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SERIES G: TRANSMISSION SYSTEMS AND MEDIA,  
DIGITAL SYSTEMS AND NETWORKS

Data over Transport – Generic aspects – Transport  
network control aspects

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**Management information model for  
management-control components and functions**

Recommendation ITU-T G.7719

# ITU-T G-SERIES RECOMMENDATIONS

## TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

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*For further details, please refer to the list of ITU-T Recommendations.*

# Recommendation ITU-T G.7719

## Management information model for management-control components and functions

### Summary

Recommendation ITU-T G.7719 establishes a protocol-neutral information model to manage components that provide management and control (MC) functions for transport network resources. Management requirements for such MC components are specified in Recommendation ITU-T G.7718 to support the MC functions specified in Recommendations ITU-T G.7701, ITU-T G.7702 and ITU-T G.7703. The information model established in Recommendation ITU-T G.7719 is specified using the Unified Modeling Language (UML).

This Recommendation includes an electronic attachment with the UML model developed for the Recommendation.

### History

| Edition | Recommendation          | Approval   | Study Group | Unique ID*                                                                |
|---------|-------------------------|------------|-------------|---------------------------------------------------------------------------|
| 1.0     | ITU-T G.7718.1/Y.1709.1 | 2006-12-14 | 15          | <a href="http://handle.itu.int/11.1002/1000/9002">11.1002/1000/9002</a>   |
| 2.0     | ITU-T G.7719            | 2021-06-29 | 15          | <a href="http://handle.itu.int/11.1002/1000/14711">11.1002/1000/14711</a> |

### Keywords

ASON, component, control, control domain, controller, management, protocol-neutral information model, SDN, UML, virtual network.

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\* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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Electronic attachment : The Papyrus UML developed for the Recommendation.



# Recommendation ITU-T G.7719

## Management information model for management-control components and functions

### 1 Scope

This Recommendation<sup>1</sup> establishes a protocol-neutral information model to manage the components that provide management and control (MC) functions for transport network resources. The concept whereby MC functions are considered to be a continuum is known as the management-control continuum (MCC); i.e., it expresses the view that MC functions are essentially the same and thus can be grouped into one set. The management requirements for such MC components are specified in [ITU-T G.7718] to support the MC functions specified in [ITU-T G.7701], [ITU-T G.7702], and [ITU-T G.7703].

The information model established in this Recommendation is interface protocol neutral and specified using the Unified Modeling Language (UML). The information model is derived through pruning and refactoring the ITU-T G.7711 core information model, extended with MC function specific characteristics. The information model can be used to derive the data model to be used in the interface to the administrative context or to client contexts. The translation of the information model into the data model of a specific protocol, such as NETCONF/YANG, is a decision of protocol-specific modelling design and lies outside the scope of this Recommendation.

### 2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

|                |                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| [ITU-T G.798]  | Recommendation ITU-T G.798 (2017), <i>Characteristics of optical transport network hierarchy equipment functional blocks</i> .    |
| [ITU-T G.874]  | Recommendation ITU-T G.874 (2017), <i>Management aspects of optical transport network elements</i> .                              |
| [ITU-T G.7701] | Recommendation ITU-T G.7701 (2016), <i>Common control aspects</i> .                                                               |
| [ITU-T G.7702] | Recommendation ITU-T G.7702 (2018), <i>Architecture for SDN control of transport networks</i> .                                   |
| [ITU-T G.7703] | Recommendation ITU-T G.7703 (2021), <i>Architecture for the automatically switched optical network</i> .                          |
| [ITU-T G.7711] | Recommendation ITU-T G.7711/Y.1702 (2018), <i>Generic protocol-neutral management information model for transport resources</i> . |
| [ITU-T G.7718] | Recommendation ITU-T G.7718/Y.1709 (2020), <i>Framework for the management of management-control components and functions</i> .   |

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<sup>1</sup> This Recommendation includes an electronic attachment with the UML developed for the Recommendation.

## 3 Definitions

### 3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

- 3.1.1 component:** [ITU-T G.7701].
- 3.1.2 connection controller (CC):** [ITU-T G.7701].
- 3.1.3 discovery agent (DA):** [ITU-T G.7701].
- 3.1.4 link resource manager (LRM):** [ITU-T G.7701].
- 3.1.5 network call controller (NCC):** [ITU-T G.7701].
- 3.1.6 protocol controller (PC):** [ITU-T G.7701].
- 3.1.7 routing controller (RC):** [ITU-T G.7701].
- 3.1.8 subnetwork point (SNP):** [ITU-T G.7701].
- 3.1.9 subnetwork point pool (SNPP):** [ITU-T G.7701].
- 3.1.10 termination and adaptation performer (TAP):** [ITU-T G.7701].
- 3.1.11 virtual network (VN):** [ITU-T G.7701].

### 3.2 Terms defined in this Recommendation

None.

## 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

|     |                               |
|-----|-------------------------------|
| BRI | Boundary Resource Identifier  |
| CC  | Connection Controller         |
| CPI | Control Plane Interface       |
| DA  | Discovery Agent               |
| DCN | Data Communication Network    |
| EMS | Element Management System     |
| FP  | Forwarding Point              |
| ID  | Identifier                    |
| LRM | Link Resource Manager         |
| MC  | Management and Control        |
| MCC | Management-Control Continuum  |
| MCS | Management and Control System |
| NCC | Network Call Controller       |
| NE  | Network Element               |
| NMS | Network Management System     |
| OTN | Optical Transport Network     |