TN9500
SPECIFICATIONS

Reliable, multi-interfaced TN9500 Inter-Network Gateway to connect Tait systems

The Tait TN9500 Inter-Network Gateway is an infrastructure platform capable of seamlessly bridging a Tait MPT Classic system with Tait MPT-IP and Tait DMR Tier 3 trunked networks.

This gateway includes software based transcoding, scalable functionality, as well as an optional E1/T1 connection board*.

The TN9500 provides a proven way to migrate analog to digital systems and aggregate networks allowing multi-agency cooperation.

KEY FEATURES

- Unification of multiple LMR networks to create a new network of networks solution
- Paced migration, allowing multiple systems to coexist simultaneously for operational effectiveness
- Compatible with Tait MPT Classic (T1541), Tait MPT-IP (TN8291), Tait DMR Tier 3 (TN9300) and Tait PTToX service.
- Future-proofed connectivity to Tait P25 trunked systems, and other potential connectivity to LMR and cellular networks
- Scalable, flexible, and cost-effective network, bridging the same or mixed types of networks
- Software integration of the transcoder functionality allows expansion of the number of simultaneous calls going through the multiple networks
- Robust design provides multiple levels of redundancy for reliability
- Efficient system infrastructure based on IP or E1/T1* links
- Remote management and monitoring via a web user-interface for greater operational efficiency, with a security focus
- Based on the same Tait core network controller software, architecture and servers as DMR, MPT-IP, and TN9400 controllers

TN9500 Inter-Network Gateway

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FEATURES AND BENEFITS

Tait Inter-Network Gateway (ING)

- The main function of the TN9500 is to bridge calls between trunked networks (either same or mixed types): Tait DMR Tier 3 trunked network, Tait MPT-IP trunked network and Tait MPT1327 trunked network
- Tait DMR Tier 3 to PTToX bridging is available
- The gateway is capable of converting and switching the following audio types:
  - Audio, using E1/T1 *ports to transport voice data to and from Tait MPT Classic (T1541) networks
  - VoIP with the following CODECs:
    - AMBE for Tait DMR
    - G711μ-law for Tait MPT-IP
    - G711a-law for Tait MPT-IP
- Innovative software architecture composed of multiple functional layers: the Linux operating system, the Tait ING application, the transcoder application, the E1/T1* interface application, and the Tait administration application responsible for managing the hardware platform

Scalable and flexible for efficient and cost-effective network design

- Highly flexible and scalable, the Tait TN9500 ING is tailored to size with one or multiple system connections and one or multiple simultaneous call capabilities
- The Tait TN9500 server options are defined as Mid-Level or High-Level - these levels allow the hardware platform to match the system redundancy level desired
- The TN9500 software architecture is similar to the DMR and MPT-IP nodes, thus allowing operational synergy

Tait MPT Migration to Tait DMR

- Migration using the TN9500 is a multi-stage process, and a number of different migration scenarios are possible. The network will be functional after completion of each stage, which means that migration can be paused or ended after each stage
- This allows an existing analog network to be replaced with IP-based digital network technology with enhanced capacity, without losing connectivity during the migration process
- This migration solution is suitable for any size network, but in particular for large networks. Re-use of components is integrated into the concept
- The TN9500 ING is capable of connecting multiple different networks (Tait MPT, Classic Tait MPT-IP and Tait DMR Tier 3) together, allowing calls to be made seamlessly between the different networks. Only one TN9500 is required for migration
- The TN9500 hardware can be re-purposed as a DMR or MPT-IP node after migration in many cases, saving on equipment costs

Robust design provides multiple levels of redundancy

- High availability server clusters are constantly mirrored and change over within seconds if there is a hardware, software, or E1/T1* link failure
- In case of the gateway failure, the connected networks are not impacted and remain fully operational

Secure communications

- The TN9500 ensures that access levels and controls are in place for management access
- Access logs are also available for a history of changes that have been made

Remote management for greater operational efficiency

The web-based user interface allows easy remote configuration and monitoring of:

- Network connection
- Site adjacencies between networks for seamless radio unit roaming
- E1/T1 *usage and status
- Registration, affiliation and call records
- Software upgrades to ensure your network runs in an optimal manner
- Backups
- IP address changes
- SNMP V3
- Auditing capabilities, such as log files with selectable logging levels, and an audit trail to identify system changes

Cellular convergence

- Tait PTToX extends your radio functionality to LTE, WiFi and ethernet networks
- Compatible devices can be configured to either be manually select a network or automatically select based on preferred network availability, or managed by preconfigured Tait GeoFencing triggers
- By using multiple bearers for communications, Tait PTToX enables TAIT AXIOM users to expand areas of operations, keeping them connected in more places

Future-proofed to protect your investment

- The TN9500 is the gateway of choice for future expansion to other LMR or cellular network connections

TN9500 Inter-Network Gateway

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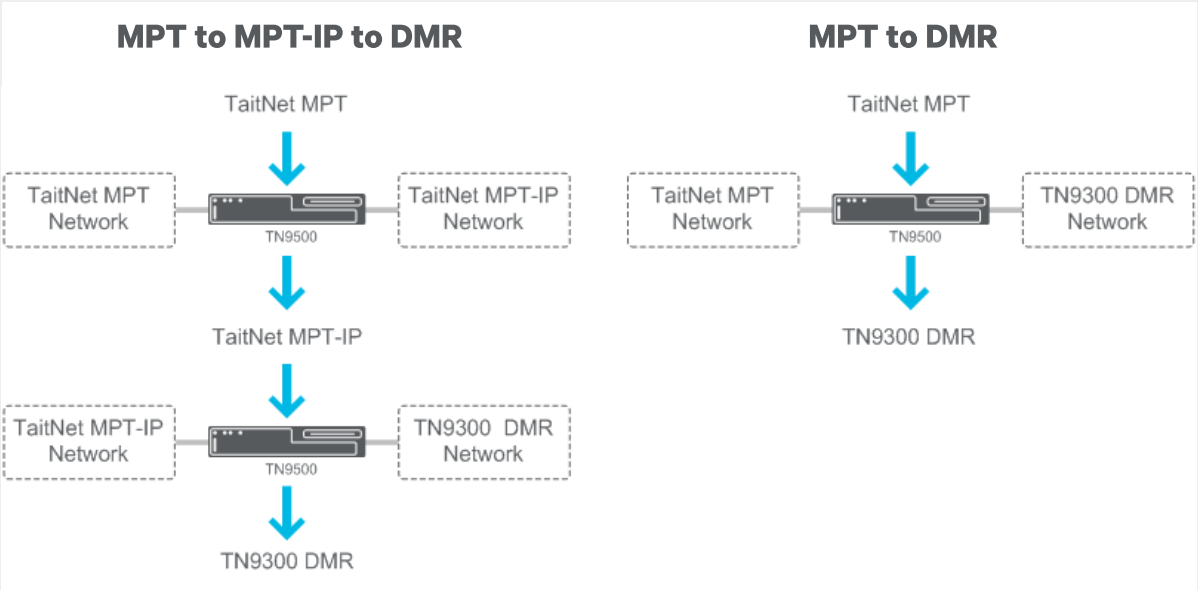
The Tait migration solution, including the TN9500, allows you to move successfully from analog to digital technology by knowing your regulatory requirements, and by taking into account the previous product obsolescence and future growth.

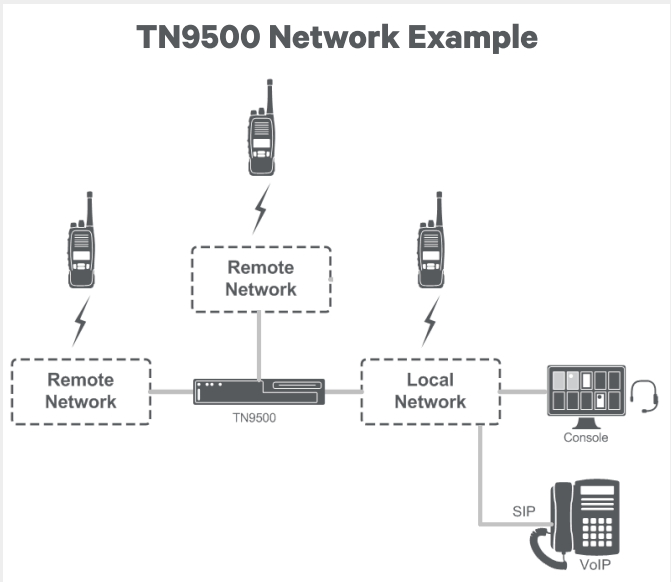
There are multiple ways of migrating to a new system: either by staging your investment infrastructure and end user devices or by enabling a faster network transition.

Tait can provide design services and work with you to provide and deliver an optimum network migration strategy.



The TN9500 is able to connect multiple Tait networks, allowing you to regionalize a single system into many sub-networks for more efficiency. For example, your maintenance is managed locally and the network is adapted to the geography of your operations.

The Tait Inter-Network Gateway facilitates interoperability between agencies. Each of their networks are kept independent with their own dispatch and operations, but at the same time they can communicate on special talk-groups in case of a global emergency for a more efficient response.



TN9500 Inter-Network Gateway

SPECIFICATIONS

GENERAL

Feature	Details
Network type connectivity	TN9300 DMR Tier 3 trunked node controller TN8291 MPT-IP node controller T1541 MPT node controller and NMT (latest version required) Tait PTToX (connection to TN9300 DMR Tier 3 only)
Number of networks	5 (same or mixed type with only 1 multi-node Tait MPT network)
Number of simultaneous calls	100 (concurrently transcoded or not)
Redundancy	High Availability option

LMR INTERFACES

TN9300 DMR Tier 3 trunked node controller	Tait proprietary INP (based on DMR AIS specifications)
TN8291 MPT-IP node controller	Tait proprietary INP (based on DMR AIS specifications)
T1541 MPT node controller and NMT	Tait proprietary INI, NMI and E1/T1*

MANAGEMENT INTERFACES

Monitoring	SNMP, Syslog
Authentication	LDAP, RADIUS
Web interface	HTTPS
Synchronization	NTP

FACILITIES

Backup	Automatic or manual operation, manual download
Restore	Partial or entire database
Software download	Validity check for corruption or invalid software package
Log management	Manual download, automatic archiving and deletion
Audit	Login and configuration changes

PLATFORM OPTIONS

Server type	Mid-Level - Dell R230 (AC, single power supply)* High-Level - Kontron CG2400 (AC or DC, dual redundant power supply, RAID)
E1/T1 Card*	Digium TE435 quad-span T1/E1 PCI express
E1/T1 Switch* for HA option	Valiant E1 Failover Switch (AC or DC) Order code TT0005-0001 Valiant T1 Failover Switch (AC or DC) Order code TT0005-0002

* Note: E1/T1 capability is only available on the High-Level server (Kontron CG2400)

DMR SPECIFICATIONS

ETSI TR 102 398 V1.5.1 General System Design.
ETSI TS 102 361-1 V2.6.1 DMR Air Interface (AI) protocol.
ETSI TS 102 361-2 V2.5.1 DMR voice and generic services and facilities
ETSI TS 102 361-3 V1.3.1 DMR data protocol.
ETSI TS 102 361-4 V1.12.1 DMR trunking protocol

General note: Not all features are supported in all models or modes of operation. Contact Tait or an authorized channel partner for more details.

TAIT INTER-NETWORK SOLUTION

Backed up by our proven radio network expertise, the TN9500 is part of our larger DMR, MPT-IP offering. The Tait inter-network solution consists of multiple systems communicating together to create an inter-operable environment.

Tait has taken every care in compiling this specification sheet, but we're always innovating and therefore changes to our models, designs, technical specification, visuals and other information included in this specification sheet could occur. For the most up-to-date information and for a copy of our terms and conditions please visit our website www.taitradio.com.

Tait International Limited facilities are certified for ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and BS OHSAS 18001:2007 (Occupational Health and Safety Management System) for aspects associated with the design, manufacture and distribution of radio communications and control equipment, systems and services. In addition, all our Regional Head Offices are certified to ISO 9001.

Authorized Partners

Quality Management ISO 9001

Environment Management ISO 14001:2015

Occupational Health & Safety Management ISO 45001:2018