




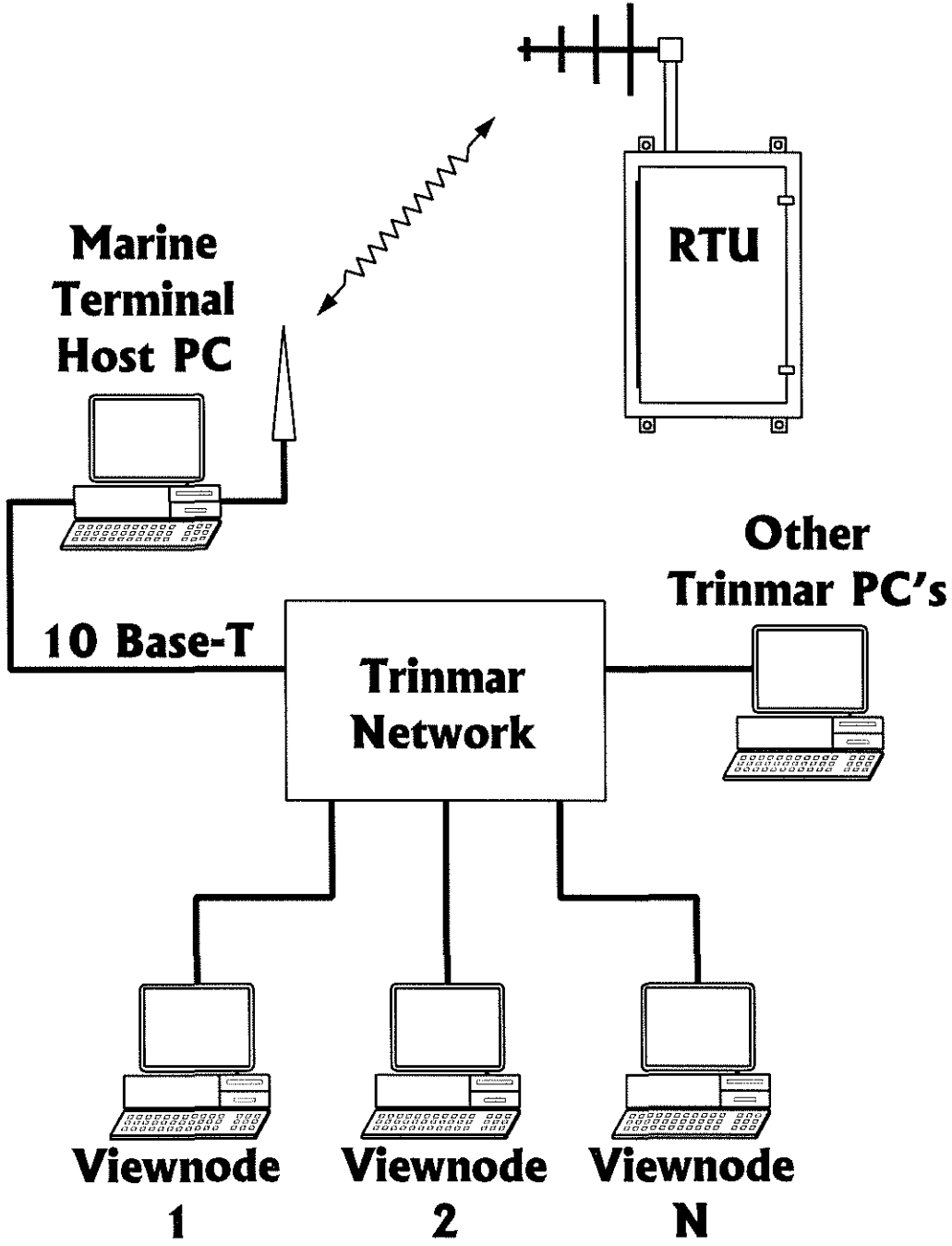


Trinmar SCADA System Overview

-  **Monitor platforms, metering stations, and storage facilities**
-  **Marine Base is Primary Host**
-  **Tank Farm is Backup Host**
-  **Radio links to 25 RTU locations**
-  **Tied to Trinmar PC Network**

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Trinmar SCADA Network



Trinmar SCADA Basic Terms

- | | |
|---------------------------|----------------------------|
| 1. SCADA | 16. Status Data |
| 2. HOST | 17. Analog Data |
| 3. Marine Base | 18. Counter Data |
| 4. Viewnode | 19. Logical RTU |
| 5. Comm Link | 20. Current RTU |
| 6. Poll | 21. Time Stamp |
| 7. RTU | 22. Ambiguous Tag |
| 8. Smart RTU | 23. Unambiguous Tag |
| 9. HOST/RTU | 24. Comm Protocol |
| 10. SCADA Node | 25. TSP |
| 11. Scadaware™ | 26. MODBUS |
| 12. Task | 27. TSP Procedure |
| 13. Data Channel | 28. TSP Library |
| 14. Local Channel | 29. Link Procedure |
| 15. Remote Channel | |

Trinmar SCADA Marine Terminal

-  **Standard PC computer**
-  **Scadaware™ program**
-  **Radio on tower connected via wire**
-  **Serves as Main Field Viewnode**
-  **Tied to Trinmar network for Viewnode and report file generation**
-  **Also activates local alarm and phone/pager system**

Trinmar SCADA Marine Base Net

- **HOST is server**
- **Viewnodes are clients**
- **Each Viewnode has self-contained setup except for database files**
- **All nodes have Net bios name of SCADA* to allow broadcast mode**
- **Operation similar to Multi-drop Radio**
- **Each node has unique Scadaware™ Multi-drop ID**
- **Net task on HOST updates Viewnodes**
- **Drive F: is space on main Trinmar Net for report files**

Trinmar SCADA Directory Setup



HOST

C:\SCADA

\BASE

\SCREENS

\DB









Viewnode

C:\SCADA

\MAIN (or EAST)

\SCREENS









Trinmar SCADA Update Process

-  **Controlled by Marine Host PC**
-  **Timer operated - 20 minute cycle**
-  **Radio link to each RTU**
-  **Common routines for all RTU locations stored in LINK.LIB**
-  **Updates HOST database each hour**
-  **Updates Viewnodes via Network**

Trinmar SCADA Viewnode Polling

- **Viewnode cannot access RTU via Radio**
- **Viewnode signals HOST to perform Poll**
- **Net task on Viewnode executes
NETPOLL FORCE NET READ NETPOLL \$R**
- **NETPOLL procedure on Viewnode
Dial HOST
Block Poll Now \$1
Bye**

Trinmar SCADA File Types

-  **RTU** **Channel configurations for each location. Also for procedure files.**
-  **SCR** **TSP procedure files for Graphic Screens**
-  **FRM** **Text mode FORM displays**
-  *****_UP** **Update procedure for each RTU (Example: BS16_UP)**
-  **RTG** **Real Time graphic configurations**
-  **LOG** **Date logs for each RTU**
-  **IMG** **Binary data image**
-  **TXT** **Text message files and reports**

Trinmar SCADA Graphic Screen Procedures

- **Startup section at end of procedure to CLEAR SCREEN with blue background**
- **Load configuration for graphic elements**
- **Load common push button menu**
- **Execute :LOOP section until Keypress**
- **Update trend during initial 25 passes**
- **Update graphic elements on all passes**
- **Exit with PREVIOUS to calling program**

Trinmar SCADA Pager Operation

- **Pager phone numbers assigned to links**
- **Groups formed for each pager link**
- **Affected channels set to proper group**
- **Affected channels set to call on abnormal**
- **ComFail procedure for pager link will reset after 2 calls**
- **Menus provided to re-enable each morning**

Trinmar SCADA Printer Control

- **Printer status monitored by Scadaware™**
- **Offline printer is disabled until re-enabled**
- **SET PRINT [number] used to set and test printer port**
- **Scadaware™ attempts to reset printer when SET PRINT is used**
- **SET GPRINT used for graphic print selection**
- **Printer re-enable can be automatic (agenda) or manual (menu)**

Trinmar SCADA Net Report Files

- **Text files generated by Marine Base PC**
- **Output on drive F: of Marine Base PC which is actually Trinmar server**
- **CSV = Comma delimited file for spreadsheet**
- **TXT = Text file for direct viewing**
- **File generation coordinated with hourly database update**