VEssel TRAFFIC MANAGEMENT SYSTEM
VTMS
Vessel Traffic Management System

Rolta Vessel Traffic Management System (VTMS) makes valuable contribution to safer navigation, efficient traffic flow, and protection of the environment in confined and busy waterways by active monitoring, provision of information services, traffic organization and navigational assistance to vessels. VTMS facilitates quick and efficient handling of incidents and emergency situations. Additionally, data from incidents and traffic movements can be stored and used as reference information for port administration, port authorities, coastguards and search and rescue services.

Key Features:

- Geo-Fence support
- Target Warnings and Assignments
- Electronic Navigational Chart (ENC) map & Web Map Service (WMS) support
- Navigational channel Monitoring & warning
- Recording and Replay of Vessel activities
- Events assistance (Search and Rescue (SAR), Law Enforcement, National Response Center, Alarm)
- Decision support system to locate appropriate response vessel
- Standard Operating Procedures (SOP) Support (Plan & procedures, On-fly support)
- Dashboard to get overall Situational awareness
- Marine Tools: Compass Rose, Go-To Mark, Range & Bearing Line (RBL), Closest Point of Approach (CPA), Range Rings, Grid

Generic Features

- Port Management Information System Interface (Vessels correlation, Hookup, Assets info, scheduling Arrival, departure, shift activities)
- Port Activities in a Timeline (Weather Info, Events, Vessel Arrival, Vessel Departure, Vessel shift)
- Units of Measurement (Multiple Coordinate & Distance format, On-fly definition)
- Layer / Topology manager (Activating / deactivating layers)
- Mobile Support
- Investigation & Replay module
- Multiple Monitor Display support
- Multi-lingual support including Arabic

Sensor Interface

- Sensor Interface (Radar, AIS, Met, RDF, EOS, Thermal console, etc.)
- AIS Messaging (Safety, text message with Unicast / Broadcast)
- Radar Interface, Radar Video & Radar Video history
- Sensor & System health warning
- Video Support (Video Streaming with playback controls & Pan Tilt Zoom (PTZ) controls)
- Sensor Control and Monitoring (Bi-Directional Communication Support)
VTMS Application Areas:

- High traffic density & Traffic carrying hazardous cargoes
- Conflicting and complex navigation patterns & Environmental considerations
- Interference by vessel traffic with other waterborne activities
- Existing or planned vessel traffic services on adjacent waterways and the need for cooperation between neighboring states
- Narrow channels, port configuration, bridges, locks, bends and similar areas where the progress of vessels to be restricted
Functionalities

- Acquisition of targets and continuous tracking of vessels in the surveillance area
- Communicates with variety of sensors to perceive the threat information
- Detection of anomaly behavior, supervision and control of incoming and outgoing vessel traffic
- Monitoring vessel movement and the co-ordination of traffic movement.
- Co-ordination of Search and Rescue activities.
- Provision of information to vessels to safely and expeditiously enable navigation.
- Archiving of vessels’ information for statistical analysis and reporting
- Provide investigation analysis tool to replay the vessels activities to analyze the incident in detail
- Enables monitoring of the health condition of Sensor and systems
- View the Situation of Security across the port boundary
- Share the event / Control center operation effectives with stake holders

Components

Rolta VTMS can be seamlessly integrated with:-

- Radar System
- Day and night vision tracking systems
- Automatic Identification Systems (AIS),
- Communication and Direction Finding (DF) Systems
- Electronic Navigation Charts (ENC)
- Sonar System
- Meteorological & Hydrological sensors
- Current and forecasted weather adaptation
- Marine VHF communication system
Sensor Site

Often for larger ports, multiple radar/sensor and control stations are deployed for efficient and accurate geographical coverage. Rolta VTMS can be linked to port Management Information database System (MIS) for aiding online planning and coordination of vessels’ actual arrival and departure with port resources. The location of the sensors, like Radars, CCTV cameras etc. are selected carefully in order to obtain maximum performance of the system.

The equipment on the sensor site consists of parts installed outdoors, like radar head, CCTV cameras, VHF antennas etc. and processing equipments are installed indoors in the equipment rack. The communication between sensor site and the control center is based on standard TCP/IP network which can be established using direct LAN connection, using MW links, ADSL lines etc.

The Rolta maritime solution portfolio is based on Land, Underwater, Coastal, Surface, Airborne and Space capabilities for optimum coverage, fast situation analysis and efficient response. Module selection is based on customer operational requirements to offer the most competitive solutions. Notable highlights of solution offered are SOA architecture and standards combined with innovative technologies such as Selective Information Dissemination, Web Technologies, to integrate existing customer legacies and ensure interoperability with external systems and databases. We can provide 3D maps for the entire port area along with Rolta GeoCAD for land based operations.
Rolta Command & Control

Rolta Command & Control is industry proven leading edge technology designed to address the Safety and Security requirements of both Land and Maritime environment. It empowers navy, coast guards, port authorities, critical infrastructure securing agencies, to achieve affordable, truly collaborative situation awareness and manage the security threats. This web-based technology feeds anomaly detection techniques applied to information, automatically generate tailored alerts to right users at right time, thus enabling them handle threats efficiently.

Key Features

Sensor Integration & Data Correlation Interface:
- Enables collection of safety and security risks from large variety of sensors.
- Correlation of sensor information.
- Management of sensor through operational controls.
- Supports IMO guidelines

Command & Control: Situational awareness
- Complete Security Situation Awareness across the facility
- Common Operating Picture of the Safety & Security across the operators and responders

Geospatial Visualization
- Support for OGC “WMS services” and “ENC”
- Displays composite track, radar track, sensors, zones, etc. on a Map
  - Supports “Clustering” functions.
  - “Route” and “monitoring parameters” definition

Business Rules
- Assists to define various “Watch Rules”
- Provision to “Sort”, “Group” and “Filter” the watch rules
- In-built/custom defined “Standard Operating Procedures”

Alert Manager
- “Prioritization” of alerts.

Supports IMO guidelines
- Sensors, Sonar System, Weather
- Sensors supported (Radar, AIS, Video Sensors)
Rolta Command & Control

enabling them handle threats efficiently.

anomaly detection techniques applied to information, automatically generate tailored alerts to right users at right time, thus sharply focused relevant information along with actionable recommendations to the intelligence analyst/security experts. Advanced

achieve affordable, truly collaborative situation awareness and manage the security threats. This web-based technology feeds both Land and Maritime environment. It empowers navy, coast guards, port authorities, critical infrastructure securing agencies, to

Interface:

& Data Correlation

Sensor Integration

Key Features

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Sensors, Sonar System, Weather

Sensors supported (Radar, AIS, Video

operational controls.

Management of sensor through

security risks from large variety of

Enables collection of safety and

operational parameters.

Event Handling:

Provision to define the various types of events

Linking plans and procedures and supports to define on-fly

Provision to link response vessels and assign respective tasks

Provision to export the event details to share

Video Integration

Supports play of “live” and “recorded video”

In-built “Pan, Tilt, Zoom and preset” control functions

Displays “Radar video”

Decision Support System

Suggests suitable response force to address the incident

Escalation Management

Monitors the alert handling process and escalate automatically in case of SLA violation

Integrated Communication

Communication medium is data, audio and video

Supports “SMS”, “e-mail”, “Radio” and “Smart Phone”

Sharing alerts with Computer Aided Dispatch system

AIS Messaging

Receives and supports to communicate the using NMEA standard AIS Messaging (Safety, text message with Unicast / Broadcast)

Provision to retransmit the message incase of failure

Port MIS Interface

Customizable interface to collect the vessels info & correlate tracks with MIS database

Provision to manage the Port activities (scheduling arrival, departure & shifting, managing assets) remotely

Timeline View

List out Port activities (weather forecast, arrival, departure, shift and events)

Custom view to get historic, current and expected information

Weather Dashboard

Live, recorded and forecast weather information in a single dashboard

System Health

Provision to display the System & Sensor health

Provision to notify the Maintenance team in case of sensors failure

Manual Track definition

Provision to add manual track and helps to observe rules behavior

Tools

Provides tools to calculate the range and bearing angle between two entities

Provides option to enter lat / long position to fly to exact location

Audit Trail

Logs every information and actions.

Used for system administration

Centralized

Configuration

Single console to configure the operational parameters

Advanced Reporting

Provides the standard reporting which enables management to take decision

Provides dashboard reports in addition to textual report

Dock window

Enables quick access to entities like Track, Zone, Sensor

Local Toolbar

Provides tools to “create” geo-fence and guard lines

Map navigational functions (PAN, Zoom)

Provision to search and locate the targets

Global Toolbar

Links to various Application window (Alert Manager, Watch Rule Manager, etc).

“Audio and Visual Indicators” to get attention of the operators.

Indication of systems health status

Layer Manager

“Add” and “Edit” or “Delete” layer profile

“Select” or “Unselect” the group of layers or particular entity
About Rolta

Rolta is a leading provider of innovative IT solutions for many vertical segments, including Federal and State Governments, Defense/HLS, Utilities, Process, Power, Financial Services, Manufacturing, Retail, and Healthcare. By uniquely combining its expertise in the IT, Engineering and Geospatial domains, Rolta develops exceptional solutions for these segments. The Company leverages its industry-specific know-how, rich repository of intellectual property that spans photogrammetry, image processing, geospatial applications, business intelligence, analytics, field-proven solution frameworks, and deep expertise in cutting-edge technologies like Geo BI, Cloud computing, Software Defined Infrastructure and Big Data for providing sophisticated enterprise-level integrated solutions. Rolta is a multinational organization headquartered in India. The Company operates from 40 locations worldwide through its subsidiaries, and has executed projects in over 45 countries. The Company benchmarks its quality processes to the world’s best standards, like successful assessment for Software Application Development and Maintenance at the highest Level 5 of SEI’s CMMI® version 1.3. Rolta is listed on the Bombay Stock Exchange & National Stock Exchange, and forms part of various indices on BSE/NSE in India. The Company’s GDRs are listed on the Main Board of London Stock Exchange. The Company’s ‘Senior Notes’ are listed on Singapore Stock Exchange.