



DIMETRA™

APPLICATION PROGRAMMING INTERFACE (API)

OVERVIEW

VERSION 01.11



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API Cross Reference Table

API	IP Scalable X Core from D9.0.2	DIMETRA IP Compact	DIMETRA IP Micro	DIMETRA Express from R 1.3	TETRA Subscriber
Alarm Reporting API	X	X	X		
Air Traffic Information Access (ATIA) and Data Billing API	X	X	X	X	
SDTS Logging API	X	X			
Computer Aided Dispatch Interface CADI API	X				
MultiCADI API	X				
eCADI API	X				
User Configuration Subsystem (UCS)	X	X	X		
MCC7500 Elite Console & Disp. Comm. Server (DCS) API	X	X	X	X	
MCC 7500 Voice Logging API	X	X	X	X	
Short Data Transport Service (SDTS) API	X	X	X	X	X
Packet Data (PD) API	X	X	X	X	X
MS-GPS API	X	X	X	X	X
Indoor Location	X	X	X	X	X
Subscriber PEI API					X
Bluetooth Interfaces Programmers Guide					X
Remote Display and Control API					X
iTM • Interfaces Programmers Guide • PICS Interface Progr. Guide					X

I. DIMETRA System Network & Console related API

Alarm Reporting API

This API enables application providers to develop specific applications which reports alarms to monitor a DIMETRA™ systems. It is a method of network management which allows users to receive events from network elements, process them, correlate events to alarms and present them to the operator. This is achieved via the use of the Unified Event Manager (UEM) which supports an interface to send these events to North Bound Managers (like Network Management Systems). In addition to event notification interface, UEM also supports interface to access information in its data-store. This interface is termed as North Bound Interface (NBI).

Please note: This API is restricted to network owners or from network owners authorized NOC developers and requires a specific approval from the Motorola Solutions project teams!

Air Traffic Information Access (ATIA) and Data Billing System API

The Air Traffic Information Access (ATIA) option provides an access point for raw air traffic call information on the DIMETRA-IP System. The ATIA issues a snapshot of call information whenever something significant occurs (e.g. Push-To-Talk ID, sites added to a call etc.) on a call also non-call activity events (e.g. subscriber rejects, affiliations, radio commands) are sent over this interface. The computer collecting and filtering the ATIA packets will require a properly sized computer handling large volumes of data to be stored for daily, weekly or monthly collection by a centralized billing system. An example of Air Traffic Information use is to generate airtime usage and voice billing information to charge back system usage of various user groups. Customers may also provide this information to a third-party voice billing provider for automated billing services. It should be noted that the ATIA does not provide information about Short Data nor Packet Data traffic.

The Packet Data (PD) Charging Service is a feature in the DIMETRA-IP system that provides the customer with raw data about the utilization of the Packet Data Service in Call Detail Records generated by a GGSN. The DIMETRA element for this charging service is the Cisco GGSN or the Motorola Network Router GGSN. A subset of the generic ETSI GSM 12.15 interface between GGSN and the customers billing system defines a 'Charging Gateway Function' that enables an operator/customer to have just one logical interface between GGSNs and the customer developed billing system.

Short Data Transport Service (SDTS) Billing System allows charging of transmitted Short Data message in the DIMETRA system. This includes delivery on the air interface and the core network. So MS-to-MS, MS to-Host, Host-to-MS and Host-to-Host transfers are billed. The Short Data Router (SDR) incorporates the billing functionality and is therefore regarded as a Billing Node of the Billing System. A Billing Node generates billing information and stores it as billing files on its Hard Disk Drive (HDD). A billing file provides structured billing information with a fixed format (Billing Blocks and Billing Records). These billing files can be accessed by the Billing Processor which is part of the customer's billing equipment.

Please note: This API is restricted to network owners or from network owners authorized NOC developers and requires a specific approval from the Motorola Solutions project teams!

SDTS Logging API

Applies only to DIMETRA™ infrastructure system release 8.x and higher!

Short Data Logging is a feature introduced in 8.2. The feature primarily provides a group of APIs to the operator. Short Data Logging API allows authenticated users to request transparent inspection of selected Short Data messages. The inspection will be addressed based i.e. based on SSI address contained in the Short Data Message header. A copy of the inspected message will be used to relay the user data portion and selected parameters from the headers of the short data message to the client application.

Please note: This API can only be licensed together with the Short Data Transport Service (SDTS) API!

Computer Aided Dispatch Interface (CADI) / MultiCADI / eCADI API

The CADI API provides access to radio traffic information plus some control functions (related to the actual DIMETRA™ IP release). The CADI API feature is an interface for use by third-party computer aided dispatch (CAD) applications. This feature provides a high-level, function-based programming interface for performing dispatcher actions within a radio system and with individual radios from a custom software application. CADI API enables you to write software application programs, called CADI clients, which can monitor radio systems for dispatch purposes.

The API gives the CADI client application direct access to the commands and events used by the radio system and its network management applications. The CADI API feature uses application software that runs on the radio system's network management system. The CADI server application responds to commands issued from the CADI client application, representing different dispatcher actions. The application sends radio system acknowledgments, command responses, and real-time radio system activity events to the client application. The CADI client program can be created using any programming language that supports Remote Procedure Calls (RPCs) of Open Network Computing (ONC™).

MultiCADI, similar to the CADI, provides additional capabilities. The additional capabilities are mainly an interface to the Alias Integrated Solution (AIS) for aliasing information plus an ISSI filtering function i.e. MultiCADI clients only manage events and commands for ISSIs over which they have control. Also a forwarding feature is implemented for events/commands to MultiCADI clients in the home zone of the ISSI associated with the actual event/command.

Enhanced CADI (eCADI) is the CADI implementation for DIMETRA XCORE architecture from release D9.0.2 onwards. It includes new features and values like e.g. "Emergency Man Down event", "Inhibit over ISSI", "SensorAlertEvent", ...

User Configuration Subsystem (UCS)

The Configuration Subsystem API (UCS API) provides access to most UCS configuration data from client programs. The UCS API will be available from DIMETRA™ Release 5.1. The API supports most types of subscriber data (such as Radio, Radio User and Talkgroup), plus a few types of infrastructure data (such as home zone maps and telephone interconnect call routes). The UCS allows Costumer Care or Provisioning systems to be integrated with DIMETRA™, providing seamless integration between the operators administrative systems and the DIMETRA™ radio system. The API allows new subscribers to be inserted, old ones can have their properties changed, and it is also possible to delete unused subscribers.

Please note: This API can only be licensed together with the CADI API!

MCC7500 Elite Console and Dispatcher Communication Server API

The MCC7500 Application Programming Interfaces (APIs) allows creation of software applications which can access all of the functionality of the Motorola MCC7500 Dispatch system. Motorola has developed its MCC7500 Elite Console application using these APIs:

- Console Features API
- Console Dispatch Interface Services API
- Resource Configuration API

The purpose of MCC7500 Dispatcher Communication Server (DCS) is to specify the DIMETRA IP Integrated Command and Control System (ICCS) Audio Interface (ICCSAI) and the recommended ICCS performance with the objective of enabling third parties to develop and connect ICCS equipment that interwork successfully with the ICCSAI and TETRA terminals.

MCC 7500 Voice Logging API

The API provides accesses to the logging interface of the Archiving Interface Server. The API does not include end-to-end-encryption (E2EE).

Please note: This API can only be licensed together with the MCC7500 Elite Console and Dispatcher Communication Server API!

II. DIMETRA Data related API

Short Data Transport Service (SDTS) API

This API covers all aspects of sending short data messages in a DIMETRA™ system. Furthermore it includes the control of radio terminals via the PEI (AT Commands and TNP1) or over-the-air using the SDS Remote Control.

- **Short Data Transport Service**

The Short Data Transport Service (SDTS) bearer service is Motorola's DIMETRA™ implementation of the TETRA SDS Type-4, Layer-3 service, together with the TETRA SDS-Transport Layer (SDS-TL) layer 4 service. The SDTS bearer service is terminated at the layer 4 SDS-TL protocol. This protocol is a simple method to transfer a short data message from a Mobile Station (MS) or a fixed host to another MS or fixed host.

- **Status Remote Control**

This API provides the specification of the Status Remote Control Protocol allowing an application to remotely control a Motorola Tetra Terminal over the air via the status bearer service. The services supported via Status Remote Control are *"Play loud tone until user interaction"*, *"Send firmware version and TEI"* and *"Send birth OPTA and TEI"*. Status Remote Control applies to release MR15.0 and subsequent MR5.x or higher only.

- **Short Data Service Remote Control Programmers Guide**

SDS Remote Control enables user to control a TETRA Mobile Terminal over the air interface using SDS-TL4 bearer service. Remote Control messages are sent by a controlling Terminal which can be a Controlling Mobile Terminal or Switching and Management Infrastructure (SwMI) Controlling Terminal. SDS Remote Control functionality works in both TMO and DMO.

Packet Data API

It enables IP Packet Data to be deployed across the TETRA network, including TEDS. The Packet Data Service is designed to take care of all mobility aspects for the users of the service. This means that a host connected either to a Mobile Station (MS) or to the LAN access point does not need to worry about the whereabouts of the destination when sending a datagram. If e.g. a Mobile Station is assigned address x.y.z.x, then sending a datagram to this MS can be achieved from the fixed network by sending a datagram to that address, regardless of the current location of the Mobile Station.

MS-GPS API

The purpose of this API is to provide external vendors with information on how to connect their Location Server Applications (or Location Servers) to Motorola Solutions DIMETRA™ Infrastructure and communicate with terminals supporting:

1. ETSI Location Interface Protocol (LIP) air interface protocol for location services.
LIP provides a more data efficient protocol than LRRP but has less flexibility.
2. Motorola proprietary LRRP air interface protocol for location services.
LRRP provides a more flexible protocol than LIP.

Please note: This API can only be licensed together with the Short Data Transport Service (SDTS) API!

Indoor Location

The purpose of this API is to describe the commands and protocol for indoor location that will operate above the TETRA short data interface. It is assumed that a TETRA short data interface is available in the system and will operate with MSI TETRA radios that support BLE Indoor Location feature.

Please note: This API can only be licensed together with the Short Data Transport Service (SDTS) API!

III. DIMETRA Subscriber related API

Subscriber PEI API

Peripheral Equipment Interface (PEI) is a standardized RS232 connection to the DIMETRA subscriber. It contains:

- **AT-Commands**
This API provides a list and description of the AT commands supported by the Motorola Solutions DIMETRA™ Terminals, as well as examples. It is aimed at helping Application Developers design & implement PEI Applications using the AT commands interface. It allows a data terminal to control a modem over a serial data communication link (RS232).
- **TNP1 Programmers Guide**
The TETRA Network Protocol type 1 (TNP1) specifies a protocol to be used over the PEI which has been designed to allow the terminals to have control over the TETRA services. This includes mobility management, call control, QoS, SDS and supplementary services. The API describes the required information to develop the TNP1 Software Application for the Terminal Equipment.

Please note: If it is considered to send / receive SD and/or PD messages than the Short Data Transport Service (SDTS) and/or the Packet Data (PD) API needs to be licensed as well!

Bluetooth Interfaces Programmers Guide

Provides access to the following services:

1. Transmitting and receiving raw sensor data between the remote Bluetooth device and a Short Data Services (SDS) host
2. A remote Bluetooth device can control Motorola portable radios
3. A remote Bluetooth device can gain access to TETRA packet data services
4. Describes a mechanism for throttling the data that is sent over the TETRA infrastructure to ensure network integrity.

Please note: If it is considered to use the AT-Commands the Subscriber PEI API needs to be licensed as well.
If it is considered to send / receive SD and/or PD messages than the Short Data Transport Service (SDTS) and/or the Packet Data (PD) API needs to be licensed as well!

Remote Display and Control API

It describes the Remote Display & Control (RDC) interface, supported by the Motorola Solutions Terminals, and how a 3rd party control head, henceforth referred to as an OEM control head, made by a 3rd party vendor, can interface to a Motorola mobile radios.

iTM

- **Interfaces Programmers Guide**

It allows 3rd party vendors to develop a custom application (e.g., asset management application) that uses the information stored in iTM (i.e. device details, status, etc.)

- **iTM PICS Interfaces Programmers Guide**

It permits 3rd party vendors to develop a custom application that allows them to manage the images downloaded from MTP6750 radios and allows them to push the content to MTP6000 series radios via an iTM solution

IV. DIMETRA API Licensing Structure

General Terms:

- The API License Agreement (LA) is a „development license“ and NOT a commercial/sales agreement!
It provides the permission to develop the defined solution using the defined API's for the purpose of own use or to sell to an end customer
- LA duration = 3 years – means time for development
- All solutions, developed during the LA duration time, could be sold as long as it works without any time limitation. After expiration of LA no further changes or developments at the solution are allowed.
- If a LA is end-customer / project restricted, then the solution could be developed for the equipment used by this named customer / project only. If there is the desire to sell the solution to a further customer / project a further license agreement will be required.

Types of License Agreements

Following types of license agreements will be available:

1. DIMETRA Technology Evaluation License Agreement

- This is for developers who need to evaluate the technical capabilities of API's before signing a full API license agreement in order to prepare tenders or bid and quotes in projects.
- The duration of this agreement will be normally limited to 3 months but can be longer or adjusted to the requirements of the specific project.
- There is NO license to develop any product for sale or own usage!
- The Evaluation license can cover all possible API's.

2. DIMETRA Subscriber API License Agreement

- This is a license to develop an application either for own usage or for the purpose of commercial sale to end customers.
- The license is not limited to defined customers but to a Motorola Solutions Region (EMEA, LACR, NA, APAC).
That means the developer needs to request a license in each region where he wants to sell to.
(where the end customers are located)
- This license does only cover solutions using the API's for Motorola's TETRA subscriber unit interfaces (PEI)!
For the avoidance of doubt, the license does NOT include the right to use any of Motorola's DIMETRA System infrastructure API's (e.g. ATIA, CADi, MCC7500,... for IP Micro, IP Compact, Express, IPS or XCORE)
- It does NOT matter in which type of TETRA system the subscriber will work.
(DIMETRA Express, IP-Micro / Compact / Scalable ... to XCORE or any system infrastructure of other suppliers)

3. DIMETRA Small System API License Agreement

Small system = DIMETRA Express, IP Micro, IP Compact

- This is a license to develop an application either for own usage or for the purpose of commercial sale to end customers.
- The license is not limited to defined customers but to a Motorola Solutions Region (EMEA, LACR, NA, APAC).
That means the developer needs to request a license in each region where he wants to sell to.
(where the end customers are located)
- This license does only cover solutions using Motorola's DIMETRA™ IP Micro, Compact, Express system infrastructure and related subscriber units (means for system API's like e.g. MCC7500 and subscriber PEI).
For the avoidance of doubt, the license does NOT include the right to use the Motorola's DIMETRA System infrastructure API's for DIMETRA IP Scalable or X Core system typ.

4. DIMETRA Large System API License Agreement

Large system = DIMETRA IP Scalable, XCORE

- This is a license to develop an application either for own usage or for the purpose of commercial sale to one defined end customer or project only.
- The license is limited to only one Project or End Customer per license agreement and each new customer / project requires a new license agreement.
- The license agreement requires specific approval from the sales / project teams of the related DIMETRA network.
- This license does only cover solutions using Motorola's DIMETRA™ IP Scalable, X Core system infrastructure API's and related subscriber units PEI.

5. DIMETRA API License Agreement 'Customer as Developer'

- This is a license to develop an application for the purpose of own usage.
- There is no permission to develop an application for the purpose of commercial sale to end customers.
- The license is limited to the use of licensee's DIMETRA equipment only, which defines the DIMETRA system type DIMETRA™ IP Scalable, X Core system, IP Micro, IP Compact or Express infrastructure API's and related subscriber units PEI.

Please note: Any API License Agreement requires going through the API Licensing Process:

1. **Complete the DIMETRA / MOTOTRBO API Request Form**
 - definition of all project stakeholders (developer, Motorola Solutions sales and project teams)
 - definition of the product, (product name and product description)
 - definition of the business case,
 - definition of the licensing conditions
 - definition of the required API's
2. **Evaluation of the request by the Motorola Solutions Sales/Project and ADP team**
 - evaluate the business case and go to market strategy
 - confirm the API Request Form by all stakeholders
3. **Confirmation by Motorola Solutions Global Trade Compliance**
4. **Executing the MOTOTRBO API License Agreement**
5. **Account setup process for the ADP Online platform MSI-GitLab.**

Revision History

Version	Date	Page	Section	Notes
01.00	23/03/2017			First Version
01.01	05/07/2017			UCS added to CADI
01.02	01/09/2017			API specification reworked
01.03	17/12/2017			API structure reworked (ATIA, SDTS, Subscriber PEI) Licensing Structure added
01.04	19/09/2018			API structure reworked Indoor Location API added
01.05	04/02/2019			More detailed description for API license types
01.06	20/02/2019			API's for DIMETRA Express updated, IMW deleted
01.07	22/02/2019			eCADI added
01.08	13/03/2019			Move SDTS logging into system API, several re-formatings
01.09	15/03/2019			Re-formatings, add licensing process
01.10	17/03/2019			Footer reworked
01.11	04/04/2019			License Types and Licensing Process completed

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