RELEASE NOTES AND ERRATA

POWERSDR™ V2.1.5 OFFICIAL RELEASE

July 22, 2011

IMPORTANT: Read this document in its entirety before installing the new release.

PowerSDR v2.1.5 is an Official Release version intended for general use with SDR-1000™, FLEX-1500™, FLEX-3000™ and FLEX-5000™ transceivers. Please check the list of updates and changes below before upgrading. Please report any issues found in the FlexRadio bug tracker at http://support.flex-radio.com/BugList.aspx?it=b.

IMPORTANT SOFTWARE INSTALLATION INFORMATION

REQUIRED DEPENDENCIES FOR FLEX-X000 USERS UPGRADING FROM POWERSDR 1.X TO POWERSDR 2.X

If you are upgrading from a 1.x version of PowerSDR, the following dependencies and prerequisites are REQUIRED to ensure that your upgrade will be successful. The following software and firmware components must be installed before attempting the upgrade to PowerSDR v2.x for FLEX-5000 and FLEX-3000 users.

- PowerSDR v1.18.6
- Firewire Driver: v3.5.0.7171
- FLEX-5000 Firmware: 1.3.0.8
- FLEX-3000 Firmware: 1.2.5.6

IF YOU HAVE PREVIOUSLY INSTALLED A 2.X VERSION OF POWERSDR, THE FOLLOWING STEPS ARE NOT REQUIRED. THIS IS REQUIRED ONLY IF YOU ARE NOT RUNNING A PREVIOUS VERSION OF POWERSDR 2.X

UPGRADE TO THE LATEST 1.X VERSION OF POWERSDR

Before upgrading to PowerSDR 2.x, you must upgrade to the latest version of PowerSDR 1.x which is version 1.18.6. You can download PowerSDR v1.18.6 from the FlexRadio Systems web site.

http://support.flex-radio.com/Downloads.aspx?id=322

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Download the PowerSDR v1.18.6 software installation package and run it, following all of the default installation options.

UPGRADE TO FIREWIRE DRIVER V3.5.0.7171

If you are not running version v3.5.0.7171 of the Firewire driver for PowerSDR v.18.6, you will need to upgrade your Firewire driver. This is to ensure that the firmware upgrade performed in the next step is successful.

You can download the Firewire v3.5.0.7171 driver from the FlexRadio Systems web site

http://support.flex-radio.com/Downloads.aspx?id=306

UPGRADE YOUR FLEX-X000 FIRMWARE TO THE LATEST 1.X VERSION

After you have confirmed that the Firewire driver is version 3.5.0.7171 or upgraded the Firewire driver to 3.5.0.7171 you must upgrade your radio's firmware to the latest 1.x version. You can download the firmware from the FlexRadio Systems web site.

- FLEX-5000 Firmware: 1.3.0.8 http://support.flex-radio.com/Downloads.aspx?id=287
- FLEX-3000 Firmware: 1.2.5.6 http://support.flex-radio.com/Downloads.aspx?id=289

Once you have brought up your FLEX-5000 and/or FLEX-3000 to the latest versions of 1.x firmware and software, follow the recommendations below in the PowerSDR 2.x Software Installation Recommendations and Guidelines section

POWERSDR 2.X SOFTWARE INSTALLATION RECOMMENDATIONS AND GUIDELINES

Please read all of the following guidelines and follow the recommendations to ensure a trouble free upgrade your software defined radio to PowerSDR v2.v

1. It is not necessary to uninstall the PowerSDR v2.0.22 Official Release before installing PowerSDR v2.1.5

2. **When upgrading from v1.18.6, the radio will do an automated RX image calibration. Disconnect all antennas before performing the installation so that signals on the antenna do not affect proper image calibration. STOP and START PowerSDR after the RX image calibration(s) has completed.**

3. **If you are upgrading from v1.18.6 on Windows XP, uninstall the FireWire driver using Windows Add/Remove Programs and reboot before installing v2.1.5. CAUTION: If you uninstall the old FireWire driver after installing v2.1.5, PowerSDR will not operate properly**. See FLEX-5000/FLEX-3000 Operation Notes for driver recovery instructions.

4. Do not change the default installation drive letter directory or errors will occur when running PowerSDR 2.x.

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5. Firmware updates will happen automatically when loading the new version. Do not stop the firmware load until it has fully completed or your radio may not operate properly thereafter.

6. **Do not import a v1.18.6 (or earlier) database into v2.1.5.** This will cause unstable operation. It is possible to import *some* database settings from previous versions using the K9DUR SDR Data Transfer Utility only if the STATE and MEMORIES tables are not imported.

7. If you are installing PowerSDR v2.1.5 with a FlexControl please read the *FlexControl Installation Errata Sheet* shipped with the unit regarding use with Virtual Serial Port software prior to installation**.**

8. See other installation notes regarding your specific model radio later in this document.

MAJOR IMPROVEMENTS SINCE V2.0.22 OFFICIAL RELEASE:

(NOTE: A detailed changelog.txt file can now be found in the Program Files\FlexRadio Systems (x86)\ \Documentation directory)

1. Optional installation of the new FlexControl™ driver. **Important: Please read the FlexControl Installation Errata Sheet regarding FlexControl use with Virtual Serial Port software.**

2. FM has been completely redesigned including CTCSS tones, improved modulation/demodulation, soft limiting, FM squelch and more.

3. FM now has a dedicated Repeater Mode that allows you to set positive and negative offsets along with the frequency offset. Split mode is no longer needed to operate FM repeaters. For more information, refer to the KB article How to Use FM Repeater Mode (http://kc.flexradio.com/KnowledgebaseArticle50501.aspx)

4. A new and improved Memories form has been added that integrate with the new FM Repeater Mode. For more information, refer to the KB article How to Use the Memory Form (http://kc.flexradio.com/KnowledgebaseArticle50500.aspx)

5. FM mode has a new mode specific control panel that allows you to select Memory channels from the console.

6. Full duplex when receiving on VFOA when transmitting on VFOB is now supported. Previously, full duplex was only supported when receiving on VFOB while transmitting on VFOA. This feature fills out operating requirements for full SO2R on the FLEX-5000 and satellite cross-band duplex on the FLEX-5000 with FLEX-VU5K installed.

7. FLEX-5000 RX2 wave record/playback added.

8. A Remove button (red X) is now provided on the Radio Chooser panel to allow easier radio start up maintenance.

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BUG FIXES AND ENHANCEMENTS INCORPORATED SINCE V2.1.2 RC3

DE545 FM: Fixed FM memory selection bug when the radio is not in FM mode
DE507 FM: Removed FM Squelch signal strength bar
DE552 FM: Setup->VAC on/off control now updates FM VAC control on console
US625 FM: TX frequency is now displayed in the VFO display for FM repeater mode
DE547 FM: Repeater TX offset is now not applied to split
DE556 FM: Deviation is correctly restored from Memory
DE536 FLEX-5000: Fixed walking frequency issue when switching modes on RX2
DE549 FLEX-5000: Fixed RX2 FM Squelch problems
DE527 FLEX-5000: Fixed left/right audio channels for RX2
DE430 FLEX-5000: VFO copy A->B and B>A now transfer filter states correctly with RX2
DE541 FLEX-1500: RX2 controls now do not show up on the 1500
DE555 FLEX-1500: Fixed output power issue when using FLEX-1500 with XVTR set to PA
DE537 Fixed Tune Step rollover bug
DE546 Squelch value is properly restored between sessions
DE554 Fixed AF gain issue with monitor
DE525 FlexControl: FlexControl Tuning Acceleration
US560 FlexControl: Tuning now snaps to Tune Step boundaries
DE524 FlexControl: Fixed broken VFO TX toggling
US525 FlexControl: New firmware (v0.3.0.2)
DE518 Mic is live to speakers/Panadapter on USB RX
DE517 QSE is not turned off in RX mode on FLEX-5000
DE515 Fixed FM mode corrupting other defined RX filters
DE516 Fixed application crash when saving FM to Memories.
DE497 Variable Filters (VAR1 & VAR2) now set to save by default
DE511 Fixed CW monitor issue with SO2R
US524 FLEX-1000: Reverse Paddles now work (COM port input)
DE510 Fixed not being able to change FM deviation when using XVTR form in RX only mode
US520 FM: Improved filters
US527 Fixed Audio Scaling to Prevent Clipping
US559 Fixed Tune Step handling

DATABASE IMPORT RECOMMENDATIONS

We highly recommend starting with a clean database when upgrading from versions prior to v2.0.19 RC1. If you import an old database, please proceed with caution because a number of important parameters have changed.

FIRMWARE UPGRADE PROCEDURE

Beginning with PowerSDR v2.0.16, drivers and firmware are both automatically installed as part of the installation process. Do not attempt to manually install a driver or firmware update unless specifically requested by FlexRadio Customer Support.

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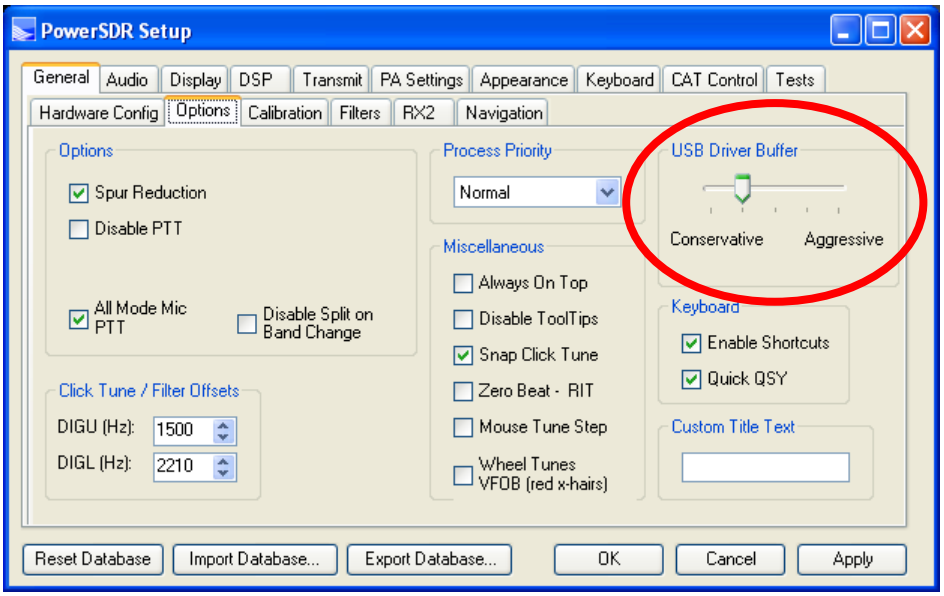
FLEX-1500 OPERATION NOTES

1. Performance optimization: The FLEX-1500 utilizes a real time driver to communicate between PowerSDR and the radio via USB. There are two steps to optimize the streaming performance of the USB interface. This varies by PC. Just because you have the fastest processor out today does not automatically mean that your PC's USB controller will achieve maximum performance. We have created a control to match the USB driver buffer streaming to your specific hardware. There are two steps to this process.

    a. USB Driver Buffer control: The USB Driver Buffer control allows optimization of the low level USB stream. This control is found on the Setup/General/Options form as seen below. *Note that PowerSDR must be in standby in order to change this control.* The default setting has been chosen to allow successful startup of PowerSDR on most machines but may not provide optimal performance on your specific PC. More aggressive settings reduce latency and improve keying performance in CW. More conservative settings will allow lower performing USB controllers and/or CPUs to function smoothly. Choose the most aggressive setting that provides stable operation without popping or distortion of the received signal.



    b. Audio Buffer Size: We recommend use of the smallest audio buffer setting on the Setup/Audio/Primary form that provides un-distorted audio and smooth keying. These will reduce latency to a minimum. The exact settings are dependent on your computer hardware but will usually be 512 or 256.

2. The IF offset default is set to 9 kHz in this software release. This causes the centering of the received passband to be slightly off to the side. If you want better centering, you may check the "Expert" box in Setup/General/Hardware Config and set the IF in Hz to some value between 500 Hz and 5000 Hz for better centering.

3. The SPUR REDUCTION (SR) control is default "ON." The frequency span of the Panadapter screen will be wider with SR turned off. Since there are extremely few spurs visible on the FLEX-1500, the recommended normal use of SR is "OFF."

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FLEX-5000 AND FLEX-3000 OPERATION NOTES

1. If the FLEX 3.5.5.10185 FireWire driver fails to load properly after installing PowerSDR v2.1.5, it will prevent previous version(s) of PowerSDR from working correctly. On rare instances, a previous FireWire driver install can prevent the Integrated Installer from properly installing the FireWire driver. If this condition exists after installing PowerSDR v2.1.5, remove all previous FireWire driver installations and perform a new driver installation by running the following procedure.

- Shut down PowerSDR and power off your software defined radio.
- If the FLEX FireWire control panel is open, close it.
- Run the PowerSDR v2.1.5 Integrated Installer and select the REMOVE option.
- Using the Windows Control Panel, select the Remove Program applet.
- Look for any instances of the FLEX FireWire driver. They will be listed as FlexRadio 3.5.2.8028 or FlexRadio 3.5.0.7171. Remove all instances of the FlexRadio FireWire driver.
- Reboot your PC.
- Run the PowerSDR v2.1.5 Integrated Installer Suite setup program.
- After the PowerSDR v2.1.5 Integrated Installer has completed, reboot your PC if requested.
- After the PC has completely booted up, power on the FLEX-x000 and allow the FireWire driver to complete its installation. For Vista and Win7 operating systems this is performed silently without any user intervention. For XP systems, the user will have to confirm three sub-driver installations (see the PowerSDR v2.0 Quick Start Guide for your particular SDR for additional details on installing the FireWire driver).
- Verify that the FireWire driver is properly installed by opening the FLEX FireWire Driver Control Panel. The FLEX-x000 should be a recognized device.
- Start PowerSDR v2.1.5 and proceed with the initial setup wizard.

2. You can run a FLEX-x000 SDR and a FLEX-1500 on the same PC at the same time as long as you use separate databases for each radio. A new "Chooser" will appear to allow you to select which radio you would like to operate. The software now keeps track of the database files for you. Just click "USE" next to the radio you want. If USE is grayed out, then check to make sure the radio is properly powered up.

   NOTE: CURRENTLY YOU MUST START THE FLEX-1500 FIRST FOR MULTIPLE RADIOS TO OPERATE PROPERLY. ALSO, YOU CAN ONLY HAVE ONE (1) USB-BASED RADIO AND ONE (1) FIREWIRE BASED RADIO OPERATING AT ONE TIME.

SDR-1000 OPERATION NOTES

The new CW keyer provided in PowerSDR versions starting with v2.1.5 require a microprocessor inside the radio to achieve the real time performance levels needed for break-in CW using attached paddles. The SDR-1000 does not incorporate such a microprocessor. Therefore, beginning with v2.1.5, attached paddles are no longer supported on the SDR-1000. From this point forward CW paddles are supported on the SDR-1000 only through the use of COM port keying. Please refer to the SDR-1000 Operating Manual pages 138-140 for setup and operation using this method.

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