

TOP-IX - Memorandum of Understanding

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1 Goal

This Memorandum of Understanding (MoU) defines TOP-IX Internet Exchange objectives, the prerequisites to join TOP-IX Internet Exchange and become a consortium member (hereinafter referred to as Member), the services TOP-IX supplies to its own Members as well as the obligations towards TOP-IX inherent in the Internet Exchange activity undertaken by the Members.

This MoU has been made public in order to support the organizations willing to join TOP-IX Internet Exchange.

2 TOP-IX goals

Its main goal is to ensure efficient Internet traffic management, thus fostering the conclusion of peering agreements between the Members concerned.

3 TOP-IX Legal Structure

Legally speaking, TOP-IX is a non-profit consortium which is neutral as to its Members' competitive activities.

All TOP-IX Members are subject to the obligations defined by the Consortium Statute, referred to in paragraph 11 of the present MoU.

4 Prerequisites to join TOP-IX

The two formal prerequisites to join TOP-IX Internet Exchange are:

1. Candidates must have a recognized legal entity
2. Candidates must have their own official ASN (Autonomous System Number) and use the BGP-4 protocol for the peering agreements.

These prerequisites, together with the "Technical Requirement" referred to in the Annex A of the present MoU, are prime to apply for TOP-IX Internet Exchange.

5 TOP-IX Organisational Structure

Within the frame of the Internet Exchange activities, the Consortium TOP-IX provides for the creation of an operational structure supported by the NOC and coordinated by the Technical Director who reports to the General Director. This structure will be supported by the Technical Committee as described below.

The Technical Committee is formed of the technical contact people appointed by each consortium Member. The Committee is in charge of:

- outlining the guidelines defining the Internet Exchange infrastructure evolution, thus giving the TOP-IX structure the necessary inputs for detailed planning
- carrying out periodic auditing activities on the NOC work and on the network infrastructure status

On the contrary, the Operational Structure is in charge of the evolutionary implementation of the platform, detail planning, supervision and coordination of the joining procedures for new Members.

The Network Operation Centre (NOC) is responsible for the technical activation of (public and/or private) peering agreements, fault management, and monitoring of the network infrastructure so as to assess its functional efficiency.

The NOC is the only reference interface to the Members in case of management problem concerning the interchange infrastructure operation. Specifically, the NOC is in charge of:

- activating the positions of new Members following to the Board's approval
- configuring the VLANs necessary to set the peering (see Annex A - MAC Level and VLAN), upon formal request by the Members concerned
- periodically checking the service levels and quality as regards the internal TOP-IX infrastructure
- editing the periodic publishing of traffic and service quality data
- informing all the Members of dates and procedures of routine and extraordinary maintenance interventions, in accordance to the following notice time:
 - at least 15 days before the intervention is carried out, in case of routine maintenance
 - immediately, in case of all extraordinary maintenance interventions

Moreover, the NOC is responsible for:

- monitoring and fault management

- interventions in case of serious failures or configuration errors on Members' apparatuses such that the good functioning of the whole network or of part of it may be compromised
- first and second level assistance on TOP-IX local network infrastructure (troubleshooting, fault detection and correction), 7 days a week, 24 hours a day with interventions within 4 hours from problem signalling (7x24x4 formula).

6 TOP-IX Obligations

TOP-IX can monitor ports/connections only when:

- the information is required by competent law bodies (e.g. police, financial police, etc.)
- the information obtained is useful for statistical or network management purposes
- the provisions of the present Memorandum were breached

For a better operational management of TOP-IX, the Consortium undertakes to comply with the following obligations:

a) publishing and updating, exclusively in favour of the subjects being part of the TOP-IX :

- the peering matrix
- the final traffic data concerning the reference period together with the relevant explanatory notes
- the final service quality data concerning the reference period together with the relevant explanatory notes

b) constantly updating the useful information for the participants on a specific WEB.

Useful pieces of information as to this paragraph are, by way of example, the names of the contact people of each subject admitted to TOP-IX, the mailing list of the contact people, the peering matrix, and the traffic statistics.

7 Responsibility of the TOP-IX Members

Each Member undertakes to:

- constantly update the information and the references provided to TOP-IX
- provide TOP-IX with the references (e-mail, phone, mobile) of a technician in charge and of an administrative representative – provide TOP-IX with the information concerning newly-activated peering agreements
- refrain from disseminating partial data or data other than what officially provided by the Consortium in any public form
- stick to the technical requirements as demanded and specified in Appendix A in this MoU as long as it stays within TOP-IX
- ensure the configuration, maintenance and updating of its own router so that it can operate on TOP-IX network
- refrain from being involved in initiatives likely to damage the other TOP-IX Members.

8 Communications

Each Member shall communicate the names of its own contact people to TOP-IX as required in the ID form to be filled in upon application. Said contact people are added to TOP-IX mailing list.

The technical contact person is added to the Technical Committee.

This mailing-list and, more generally, electronic mail are the official communication means between TOP-IX and its Members.

Said communications must be considered as official and shall not be divulged to third physical or legal entities other than TOP-IX .

9 Confidentiality

Any publicly unknown information shall be considered as confidential even when exchanged between TOP-IX and its members, which shall treat it as such and refrain from reveal it.

10 Upgrades

The Memorandum of Understanding and Consortium Statute shall be modified only upon formal approval of the modifications by the Assembly.

All documents mentioned at paragraph 11 (except for the Consortium Statute) may be modified by the Technical Committee under the supervision of the Board without any need for the Assembly intervention.

11 References

Consortium Statute (By Laws)

Joining procedure

APPENDIX A - Technical Requirements

Physical layer

The physical interfaces of the routers connected to TOP-IX ports shall be explicitly configured as "full-duplex" (no autosensing).

MAC and VLAN layer

All the frames sent to TOP-IX port must have the same MAC source address. Public and private peering agreements are realized on dedicated VLANs (IEEE 802.1q). Public peering agreements are realized on a single, public VLAN on which the peering agreements concluded are free of charge and provide no transit service, whereas private peering agreements are realized on private VLAN allowing mutual visibility of the subjects involved only.

IP Layer

All the interfaces connected to TOP-IX ports shall exclusively employ IP addresses and netmask provided by TOP-IX itself.

Routing

1. All route exchanges on TOP-IX network shall occur via BGP-4
2. The AS numbers employed in unicast BGP sessions through TOP-IX network shall not be in the same block as the ones intended for private uses
3. All announced routes shall be as much aggregated as possible
4. The address block assigned to the peering by TOP-IX shall not be announced on other networks, unless explicitly allowed by TOP-IX
5. All the routes announced during peering sessions shall be recorded at RIPE or other public Routing Registries.

Additional rules

Each Member is in charge of providing anything needed to connect the TOP-IX switch to its own border apparatus.