# ETSI TS 103 248 V1.2.1 (2018-08)


**Intelligent Transport Systems (ITS);**
**GeoNetworking;**
**Port Numbers for the Basic Transport Protocol (BTP)**

Reference
RTS/ITS-00357

Keywords
ITS, protocol

***ETSI***

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# Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS).

# Modal verbs terminology

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# Introduction

Facilities layer entities that use the Basic Transport Protocol for the transport of messages need to be identifiable. For this purpose, BTP defines port numbers. The present document specifies the well-known port numbers to be used by facilities layer entities.

# 1 Scope

The present document defines port number values for the Basic Transport Protocol as specified in ETSI EN 302 636-5-1 [i.1].

# 2 References

## 2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are necessary for the application of the present document.

Not applicable.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI EN 302 636-5-1: "Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 5: Transport Protocols; Sub-part 1: Basic Transport Protocol".

[i.2] ETSI EN 302 637-2: "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 2: Specification of Cooperative Awareness Basic Service".

[i.3] ETSI EN 302 637-3: "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 3: Specifications of Decentralized Environmental Notification Basic Service".

[i.4] ETSI TS 101 556-1 (V1.1.1): "Intelligent Transport Systems (ITS); Infrastructure to Vehicle Communication; Electric Vehicle Charging Spot Notification Specification".

[i.5] ETSI TS 101 556-2 (V1.1.1): "Intelligent Transport Systems (ITS); Infrastructure to Vehicle Communication; Part 2: Communication system specification to support application requirements for Tyre Information System (TIS) and Tyre Pressure Gauge (TPG) interoperability".

[i.6] ETSI TS 101 556-3 (V1.1.1): "Intelligent Transport Systems (ITS); Infrastructure to Vehicle Communications; Part 3: Communications system for the planning and reservation of EV energy supply using wireless networks".

[i.7] ETSI TS 102 890-1 (V1.1.1): "Intelligent Transport Systems (ITS); Facilities layer function; Part 1: Services Announcement (SA) specification".

[i.8] ETSI TS 102 941 (V1.2.1): "Intelligent Transport Systems (ITS); Security; Trust and Privacy Management".

[i.9] ETSI TS 103 301 (V1.2.1): "Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Facilities layer protocols and communication requirements for infrastructure services".

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**destination port:** port identifying the destination's protocol entity at the ITS facilities layer

NOTE: Facilities layer services that do not expect replies either do not include a source port number in the header, or they set it to a default (usually 0) to indicate no reply port available. For session-based services (client-server or peer-to-peer), the source port is often set to a value from an ephemeral (dynamically assigned) subspace of the space of all port numbers.

**port:** ITS station-internal address that identifies a protocol entity at the facilities layer and represents an endpoint of a logical connection

**source port:** port number to be used by an facilities layer entity as the destination port in a subsequent reply to the originator

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

| | |
|---|---|
| ASN.1 | Abstract Syntax Notation One |
| AT | Authorization Ticket |
| BTP | Basic Transport Protocol |
| CA | Cooperative Awareness |
| CRL | Certificate Revocation List |
| CRLM | Certificate Revocation List Message |
| CTL | Certificate Trust List |
| CTLM | Certificate Trust List Message |
| DEN | Decentralized Environmental Notification |
| EC | Enrolment Credential |
| EOFM | End Of Fillling Message |
| EVCSN | Electric Vehicle Charging Spot Notification |
| EV-RSR | Electric Vehicle Recharging Spot Reservation |
| GNSS | Global Navigation Satellite System |
| GPC | GNSS Positioning Correction |
| IVI | Infrastructure to Vehicle Information |
| POI | Point Of Interest |
| RLT | Road and Lane Topology |
| RTCM | Radio Technical Commission for Maritime Services |
| RTCMEM | RTCM Extended Message |
| SA | Service Announcement |
| SAEM | Services Announcement Extended Message |
| SREM | Signal Request Extended Message |
| SRM | Service Reservation Message |
| SPATEM | Signal Phase And Timing Extended Message |
| SSEM | Signal Status Extended Message |
| TCM | TPG Reservation Confirmation Message |
| TLC | Traffic Light Control |
| TLM | Traffic Light Maneuver |
| TPG | Tyre Pressure Gauge |
| TRM | TPG Reservation Message |
| VDPM | Vehicle Data Provisioning Message |
| VDRM | Vehicle Data Request Message |

# 4 Port number values for the Basic Transport Protocol

The Basic Transport Protocol (BTP) [i.1] multiplexes messages from the facilities layer to the networking & transport layer and de-multiplexes received GeoNetworking packets to corresponding entities in the facilities layer. At the networking & transport layer the messages need to be identified so that they can be delivered to the correct facilities layer entity. BTP manages this process.

BTP port numbers are used in BTP service primitives and the BTP headers. In the BTP service primitives *BTP-Data.request* and *BTP-Data.indication* the port numbers are in the (optional) *source port* and *destination port* parameters. In the BTP headers, the port numbers are carried in the *source port* and *destination port* fields.

BTP defines well-known ports, which are used to assign fixed port numbers to specific facilities layer entities. Facilities layer entities that have no well-known port number values assigned shall dynamically use numbers from 3 000 to 65 536.

The well-known BTP port number values shall be used as specified in table 1. They are used by the corresponding facilities layer entities and related applications to allow the identification of the message types.

**Table 1: List of well-known BTP port number values**

| BTP port number values | Facilities service or Application | Related standard |
|---|---|---|
| 2 001 | CA (CAM) | ETSI EN 302 637-2 [i.2] |
| 2 002 | DEN (DENM) | ETSI EN 302 637-3 [i.3] |
| 2 003 | RLT (MAPEM) | ETSI TS 103 301 [i.9] |
| 2 004 | TLM (SPATEM) | |
| 2 005 | SA (SAEM) | ETSI TS 102 890-1 [i.7] |
| 2 006 | IVI (IVIM) | ETSI TS 103 301 [i.9] |
| 2 007 | TLC (SREM) | |
| 2 008 | TLC (SSEM) | |
| 2 009 | Allocated | Allocated for "Intelligent Transport System (ITS); Vehicular Communications; Basic Set of Applications; Specification of the Collective Perception Service" |
| 2 010 | EVCSN POI (EVCSN POI message) | ETSI TS 101 556-1 [i.4] |
| 2 011 | TPG (TRM, TCM, VDRM, VDPM, EOFM) | ETSI TS 101 556-2 [i.5] |
| 2 012 | Charging (EV-RSR~~, SRM, SCM~~) | ETSI TS 101 556-3 [i.6] |
| 2 013 | GPC (RTCMEM) | ETSI TS 103 301 [i.9] |
| 2 014 | CTL (CTLM) | ETSI TS 102 941 [i.8] |
| 2 015 | CRL (CRLM) | ETSI TS 102 941 [i.8] |
| 2016 | Certificate request service (EC/AT request) | ETSI TS 102 941 [i.8] |
| NOTE: The Facilities service naming resembles the naming in ASN.1. | | |

# History

| Document history | | |
|---|---|---|
| V1.1.1 | November 2016 | Publication |
| V1.2.1 | August 2018 | Publication |
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