**warn-rx-2.iso**

A close up of a logo

Description automatically generated

**Description**: warn-rx-2.iso is a ready-to-deploy image file for the micro SD card of a Raspberry Pi single board computer (SBC), which configures the SBC as a data gateway between a PBS WARN off-air receiver and the PBS WARN web map. This image is intended to provide redundant WARN capture as a backup to the existing WARN receiver at KVIE, Sacramento.

This image supports (but does not require) an HDMI monitor and USB keyboard, and was developed and tested on a Raspberry Pi model 3B+.

**Features**: For simplicity and reliability, this image has no user-configurable features, and is intended for a single deployment. Additional receivers will require a modified version of this image to avoid potential interference among multiple WARN remote receivers.

Running this image the SBC will monitor its Ethernet port for UDP packets encapsulating the WARN datastream from PID 0x0911 of a PBS WARN transmission. Those UDP packets are reassembled into the original CAP XML message format and forwarded via HTTP/HTTPS to the WARN map server(s).

**Installation**: Once the ISO image is unzipped and “burned” onto a micro SD card, and the card inserted into the SBC, the Ethernet connection should be made prior to applying power to the SBC. The SBC must be on the same sub-network as the associated WARN receiver, and must have access to the Internet as follows:

|  |  |  |
| --- | --- | --- |
| **Protocol** | **Address / Port** | **Usage** |
| TCP out | 13.224.2.114 / 443 | HTTPS to main WARN map |
| TCP out | 10.8.0.1 (on VPN) / 9110 | WARN map development |
| UDP out | 54.149.8.236 / 1194 | OpenVPN to dev. Network |

No inbound connections from the Internet should be allowed.

The WARN receiver must be configured to encapsulate packets from WARN PID **0x0911** and forward them by UDP multicast to group **224.3.0.1** port **5000**.

Once installed the performance of the SBC can be monitored by logging onto the SBC as user “pbs” with password “warn” and entering the command “sudo tail -f /var/log/syslog | grep warn” to view a continuing output from the system log. Activity should be observed at least once each minute.

**Operation**: The SBC is configured to run continuously “headless” and unattended. It will recover automatically from power or network failures after a reboot. Operating system updates over time are desirable but not required.