

# ITU-T

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# G.8132/Y.1383

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

Packet over Transport aspects – MPLS over Transport  
aspects

SERIES Y: GLOBAL INFORMATION  
INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS,  
NEXT-GENERATION NETWORKS, INTERNET OF  
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Internet protocol aspects – Transport

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## MPLS-TP shared ring protection

Recommendation ITU-T G.8132/Y.1383

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# Recommendation ITU-T G.8132/Y.1383

## MPLS-TP shared ring protection

### Summary

Recommendation ITU-T G.8132/Y.1383 provides architecture and mechanisms for shared ring protection for multi-protocol label switching-transport profile (MPLS-TP) networks. It describes the MPLS-TP shared ring protection (MSRP) mechanisms and the ring protection switch (RPS) protocol.

The mechanisms defined herein protect point-to-point MPLS-TP label switched paths (LSPs) against failures at the MPLS-TP section layer.

### History

| Edition | Recommendation      | Approval   | Study Group | Unique ID*                                                                   |
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### Keywords

MPLS-TP shared ring protection.

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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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In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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# Recommendation ITU-T G.8132/Y.1383

## MPLS-TP shared ring protection

### 1 Scope

This Recommendation provides architecture and mechanisms for shared ring protection for multi-protocol label switching-transport profile (MPLS-TP) networks.

It describes the MPLS-TP shared ring protection (MSRP) mechanisms and the ring protection switch (RPS) protocol defined in [IETF RFC 8227].

The mechanisms defined herein protect point-to-point MPLS-TP label switched paths (LSPs) against failures at the MPLS-TP section layer.

This Recommendation provides a representation of the MPLS-TP technology using the methodologies that have been used for other transport technologies [e.g., synchronous digital hierarchy (SDH), optical transport network (OTN) and Ethernet].<sup>1</sup>

### 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.805] Recommendation ITU-T G.805 (2000), *Generic functional architecture of transport networks*.
- [ITU-T G.806] Recommendation ITU-T G.806 (2012), *Characteristics of transport equipment – Description methodology and generic functionality*.
- [ITU-T G.808] Recommendation ITU-T G.808 (2016), *Terms and definitions for network protection and restoration*.
- [ITU-T G.808.2] Recommendation ITU-T G.808.2 (2013), *Generic protection switching – Ring protection*.
- [ITU-T G.8110.1] Recommendation ITU-T G.8110.1 (2011), *Architecture of the Multi-Protocol Label Switching transport profile layer network*.
- [ITU-T G.8121] Recommendation ITU-T G.8121 (2016), *Characteristics of MPLS-TP equipment functional blocks*.
- [IETF RFC 5654] IETF RFC 5654 (2009), *Requirements of an MPLS transport profile*.
- [IETF RFC 6371] IETF RFC 6371 (2011), *Operations, administration, and maintenance framework for MPLS-based transport networks*.
- [IETF RFC 6372] IETF RFC 6372 (2011), *MPLS transport profile (MPLS-TP) survivability framework*.
- [IETF RFC 8227] IETF RFC 8227 (2017), *MPLS-TP shared-ring protection (MSRP) mechanism for ring topology*.

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<sup>1</sup> This ITU-T Recommendation is intended to be aligned with the IETF MPLS RFCs it cites as normative references.

## 3 Definitions

### 3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

- 3.1.1 **adaptation function (A):** [ITU-T G.806]
- 3.1.2 **atomic function:** [ITU-T G.806]
- 3.1.3 **clear:** [ITU-T G.808]
- 3.1.4 **connection function (C):** [ITU-T G.806]
- 3.1.5 **connection point (CP):** [ITU-T G.806]
- 3.1.6 **defect:** [ITU-T G.806]
- 3.1.7 **exercise signal:** [ITU-T G.808]
- 3.1.8 **extra traffic:** [ITU-T G.808.2]
- 3.1.9 **failure:** [ITU-T G.806]
- 3.1.10 **forced switch:** [ITU-T G.808]
- 3.1.11 **layer network:** [ITU-T G.805]
- 3.1.12 **manual switch:** [ITU-T G.808]
- 3.1.13 **non-pre-emptible unprotected traffic:** [ITU-T G.808.2]
- 3.1.14 **normal traffic:** [ITU-T G.808.2]
- 3.1.15 **revertive (protection) operation:** [ITU-T G.808]
- 3.1.16 **ring map:** [IETF RFC 8227]:  
NOTE – Ring map defined in [IETF RFC 8227] is slightly different in meaning from the one that [ITU-T G.808.2] uses. The ring map in [ITU-T G.808.2] includes only the ring topology map information, while the ring map in [IETF RFC 8227] also includes the ring connectivity status information.
- 3.1.17 **section:** [ITU-T G.806]
- 3.1.18 **server signal fail (SSF):** [ITU-T G.806]
- 3.1.19 **steering:** [ITU-T G.808]
- 3.1.20 **termination connection point (TCP):** [ITU-T G.806]
- 3.1.21 **trail termination function (TT):** [ITU-T G.806]
- 3.1.22 **wrapping:** [ITU-T G.808]

### 3.2 Terms defined in this Recommendation

None.

## 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

|     |                            |
|-----|----------------------------|
| A   | Adaptation function        |
| C   | Connection function        |
| CIR | Committed Information Rate |
| CP  | Connection Point           |