APPLICATION NOTES:
VOLUME ADJUST ACROSS TRUNKING

OVERVIEW

Currently, RTS intercoms allow the user to adjust listen levels for local point-to-point and party line assignments, e.g. to adjust the individual component volumes when listening to a mix of sources. Volume Adjust Across Trunking extends this, allowing the user to adjust the listen volumes for remote assignments. Remote volume adjustment requires the following minimum versions of firmware:

- MCII-e v3.6.0
- ODIN v1.3.0
- TM-10K v10.1.0

As part of this release, the TM-10K Platform OS is also updated from v1.00 to v1.10, primarily to address several potential security issues.

Full support for remote volume adjust also requires updating to the following versions:

- AZedit v5.5.0
- TrunkEdit v1.9.0

LICENSING

Volume Adjust Across Trunking is a licensed feature. In order to update the TM-10K firmware to v10.1.0 (and the Platform OS to v1.10), a TM-10K license file is required. Without a valid license file, the new version of firmware cannot be installed.

If you do not intend to purchase support for remote volume adjustment, but you wish to upgrade the TM-10K to address any vulnerability concerns, a license file is available which allows the new firmware to be installed but which does not enable remote volume adjustment.

Licensing is performed in the TM-10K. Remote volume adjustment does not require an ODIN or MCII-e license.

UPGRADING AN EXISTING INSTALLATION

ODIN

The ODIN firmware is upgraded as normal. The intercom setup is automatically preserved before the upgrade is performed, and restored after the new firmware has been downloaded.

MCII-e

The MCII-e firmware is upgraded as normal. The intercom setup should be retained automatically; however, it is strongly recommended that you use AZedit to save the complete intercom setup to file before performing the upgrade.

Please note: this is *not* true when downgrading the firmware: If the intercom is to be downgraded from v3.6.0 to v3.5.0 (or earlier) for some reason, the intercom will restart with a blank setup file once the download is complete.

TM-10K

Upgrading an existing TM-10K Trunk Master requires 3 files:

`tm-10k_v0_OS_v1.10.tgz` (updates the Platform OS from v1.00 to v1.10)
`tm-10k_v10.1.0.tar.xz` (TM-10K application, v10.1.0)
`tm-10k.lic` (license file)

The license file is unique to the TM-10K hardware. (You may have a license file which is applicable to both computers if you have an active/standby pair.)

The TM-10K software can be upgraded via a USB thumb drive or a CD-ROM.

Upgrading via USB Thumb Drive

Please note: The USB thumb drive must be formatted as either NTFS or FAT32. It must not be encrypted.

1. Copy the 3 files listed above to the root directory of the thumb drive. There must be no other files of type .tgz or .xz in the root directory.

2. Log on as “root”

3. If the TM-10K application is running, shut it down:

```
/tm/stop_tm
```

4. Plug the USB thumb drive into one of the TM-10K USB slots.

5. Execute the command:

```
tm_update --usb
```

This will update the Platform OS to v1.10, and install the license file. If a valid license file is not present, this step will fail. The installation will be aborted, and the software will be rolled back to the previous version.

6. Execute the command:

```
shutdown –h now
```

This will shut down and reboot the TM-10K. When it restarts, it will not find a valid TM-10K application to run.

7. Log on as “root” and execute the command:

```
tm_update --usb
```

This will install TM-10K application v10.1.0. This step will fail if the TM-10K has not been updated to Platform OS v1.10 (step 5), or if the computer was not rebooted after updating the Platform OS (step 6).

8. Remove the thumb drive and execute the command:

```
shutdown –h now
```

This will shut down and reboot the TM-10K. When it restarts, it will automatically run (the new version of) the application.

Upgrading via CD-ROM

Please note: when burning the CD, it is essential that the CD be in ISO9660 format with Joliet extensions.

1. Copy the 3 files listed above to the root directory of the CD-ROM. There must be no other files of type .tgz or .xz in the root directory.

2. Insert the CD into the CD-ROM drive.

3. Follow the instructions (above) for upgrading the firmware via USB, but use the following command in steps 5 and 7:

```
tm_update --cd
```

REINSTALLING THE TM-10K SOFTWARE

The TM-10K software can be reinstalled (e.g. if the hard drive fails and is replaced), as follows:

1. Create a bootable CD containing Platform OS v1.10.

   The Platform OS is distributed as an .iso file (an image of the CD). When burning the CD, it is important to use the option “burn CD from image” (or similar), rather than just copying the .iso file to the CD. If done correctly, the CD will show numerous folders in the root directory such as “bin”, “boot”, “dev”, “etc”, etc.

2. Boot the TM-10K computer from this CD, and install the Platform OS, as described in the section *Installation of the Operating System* in document F01U286740.pdf, *TM-10K Trunk Master Technical Manual*. Once the Platform OS has been installed, remove the CD and reboot from the hard drive.

3. Follow steps 7 & 8 of the instructions for updating the TM-10K software, above.

CONFIGURATION

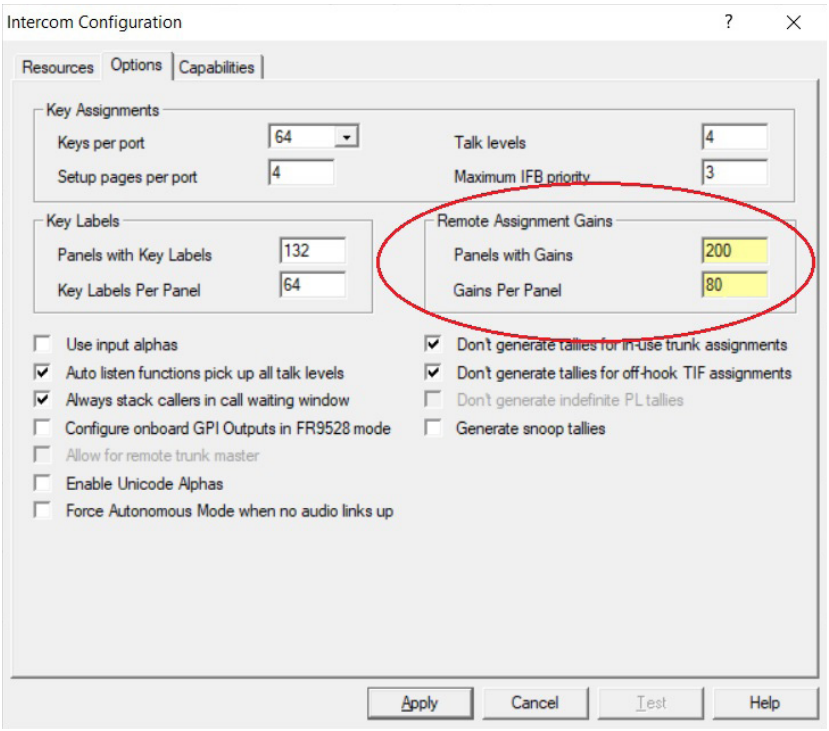
Because of the immense number of possible remote volume settings, and because of limited memory (especially in the MCII-e), there are two parameters in the intercom configuration that determine the resource usage:

- The maximum number of panels that are allowed to set remote volumes
- For each panel with remote volume adjust enabled, the maximum number of remote assignments for which it can set a (non-unity) listen volume

(This is similar to the configuration for key labels.)

These settings are configured on the Options tab of the Intercom Configuration dialog, as in the following example to the right.

“Panels with Gains” must be no more than the number of ports in the system. “Gains Per Panel” is limited to a maximum of 128. If either of these values is set to 0, then remote volumes cannot be set for any port.



OPERATION

Before the gain for a remote assignment can be adjusted, remote gain adjustment must be enabled for the port that wants to adjust the gain. This is done on the Advanced tab of the Keypanel Settings for that port (the “Edit...” button).

AZedit will warn you if you try to enable remote assignment gains for more ports than the configured maximum. Once remote assignment gains have been enabled for a port, gains for remote assignments can be adjusted in several ways:

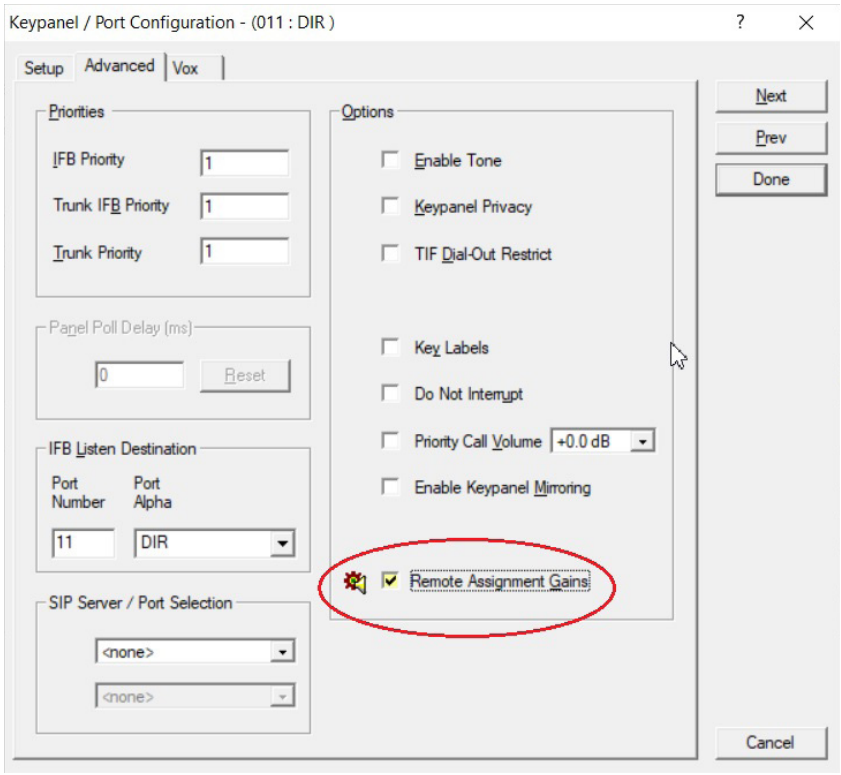
From the keypanel

Gains can be adjusted for remote assignments just like for local assignments. For example, on a KP-5032 keypanel, move the lever key for the assignment left or right.

In AZedit, by selecting “System” > “Gains” > “Remote Assignment Gains”

This brings up a screen similar to the Assignment Groups screen. Select a port via the controls at the top-left of the screen (you can only select ports for which remote assignment adjust is enabled). The Add Entry button allows new remote assignments to be added (or you can drag assignments from the Grid control). Other controls on the screen allow you to adjust the listen volume for existing entries.

Please note: only non-unity entries are actually stored. Entries on this screen are “sticky” (they do not disappear immediately just because the gain gets set to 0dB); they will remain until you navigate away from the screen.



In AZedit, by right-clicking an assignment on the Keypanel view and selecting “Change Volume”...

This brings up a dialog allowing the volume to be changed. This dialog exists in earlier versions of AZedit; however, it now allows the listen volumes to be adjusted for remote assignments (if enabled for the panel).

COMPATIBILITY

In a trunked environment, it is possible that some intercoms support volume adjustment of remote assignments, and others do not. In this case, trunking operation will continue to work; however, remote volume adjustment may not be available in some circumstances.

TM-10K upgraded, local intercom not upgraded

In this scenario, trunked operation is unchanged. Trunking will work normally, but remote volume adjustment (in the local intercom) will not be available.

Local intercom upgraded, TM-10K not upgraded

This scenario is exactly like the previous scenario: Normal trunking operation, but no volume adjustment for remote assignments.

TM-10K and local intercom upgrade, remote intercom not upgraded

In this scenario, the intercom allows listen gains for remote assignments to be adjusted, at the keypanel and via AZedit. However, the actual behavior depends on the trunk allocation:

- If the trunk is forked in the local intercom (the one which has been upgraded), the remote gain setting will be applied.
- If the trunk is forked in the remote intercom (the one which does not support remote volume adjustment), the listen gain settings will not be applied, and all remote assignments will be heard at 0dB.