



*Aprisa* **SR+**



# Software Release Notes

Version 1.1.1

December 2013

## Contents

<b>1. Introduction.....</b>	<b>2</b>
<b>2. Released Files .....</b>	<b>2</b>
<b>3. Product Features.....</b>	<b>3</b>
<b>4. Software Enhancements .....</b>	<b>6</b>
4.1. Major Enhancements.....	6
4.2. Minor Enhancements.....	6
<b>5. Hardware Enhancements .....</b>	<b>6</b>
5.1. Major Enhancements.....	6
5.2. Minor Enhancements.....	6
<b>6. Known Issues.....</b>	<b>7</b>

## 1. Introduction

---

### Introduction

This is the first release of Aprisa SR+ software:

Software Version	Release Date
1.1.1	12 <sup>th</sup> December 2013

This document covers the features of 4RF's new product the Aprisa SR+.

---

## 2. Released Files

---

### Release Files

The following is a list of files released for Aprisa SR+ Software Version 1.1.1

File Name	File Type	File Function
asrapp	Upgrade App Code	Used to initiate radio software upgrade
asrboot	Bootloader	Used to initiate radio software startup
asrmain	Application Code	Main radio system software
asrrootfs	Root File System	Catalog of system files
asrver	Version File	Release build version
version.txt	Public Version File	Release information

---

### 3. Product Features

The Aprisa SR+ product release version 1.1.1 has the following features. For more information, see the Aprisa SR+ User Manual 1.1.1.

---

#### Frequency Bands

Two frequency band products of 320 MHz and 400 MHz software selectable over the entire frequency band:

320 MHz	320-400 MHz
400 MHz	400-470 MHz

---

#### Channel Sizes

Software selectable channel sizes of 12.5 kHz and 25 kHz.

---

#### Gross Radio Capacity

Maximum gross radio capacity with 12.5 kHz and 25 kHz channel sizes:

12.5 kHz	60 kbit/s
25 kHz	120 kbit/s

---

#### Compliance

ETSI compliance for the 320 MHz band  
 ETSI / FCC / IC compliance for the 400 MHz band.  
 Also RoHS, WEEE and HazLoc.

---

#### Operating Mode

Operating modes of base, base-repeater, repeater and remote stations.

---

#### RF Operation

One or two frequency half duplex RF operation which eliminates the need for external duplexers. With the dual antenna port option, an external duplexer can be used for filtering.

---

#### Channel Access Modes

Channel access modes of Access Request (AR) and Listen Before Send (LBS) / CSMA for radio channel management.

AR channel access has a higher channel efficiency than LBS in a spontaneous message scheme (report by exception).

---

#### Adaptive Coding Modulation and Forward Error Correction

Adaptive Coding Modulation (ACM) which maximizes the use of the RF path to provide the highest radio capacity available.

ACM automatically adjusts the modulation coding and FEC code rate in the remote to base direction of transmission over the defined modulation range based on the signal quality for each individual remote radio.

When the RF path is healthy (no fading), modulation coding is increased and the FEC code rate is decreased to maximize the data capacity.

If the RF path quality degrades, modulation coding is decreased and the FEC code rate is increased for maximum robustness to maintain path connectivity.

---

---

<a href="#">OTA Data Encryption</a>	OTA data encryption using Advanced Encryption Standard (AES) 128, 192 or 256.
<a href="#">OTA Data Authentication and Integrity</a>	OTA data authentication and data integrity using Cipher Block Chaining Message Authentication Code (CBC-MAC) using Advanced Encryption Standard (AES) 128, 192 or 256.
<a href="#">OTA Data Compression</a>	Ethernet and serial payload compression to increase the narrow band radio capacity.
<a href="#">Header Compression</a>	Ethernet header and IP/TCP/UDP ROCH header compression to increase the narrow band radio capacity.
<a href="#">Antenna Port Options</a>	Software selectable dual / single antenna port options (dual antenna port for external duplexers or filters using dual frequency).
<a href="#">Data Interface Port Options</a>	Multiple data interface port options for combinations of Ethernet and RS-232 serial for a total of four interface ports i.e. port options of 2E2S, 3E1S or 4E0S, where E=Ethernet, S=Serial port.
<a href="#">Pseudo Peer to Peer</a>	Pseudo peer to peer communication between remote stations through base-repeater or repeater stations.
<a href="#">Terminal Server</a>	Terminal server operation for transporting RS-232 traffic over IP or Ethernet.
<a href="#">L3 Router Mode</a>	L3 Router mode with standard static IP route for simple routing network integration.
<a href="#">L2 Bridge Mode</a>	L2 Bridge mode with VLAN aware for standard Industrial LAN integration.
<a href="#">VLAN Support</a>	IEEE 802.1Q VLAN support with single and double VLAN tagged and add/remove VLAN manipulation to adapt to the appropriate RTU / PLCs.
<a href="#">QoS Support</a>	QoS support using IEEE 802.1p VLAN priority bits to prioritize and handle the VLAN / traffic types.

---

---

<a href="#">L2/3/4 Filtering</a>	L2/3/4 filtering for blocking security attacks and blocking unwanted traffic avoiding narrow band radio network overload.
<a href="#">Hardware Alarm Inputs / Outputs</a>	Two hardware alarm inputs and two hardware alarm outputs mappable to any radio alarm event.
<a href="#">SCADA Protocol Support</a>	Transparent to all common SCADA protocols; e.g. Modbus, IEC 60870-5-101/104, DNP3 or similar.
<a href="#">SuperVisor Web Management</a>	SuperVisor web management support for element and sub-network (base-repeater-remotes) management.
<a href="#">Secure SuperVisor</a>	HTTPS secure SuperVisor web access management using SSL secure protocol.
<a href="#">SNMP and NMS</a>	SNMPv1/2/3 MIB supports for 4RF NMS SNMP manager or third party NMS SNMP agent network management.
<a href="#">SNMP Security</a>	SNMPv1/2/3 encryption and authentication using HMAC-MD5 or HMAC-SHA for secure NMS / SNMP access and management transactions.
<a href="#">SNTP</a>	Simple Network Time Protocol (SNTP) for accurate wide radio network time and date.
<a href="#">Multi Repeater</a>	Multi repeater, where the Network Radius = 1 (i.e. the multi repeater is in the first hop from the base station) in AR and LBS channel access mode.
<a href="#">Daisy Chain</a>	Daisy chain used for daisy chain repeaters when remote stations are very far from base station coverage. Daisy chain repeaters can only be used in LBS channel access mode.
<a href="#">Alarm and Event Parameter Logging</a>	Alarm event parameters can be configured for all alarm events. All active alarms for configured alarm events will be displayed on the SuperVisor Parameters page. The last 1500 events are stored in the radio and the complete event list can be downloaded to flash drive via the radio USB host port.
<a href="#">Software Upgrades</a>	Over-the-air software distribution and upgrades.

---

## 4. Software Enhancements

### 4.1. Major Enhancements

---

None

---

### 4.2. Minor Enhancements

---

None

---

## 5. Hardware Enhancements

---

None

---

### 5.1. Major Enhancements

---

None

---

### 5.2. Minor Enhancements

---

None

---

## 6. Known Issues

---

### Supervisor Loading Same Page

#### Issue

When using SuperVisor for managing remotes via a repeater, it may load the same page when trying to go back to 'Network Status' page or to a menu item on the same level.

This issue is a rare issue that may happen once or not at all. This issue does not impact remote management or the user data traffic.

#### Workaround

In SuperVisor, click another tab on menu level 1 and then load the page which was failing to load.

This is a known issue and will be fixed in a later software version release.

Issue # 2999; version 1.1.1

---

### Base-Repeater Configuration Indication

#### Issue

In SuperVisor, when an Aprisa SR+ is configured with 'Terminal Operating Mode' as a 'Base-repeater' and 'Packet Filtering' is set to 'disabled' in remote station/s, the 'IP Header Compression Ratio' should be set to 'Compression Disabled' in the entire Aprisa SR+ network for correct peer to peer operation. There is no pop-up message indication for this issue.

#### Workaround

In SuperVisor, the user should set the 'IP Header Compression Ratio' to 'Compression Disabled' in the entire Aprisa SR+ network, when the 'Terminal Operating Mode' is set to 'Base-repeater' and 'Packet Filtering' is set to 'disabled'.

This is a known issue and will be fixed in a later software version release.

Issue # 2763; version 1.1.1

---