



**TRIO**  
DATA COM

# Technical Note - TN-56



**Subject:**

**Integrating E Series Radio Modems into D Series Systems**

**Description:**

Remote Diagnostics Applications

**Products/Equipment:**

D and E Series Radio Modems

## Introduction

There are many existing data radio systems, built around Trio D Series radio/modems, and these may be expanded by integrating E Series devices. The E Series radio/modem can be configured to inter-operate with D Series units. However this extends to timing and modulation compatibility only.

## Trio TView+ Tool

Trio has for some years now made available an excellent tool for the monitoring and management of small and large systems built around D Series Radio/Modems. This Windows<sup>®</sup> application, is now available in a version that can communicate with both D Series and E Series targets.

## Remote Diagnostics Protocol Version 2

The E Series radio/modem, uses a modified version of the Remote Diagnostics protocol, for remote unit monitoring and now remote configuration. This is called **Remote Diagnostics Version 2**, and while the two versions of this message protocol are compatible in that they may co-exist on the same Stream, they are exclusive to each of the intended targets. **Remote Diagnostics Protocol Version 1 (RDP1)** will be interpreted and actioned correctly by D Series radio/modems, and be ignored by E Series units. Conversely, **Remote Diagnostics Protocol Version 2 (RDP2)** will be interpreted and actioned correctly by E Series radio/modems, and ignored by D Series units.

However, **RDP2** messages (commands and responses) are generally longer, some significantly so, than **RDP1**, and this may present a problem in a small number of system topologies.

## Remote Diagnostics System Topologies

The **TView+** utility can be connected into a network of Trio D/E Series Radio/Modems at any node of practically any topology.

### Point To Multipoint System With TView+ Connected to Master (BaseStation)

A typical system topology is a Point To Multipoint network, consisting of a base-station and a population of remotes. In this typical system, the user's master controller application data is connected into PortA or PortB of the base-station. The remaining port on the base-station is used to connect the PC running the T-View+ application. This system topology presents no compatibility problems in the extended message lengths of **RDP2**.

### Point To Multipoint System With TView Connected to Remote.

There are three possible reasons why the TView+ utility is connected to a remote radio/modem (lets call it The TView+ Remote). Commands from TView+ to other remotes are expected to be repeated by the base-station, and the responses from the addressed remotes are expected to be repeated by the base-station back to The TView+ Remote. Messages to/from E Series targets will use the **RDP2** protocol, and messages to/from D Series targets will use the **RDP1** protocol.

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### Integrating E Series Radio Modems Into D Series Systems (TN-56)

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- Ex.1: Both the user ports of the base-station are used by two independent data streams by the user, so remote diagnostics (TView+) polling is plugged into the network at a remote node.
- Ex.2: Only one of the base-station user ports is used by the system application, but the TView+ terminal is located remotely for other management reasons.
- Ex.3: The base-station is in fact a Repeater, and the user's System Application Controller is actually connected to a Control Remote radio/modem, and inserts and retrieves system application messages at this point. If only one port of this Control Remote is used by the application data, the other may be used for T-View+ access into the network in a similar way. Alternatively, T-View+ may be connected to/via another remote radio/modem.

### So Where Is The Problem?, And What's The Solution?

The only instance where the extended length of **RDP2** messages is potentially a problem, is where a D Series base-station is configured for "Diagnostics Repeat", and the **T-View+** management tool is connected to a remote. The Diagnostics Repeat function in a D Series unit, expects to handle messages up to the maximum length allowed in **RDP1**. **RDP2** messages which extend beyond this, will be discarded, and thus not repeated.

This is likely only to be the case in Ex.1 above. In this case, either an external Stream Router Multiplexer can be added to the site installation to combine the user's two data streams into one composite stream, and thus into one User Port of the base-station, leaving the other port free (see Ex.2), or replace the base-station with an E Series base-station.

Example Ex.2 can be reconfigured to convert the spare user port into a Repeat function, the routing configuration to include the **RDP2** stream. Such Repeater configurations of User Ports do not suffer the message length restrictions of the Diagnostics Repeat function in the Diagnostics Kernel in the D Series unit.

In the third case (Ex.3), the repeat configuration would/could include the **RDP2** stream, so these messages would be routed via the normal repeat mechanism, which does not suffer the same message length limitations.

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