austria that include the newly allocated 60m band. (#J8300, #J8003, #J88286)

Important Release Details

Backup your profiles before upgrading: Moving back and forth between different versions of SmartSDR may result in data loss unless you have a backup (export) of your Profiles. It is recommended to export all profiles *before upgrading* to v2.7.3, and export profiles again before reverting to previous versions. Exporting profile data is covered in detail below in the *Best Practices for Installing / Uninstalling SmartSDR* v2 section. Maintaining a good set of profile exports as backups is *always* a best practice.

Upgrading FLEX-6400M and FLEX-6600M Front Panel: If you are upgrading a FLEX-6400M or a FLEX-6600M using SmartSDR for Windows, the upgrade will not be applied to the software in the Front Panel of the "M" Model.

The radio must first be connected to your network and can access the Internet to download the necessary software to update the front panel.

After the radio firmware updates from your PC, shut down SmartSDR for Windows and connect to your radio using the "M" Model Front Panel. The Version Select screen should display SmartSDR v2.7.3 showing a download icon. Selecting that version will start the final portion of the upgrade process.

For a detailed description of the SmartSDR for Windows software upgrade process, please refer to the SmartSDR Software Users Guide V2

Always Perform a Factory Reset of your Radio when Downgrading the Radio Firmware: The database in the FLEX-6000 is NOT backward compatible. This means if you downgrade the firmware in your radio, you *must perform a Factory Reset* to ensure the internal database is consistent with the version of SmartSDR firmware that is running on the radio.

The procedure for performing a Factory Rest is described in the **Best Practices for Installing a New Version of SmartSDR for Windows section** below.

In addition to performing a Factory Reset on the radio, you mustn't import profiles using a profile export that is greater than the version you are using. In later versions of SmartSDR, the profile export file name contains the version of SmartSDR that was running when the export was saved to your PC as an convenience way to tell which version of SmartSDR was installed in the FLEX-6000 when the pofiles were exported.

SmartSDR v2 requires a software license installed on the radio before it can be used with a FLEX-6000: If your radio is licensed for a version of SmartSDR less than v2, a SmartSDR license upgrade is required. Once the FLEX-6000 has been licensed for SmartSDR v2, all subsequent point releases (v2.x) are available at no additional expense. Please see the section "Purchasing a SmartSDR Software License for your FLEX-6000" for instructions on how to purchase a license.

Best Practices for Installing / Uninstalling SmartSDR

Best Practices for Installing a New Version of SmartSDR for Windows

Unless instructed otherwise, *always* backup your Global, TX (transmit), 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.

When you upgrade to a newer version of SmartSDR for Windows, a database conversion program runs automatically to convert older profile schemas to an updated one.

When downgrading versions, SmartSDR is unable to restore the updated profile schema version, which may cause profile corruption. To recover your previously created profiles after a software version downgrade, import the profile data created using the downgraded version of SmartSDR for Windows.

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 and supported Windows operating system including the root security certificates. It is strongly recommended that you run Windows Update and install all mandatory and optional updates before installing SmartSDR for Windows.

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

Power cycle the FLEX-6000 radios before installing a new version of SmartSDR for Windows. To ensure a seamless upgrade of the FLEX-6000, it is recommended that you power cycle your radio *before* installing the SmartSDR for Windows software on your PC and updating the radio firmware.

"Cold Boot" your FLEX-6000 after upgrading the radio firmware. Using the power button, shut down the radio, then disconnect it from DC power for 30 seconds. This procedure "*cold boots*" the radio and helps ensure proper operation. Once DC power is restored to the radio, wait an additional 2 minutes to ensure that all internal processors have booted up completely before pressing the power button to load the SmartSDR firmware and boot your radio.

What to do if the firmware updates do not finish after 5 minutes? On rare occasions, an update may not signal the completion of a firmware update. If five (5) minutes have elapsed without the radio restarting and completing the upgrade, power off the radio by pressing the power button. The radio should restart, and the firmware update should complete normally.

Note: It would be rare that a single press on the power button does not shut down the radio. However, if this occurs, remove the DC power cable from the radio to force a hard reset. Wait about 1 minute, restore DC power, wait 2 minutes and depress the power button. The radio will restart and the firmware update should complete successfully.

How to Factory Reset a FLEX-6000

There may be situations where a factory reset of the FLEX-6000 is needed to ensure that the radio is working properly. If instructed to Factory Reset the FLEX-6000, use the procedure below.

Perform a Comprehensive Cold Boot and Factory Reset of your radio

Please pay attention to the "wait times" that are part of the steps listed below. These are important to ensure the radio resets properly.

- Power off the radio by pressing and releasing the power button. Allow it to completely power down before continuing by waiting for the power LED to turn off (or amber if a GPSDO is installed). If pressing and releasing the power button does not shut down the radio, **press and hold** the power button until the radio shuts down.
- Once the radio is powered off, **wait for 2 minutes** to allow for all processors to properly shut down.
- Remove the power cable from the radio for **at least 30 seconds** and then reconnect it. It is important to remove the power cable from the radio and not just turn off the power supply.
- After reconnecting the DC power cable, **wait for 2 minutes** to allow for the internal PSoC processor to boot up completely before continuing.

For the FLEX-6700 and FLEX-6500:

- Press and hold the OK button while pressing and releasing the Power button.
- Release the OK button once the power LED turns white and allow the radio to continue booting normally.

For the FLEX-6300, FLEX-6400(M), and FLEX-6600(M):

- Press and hold the Power button for approximately 5 seconds until the power button or power LED turns white. Release the power button and allow the radio to continue booting normally.

Best Practices for installing a new version of SmartSDR for an "M" Model FLEX-6000 or Maestro

The following best practices are applicable only when installing a new version of SmartSDR on a Maestro.

Both the Maestro and an M Model FLEX-6000 must have network access that allows connectivity to the Internet to download the new SmartSDR software.

Ensure your Maestro has a reliable power source. Make certain the supplied AC adapter is used to power the unit. This prevents the Maestro from losing power during an update.

Ensure your Maestro has a reliable network connection. The Maestro and radio firmware are upgraded entirely through the network connection. When upgrading a Maestro, a wired Ethernet connection is recommended; wired Ethernet connections are faster and more reliable than Wi-Fi.

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

In general, the answer is no, but there are considerations when more than one version of SmartSDR is maintained on your system:

Currently, every version of SmartSDR for Windows is installed in a "side by side" manner allowing the use of previous versions and supporting easy version switching of both software and radio firmware as long as there are no software dependencies that prevent backward compatibility. This method of installing places unique versions of software on your PC rather than removing or upgrading previous versions.

Release Specific Caveats:

SmartSDR v2.7.3 will install an updated FlexVSP driver that is not backward compatible with previous versions of SmartSDR CAT and will result in an unhandled exception error.

After installing this release (v2.7.3) we strongly recommend you do not revert to any version before SmartSDR v2.6.2 to ensure the data integrity of the SD card is maintained.

SmartSDR for Windows Shared Components:

The SmartSDR ecosystem employs shared components used by multiple versions of the software. When previous versions of SmartSDR for Windows are uninstalled it may result in the removal of one or more of these shared components, which may make newer versions inoperable.

Therefore, if you desire to uninstall an older version of SmartSDR, we highly recommend you uninstall older versions 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.

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Known Issues

- **If you revert from SmartSDR v2.6.2 to SmartSDR v2.4.9 and below, you must perform a factory reset of your radio.** The database used with SmartSDR v2.7.3 is not compatible with SmartSDR v2.4.10 and below. If a factory reset is not performed after downgrading, anomalous behavior will be experienced. After performing a factory reset, it is permissible to import profiles that were created using SmartSDR v2.4.10 and below.

- During alpha testing, after the initial installation of the updated DAX drivers provided in SmartSDR v2.6.0, a handful of users reported a Windows "stop error" (colloquially known as the Blue Screen of Death or BSoD). In most cases, the error occurred once and after a subsequent PC reboot, the error did not occur again or impact proper DAX operations. We are working to identify the cause and resolve the behavior.

- After installing the updated DAX drivers, if you receive a DAX error where all the DAX channels are red, the most common reason for this is due to the lack of a default Windows audio playback device (speakers). To identify this error condition, look at the speaker icon in the Windows Task Bar. If it has a red "X" on it, this indicates a missing default audio playback device. To resolve this issue, simply connecting a pair of PC speakers or a headset to the PC will cause Windows to find a suitable default audio playback device and upon restarting DAX, the error condition should be resolved.

- 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 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 to tune into (or out of) the 2m band (or an XVTR using 2m as an IF).

- (#7142) The "Mute local Audio When Remote" feature does not currently work in v2.5 and greater.

- (#6938) Operation with Pactor modems will not work in v2.5 and greater. Pactor operation is functional in v2.4.10.

Purchasing a SmartSDR Software License for your FLEX-6000 using SmartSDR for Windows

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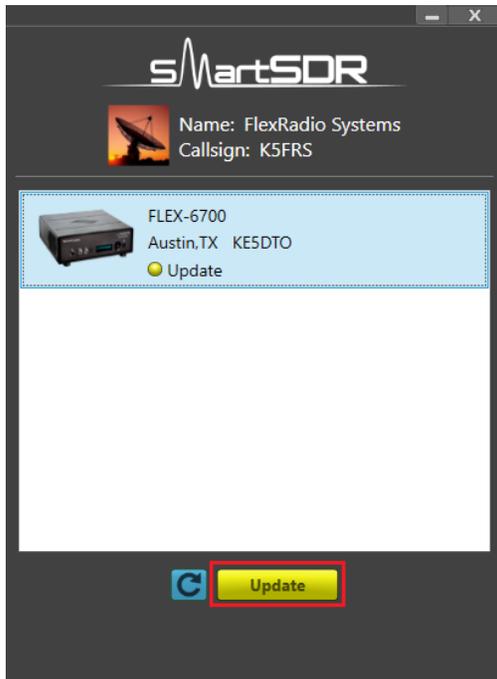
Once the update completes, if the radio you are upgrading requires a license, the radio status will show "License Required" and you will be presented with a Buy button that will launch a web browser, which will take you through the steps to purchase the license.

Note: New radios purchased include a SmartSDR license for the current major version and will not see the "License Required" indicator.
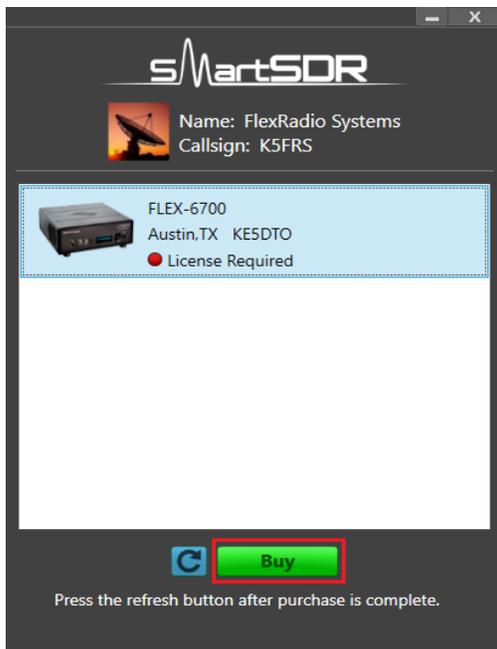
Once you have purchased a SmartSDR license for your radio, click the blue circular refresh button in the radio chooser window to update the license information for the radio. It may take up to a minute after the purchase completes before the radio acquires its license and cycling the power on the radio may be required.

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

Purchasing a SmartSDR Software License for your FLEX-6000 using an "M" Model FLEX-6000 or a Maestro

Obtaining a SmartSDR v2 software license is easy and convenient. After downloading and installing a 2.x Maestro software version, At the Select a Version screen, select the version 2 software just installed. If you need to purchase a license to run the software, the Buy button will appear as shown below.
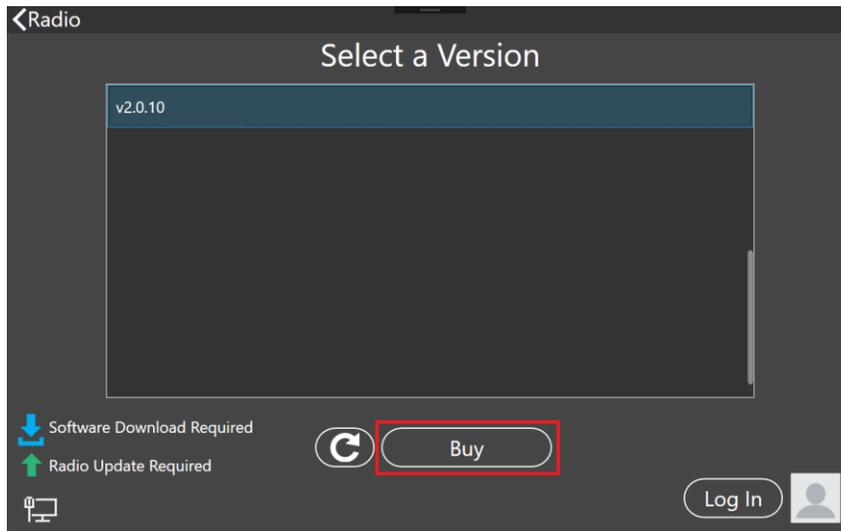
Owners of Limited Edition radios or radios purchased with a version 2 license will see a Run button instead of a Buy button. If you see a Run button, tap on the Radio link at the top left of the screen to return to the Select Radio to upgrade the radio's firmware.

Tapping the Buy button will generate and show a shortened URL that must be plugged into a browser manually. Note that the URL is case-sensitive and unique for each radio.
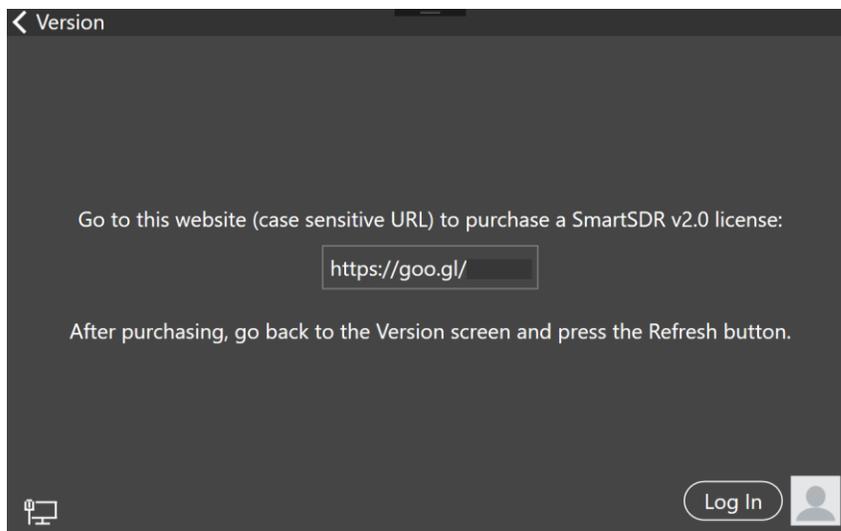
When the license purchase is complete, tap the Version link at the top left corner of the screen to go back to the Select a Version screen. At the Select, a Version screen, tap the refresh button (circular icon) to update the license information for the radio. It may take up to a minute after the purchase completes before Maestro finds the new license.
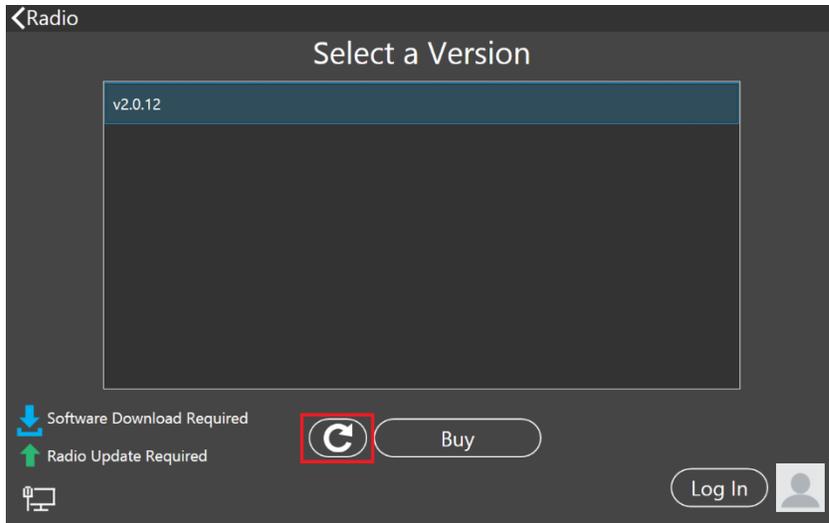
When the license is updated, the refresh button will disappear and the Buy button will change to a Run button. Tap the Run button to connect SmartSDR v2 for Maestro to your FLEX-6000.

SmartSDR Documentation Available from www.flexradio.com

The following documentation and how-to guides for SmartSDR v2.6.2 are available as a convenient download from the FlexRadio website.

SmartSDR for Windows Software User's Guide
https://www.flexradio.com/downloads/smartsdr-software-user-guide-v2-pdf/

FLEX-6400M and FLEX-6600M User's Guide
https://www.flexradio.com/downloads/flex-6400m-and-flex-6600m-user-guide-v2-pdf/

SmartSDR CAT User Guide
https://www.flexradio.com/downloads/smartsdr-cat-user-guide-v2-pdf/

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

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

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

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

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

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

SmartSDR v2.5.1+ Changelog
https://www.flexradio.com/downloads/smartsdr_v2_changelog/

Obtaining Technical Support

If you encounter any issues installing or operating SmartSDR for Windows with your FlexRadio Systems' Signature Series software defined radio, please use our online Community to search for information about SmartSDR and the FLEX-6000. If you need assistance using the Community, please refer to the Community Message Board for additional information.

If you are unable to find an existing answer to your issue via the Community, please contact FlexRadio Systems Technical Support by opening a HelpDesk support ticket online.

For details on how to submit a HelpDesk support ticket, please refer to the HelpDesk article How to Submit a Request for Technical Support.

Hours of Operation: Our Technical Support engineers are available Monday-Friday from 7:00 AM-4:00 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.

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