

Text Despatcher Gateway

Background

A Middle Eastern Ports Authority operates a Container Terminal Management System (CTMS), which controls crane bookings, marine berth, yard operations, container inventories, activity planning and financial billing. The CTMS facilitates the integrated inter-port transfer of containers between two ports, mainly using the Ports Authority's own trucks.

The Synchronous Planning and Real Time Control System (SPARCS) from Navis complements the CTMS for ship and yard planning, equipment scheduling, despatching and execution of planned jobs. Using Global Positioning System (GPS) technology for pinpoint accuracy in locating containers, it produces a graphical tracking display of container movements anywhere in the terminals, and distributes information to Mobile Data Terminals (MDTs) in every container-handling vehicle in the port.

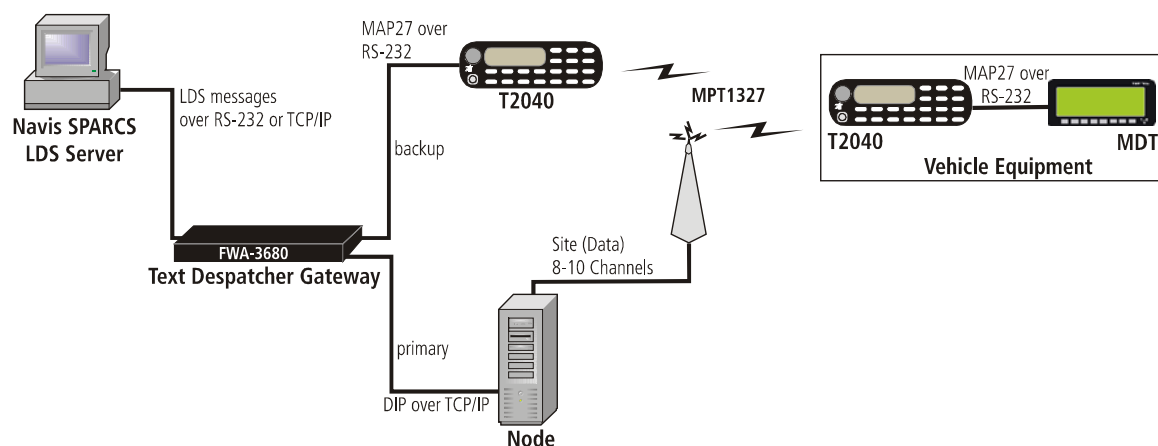


System Overview

Tait Custom Integration (TCI) developed the Text Despatcher Gateway to provide a link between the Navis SPARCS LDS server and the MDTs in the port vehicles. Messages from the LDS server are in LDS message format, transferred over RS-232 or TCP/IP.

The Gateway converts the LDS message to Tait Inform Despatch Protocol (TIDP), a Tait proprietary protocol, suitable for the MDT to receive. The message is then sent via a direct TCP/IP connection to the node using the Despatcher Interface Protocol (DIP). Messages to the vehicle are sent using Short Data Messaging (SDM) and Non-Prescribed Data (NPD) calls, with each new message overwriting the previous one.

This is the primary means of sending and receiving data, and allows up to 64 simultaneous data calls to MDT equipped vehicles. A backup mode is provided, using MAP27 to control up to four T2040 radios, in the unlikely event of a node failure.



The majority of communication is from the LDS server to the Ports Authority's trucks with the following exceptions:

- A power up message is sent by the MDT whenever it establishes a MAP27 link with the truck's T2040, and
- Status messages are sent when the driver presses particular function keys.

A look-up table is used to translate between Vehicle Identities (IDs) and MPT1327 addresses. The LDS server can address up to 400 vehicle IDs.

The Gateway is configured using a text file, including MPT1327 addresses for use by the Gateway DIP interface, number of retries and time between attempts.

The Gateway provides a logging facility, where remote users can login via a secure internet connection and view the messages being sent and received. In addition, the Gateway stores logging information in daily log files on the hard drive.

Features

- Software and hardware are contained within one complete unit.
- Embedded security-hardened Linux is installed on the hard drive to host the Gateway application, providing several advantages, including fewer licensing and operating system compatibility issues.
- The hardware used is a 1U rack-mounted PC (FWA-3680 from Advantech).
- The specifications for the FWA-3680 are:
 - 40G hard disk drive (HDD),
 - 1.2GHz Celeron microprocessor,
 - 256MB SDRAM,
 - Four 10/100 Fast Ethernet ports,
 - Dual PCI expansion slots with six USB ports,
 - 9-way RS-232 serial port for maintenance and diagnostics.



Tait Custom Integration (TCI) has modified this product for a particular customer. This information has been provided as an example of the capability of TCI and of a recent custom development.

Further development and/or type approvals may be required to make this product suitable for use by other customers or markets.

For further information, please contact the Tait Strategic Systems Team (SST@tait.co.nz).