



euro-IX

# Becoming a Member



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## The Association

The European Internet Exchange Association (Euro-IX) was formed in May 2001 with the intention to develop, strengthen and improve the Internet Exchange Point (IXP) community.

A number of Internet Exchange Points recognised a need to combine their resources in order to coordinate technical standards, develop common procedures, and share and publish statistics and other information. This publishing of information would in turn give all interested parties a better insight into the world of IXPs.

Euro-IX was originally set-up as a discussion forum for European based IXPs. However as interest was starting to grow in many other regions it seemed a natural progression to expand beyond its original boundaries. Thus in January 2005 the association decided to open its doors to all IXPs around the world, allowing non-European based IXPs to become affiliated with Euro-IX. Today Euro-IX has 81 affiliated IXPs from 51 countries.

## Mission Statement

Euro-IX is an association of European Internet Exchanges, promoting an open interchange of ideas and experiences, by offering fora, meetings, mailing lists and on-line resources to its members. Euro-IX also gathers information on regulatory issues affecting member IXPs within and outside Europe.

General meetings and fora will be held within the Euro-IX area but memberships from exchanges outside the region are always encouraged. Such members are welcome to attend our meetings so that they can contribute and benefit from our shared expertise and experiences. Euro-IX welcomes contact with other regional associations and pledges to liaise and cooperate with those that emerge.

## Why Join Euro-IX

Euro-IX provides a unique platform for IXPs to share information and discuss current topics and issues of interest. Euro-IX provides its members a web portal to help attract further customers, several databases of information that are relevant to IXPs, mailing lists for current discussions, regulatory reports, and the opportunity for all member IXP to come together twice a year for face to face discussions at Euro-IX Forums. Euro-IX is the ideal place to allow inter-IXP relationships to flourish.

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## Benefits of affiliation

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- **IXP community:** contact and relations with several other IXPs. The Euro-IX ASN database now lists more than 3,000 ISPs that are connected to its affiliated IXPs. Via the working relationship that many of our members have built with each other, this has led to membership/customer increases at IXPs.
- **Euro-IX Forums:** the participation in the biannual Euro-IX Forums which aim at bringing together all of our member IXPs to introduce themselves to one another and share current ideas and issues of both a technical and commercial nature.
- **Switch vendors:** implementation of switch vendor contact groups in order to bring the wishes of IXPs to the attention of the switch manufacturers. This is further strengthened by the fact that we now have major switch vendors who participate in Euro-IX Forums via the Euro-IX patronage scheme.
- **Euro-IX website:** placement on the Euro-IX website which acts as a portal for ISPs looking for a logical place to peer in Europe.
- **Resources:** member pages which supply a combined wealth of IXP knowledge, from a Switch DB to regulatory issues which might affect IXPs in Europe.
- **Discussion:** the ability to participate in discussions on the Euro-IX mailing lists. Discussions range from the solving of technical issues that most IXPs are facing, to new laws that may affect them. These mailing lists also allow subscribers to pose technical questions which other IXPs may be able to provide support/answers to.
- **Sharing:** new Euro-IX initiatives include a staff/knowledge exchange where IXPs are willing to lend staff for upgrading of equipment when an IXP feels that the experience of another IXP may be beneficial.
- **Regulatory updates:** we employ a part time regulatory officer who keeps in touch with legal issues affecting IXPs and translates these issues into laymen's terms.
- **Working groups:** current and future discussion/working groups include VoIP, IXP network monitoring tools, NG switching technologies, an IXP performance bench marking club, and more.
- **Representation:** The Euro-IX Secretary General represents Euro-IX and its members on a regular basis at IP community related meetings around the world such as those of RIPE, APNIC, ARIN, NANOG, APRICOT, SANOG etc.

# Standard Members

M

Total: 39 IXPs, from 29 countries (Last Update: January 2018)

1	AMS-IX	Amsterdam	Netherlands
2	BCIX	Berlin	Germany
3	BIX	Budapest	Hungary
4	BIX.BG	Sofia	Bulgaria
5	BNIX	Brussels	Belgium
6	CATNIX	Barcelona	Spain
7	CIX	Zagreb	Croatia
8	CIXP	Geneva	Switzerland
9	DE-CIX	Frankfurt	Germany
10	DIX	Lyngby	Denmark
11	ECIX	Berlin	Germany
12	Equinix	Zurich	Switzerland
13	FICIX	Helsinki	Finland
14	France-IX	Paris	France
15	GIGAPIX	Lisbon	Portugal
16	GR-IX	Athens	Greece
17	INEX	Dublin	Ireland
18	InterLAN	Bucharest	Romania
29	IXLeeds	Leeds	United Kingdom
20	KOSIX	Prishtinë	Republic of Kosovo
21	LEBIX	Beirut	Lebanon
22	LINX	London	United Kingdom
23	LONAP	London	United Kingdom
24	Lyonix	Lyon	France
25	MIX	Milan	Italy
26	MSK-IX	Moscow	Russian Federation
27	NaMeX	Rome	Italy
28	Netnod	Stockholm	Sweden
29	NIX	Oslo	Norway
30	NIX.CZ	Prague	Czech Republic
31	NL-IX	The Hague	Netherlands
32	Peering.cz	Prague	Czech Republic
33	SFINX	Paris	France
34	SIX	Ljubljana	Slovenia
35	SWISSIX	Zurich	Switzerland
36	TOPIX	Torino	Italy
37	TPIX	Warsaw	Poland
38	UAE-IX	Dubai	United Arab Emirates
39	VIX	Vienna	Austria

# Associate Members

A

Total: 8 IXPs, from 6 countries (Last Update: January 2018)

1	BBIX	Tokyo	Japan
2	CyrusOne	Carrollton	United States of America
3	Digital Realty	London	United Kingdom
4	IX.br	Sao Paulo	Brazil
5	JPIX	Tokyo	Japan
6	JPNAP	Tokyo	Japan
7	Mega-IX	Brisbane	Australia
8	NIXI	Delhi	India

# Remote Members

R

Total: 34 IXPs, from 31 countries (Last Update: January 2018)

1	AMS-IX Caribbean	Willemstad	Curacao
2	Angonix	Luanda	Angola
3	ARMIX	Yerevan	Armenia
4	BIX	Budapest	Hungary
5	CASIX	Casablanca	Morocco
6	CHN-IX	Beijing	China
7	Community IX	Reston	United States of America
8	CRIX	San Jose	Costa Rica
9	DatatIX	St. Petersburg	Russia
10	FVG-IX	Udine	Italy
11	GIX	Tbilisi	Georgia
12	Global IX	Saint Petersburg	Russia
13	GNIX	Groningen	Netherlands
14	IXPN	Lagos	Nigeria
15	KINIX	Kinshasa	Democratic Republic of the Congo
16	KIXP	Nairobi	Kenya
17	Kyrgyz-IX	Bishkek	Kyrgyzstan
18	LU-CIX	Luxembourg	Luxembourg
19	MOZ-IX	Maputo	Mozambique
20	NAP AFRICA	Johannesburg	South Africa
21	NETIX	Sofia	Bulgaria
22	NPIX	Kathmandu	Nepal
23	OM-NIX	Sofia	Bulgaria
24	Ottix	Ottawa	Canada
25	RIX	Reykjavik	Iceland
26	SOX	Belgrade	Serbia
27	STHIX	Stockholm	Sweden
28	TIX - Tanzania	Dar es Salaam	United Republic of Tanzania

29	TIX - Tuscany	Tuscany	Italy
30	TORIX	Toronto	Canada
31	TREX	Tampere	Finland
32	TunIXP	Tunis	Tunisia
33	VSIX	Padova	Italy
34	ZIXP	Lusaka	Zambia

# Euro-IX Patrons

Total: 9 Organisations (Last Update: January 2018)

1	ARISTA	Shannon Co Clare	Ireland
2	Ciena	London	United Kingdom
3	Coriant	Berlin	Germany
4	ECI GmbH	Frankfurt	Germany
5	Equinix (EMEA) BV	Zurich	Switzerland
6	Extreme Networks	Santa Clara	United States of America
7	Interxion	Schiphol-Rijk	The Netherlands
8	Juniper Networks	London	United Kingdom
9	Nokia	London	United Kingdom



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# Benefits of Affiliation

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## 1/ Forums

The Euro-IX Forums have been initiated to bring together all Euro-IX affiliated IXPs in one place to discuss relevant IXP specific issues faced by the majority of exchange points today.

The forums include IXP focused discussions on both technical and commercial issues, presentations by both IXP related vendors and well known IXP community speakers, as well as social events to allow all members to interact and get to know one another at a more intimate basis.

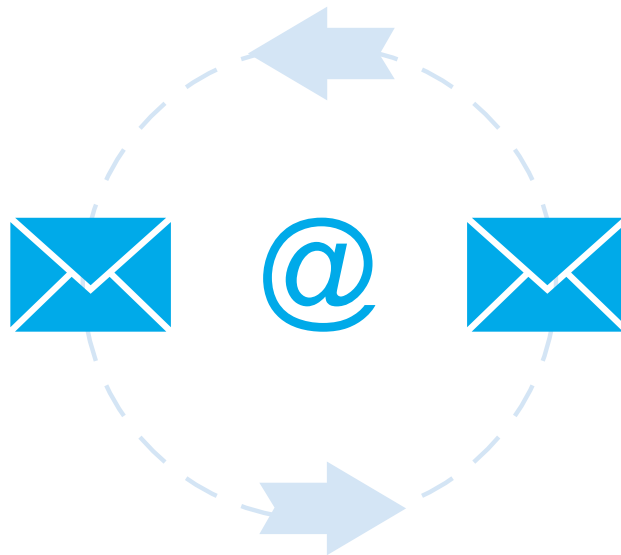
They are held twice a year (Spring and Autumn) in different European locations and span over a full two-day period. The Forum Programme Committee (FPC) ensures that the forum content is of a high standard and of interest to a variety of attendees.

Each member IXP can send two representatives to the forums free of charge. These two representatives will be offered two nights free accommodation while attending the forum. Extra representatives can be sent to the forum, however they will not receive this hotel subsidy and they will be charged a registration fee.

We can appreciate the difficulty for many IXPs in committing themselves to a substantial annual membership fee before they can ascertain what exactly Euro-IX is all about and of how valuable it would be for them. We believe that one of the best ways to convince an IXP is to allow them to come and experience a Forum beforehand and meet with other IXPs from around the globe.

We are happy to invite prospective IXPs to send two representatives to an Euro-IX Forum free of registration charges, their meals during the 2 days meeting being offered as well. However travel and accommodation costs will need to be covered by the IXPs themselves. This offer is open to all IXPs that are genuinely considering membership at Euro-IX and there is absolutely no obligation to join Euro-IX afterwards (though we are quite confident that you will).





## 2/ Mailing lists

Euro-IX encourages all of its members to make use of the close-knit IXP community that we have established by subscribing and participating on our mailing lists. Discussion topics range from more general IXP operational issues to specific technical or regulatory issues. Some of the more popular Euro-IX mailing lists include: Members/ Technical/ Vendor (see p.9 - 10).

- Members

This list is for more general announcements and IXP related discussions. Generally the discussions that take place on this list are of an operational nature and can range from debates on whether or not IXPs across Europe should interconnect to a call for input on the latest best practices for IXP collocation requirements. Our regulatory officer also uses this list to inform the membership of any new laws that may affect IXPs as well as other general announcements that need to be communicated to all the members.

- Technical

This list is for discussions that are based on IXP related topics of a more 'technical' nature. It is also used by the members to announce any new standards or issues from other organizations such as the IETF, ICANN etc. Subscribers also often share the outcomes of investigations into new IXP specific equipment. Here are some examples of discussion on the technical mailing list:

- Vendor specific

This mailing list allows member IXPs to share experiences with the latest switch software versions, inform the other subscribers of any bugs or other 'surprises' that they should look out for when upgrading, which may save other engineers a lot of time and frustration! The discussions also focus on power supplies, line cards and just about any other topics that are switch vendor specific.

Each of these vendor specific lists has an Euro-IX representative whom then makes a summary of any major issues covered on the list and then makes contact with the specific switch vendor. Any new findings, announcements or reports from the switch vendor are in turn relayed to the mailing lists via the same Euro-IX representative. Euro-IX currently has a specific mailing list for most of the major IXP switch vendors.



*“After upgrading our switches we are now able to provide gigabit-connections over copper. Since there is interest from customers to get such connections and we only have cat5e cabling (so far): Do other IXPs have cable requirements or recommendations for customers connecting to a gigabit-copper-port? We are thinking about requiring at least cat6, but perhaps cat5e should also work?”*

*“Does anyone have experience with large scale (more in terms of streams than bandwidth per stream) multicast across IX fabrics that are not multicast aware (i.e. pim snooping)?”*

*“We would like to know how many of you have considered or are currently providing trunk access to your IXP customers so that they could join different VLANs using the same port/ interface. For those positive answers, it could be interesting to know which security requirements or configuration recommendations do you give to them. Of course that proper VLAN filtering and protection against malicious BPDUs must be configured to avoid L2 attacks such as DoS/MITM spanning-tree attacks.”*

*“We plan to start technical trials with multicast this week. Little or no technical info on how to do multicast at an IX is available (as far as I can see), so I hope to get some useful feedback from this list. Two questions has come up during our weekend-planning: 1) Multicast Addresses. Should each content-provider register their own multicast-addresses or should we at the IX manage some sort of local pool or? 2) Controlling multicast traffic in the IX-switch. My guess is that we need to do PIM snooping to control multicast-traffic. Any experience on this subject is greatly appreciated. Any multicast-experiences (good or bad) is welcome!”*

### **3/ Website**

Many potential IXP customers often visit the Euro-IX website as it is the perfect place for them to gather information on different Internet Exchanges. Euro-IX helps these potential clients by placing IXP information in a service comparison matrix that provides a quick snapshot of what the affiliated IXPs offer.

If an onlooker is further interested in an IXP then he will find individual pages that have been set-aside for each and every affiliated Euro-IX member. These pages include information on IXP locations, peering participants, peak traffic statistics, any unique characteristics, joining requirements, services provided, cost of connecting and of course contact details.

The interested parties are able to make contact with one, some or all affiliated IXPs by filling in and sending an IXP contact form that is then sent to the designated IXP representative.

All affiliated IXPs receive individual login accounts that allow them to update their own information on the Euro-IX website. This user account also gives the IXP access to the Euro-IX restricted pages which includes information contained in the Euro-IX Switch database, benchmarking club, staff exchange and other many other benefits that are detailed further in this document.

### **4/ ASN Database**

All Euro-IX affiliated IXPs are encouraged to add all their peering participants to the Euro-IX ASN database. The database is a repository of more than 3,000 organisations that are connected to Euro-IX affiliated IXPs. We store information on who these customers are connected to, what organizational name they are peering under and what ASN they are peering with.

Thus if a potential IXP customer is looking to peer with a particular ASN, he can simply enter this ASN in the Euro-IX ASN database and he will see exactly where his desired ASN is peering. Similar searches can be carried out with organizational names and of course Euro-IX affiliated IXPs.

### **5/ Switch Database**

The Euro-IX switch database is a repository of switches that are being used by the affiliated IXPs. There are currently more than 170 entries in the database covering some 40 different models from nine major Layer 2 switch vendors.

The database entries include information on the make and model of the switch, the particular modules that are being used and the current software version that is being used. Most entries also include any problem software versions and hardware problems that have been experienced.

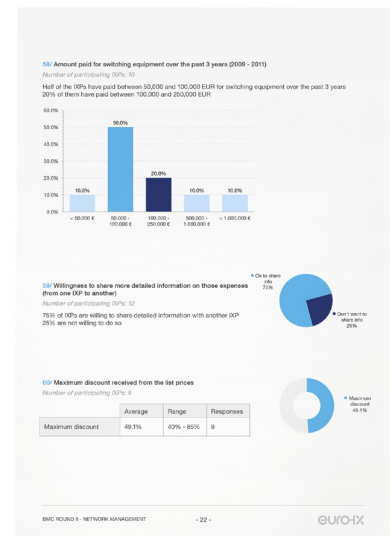
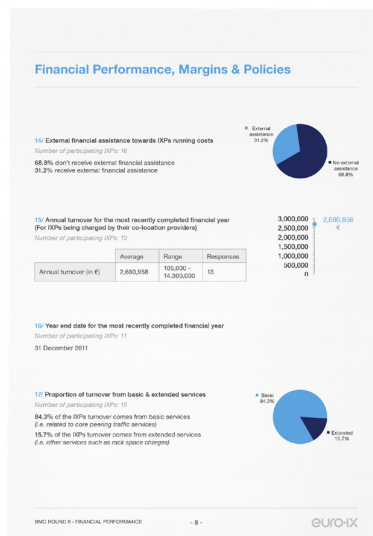
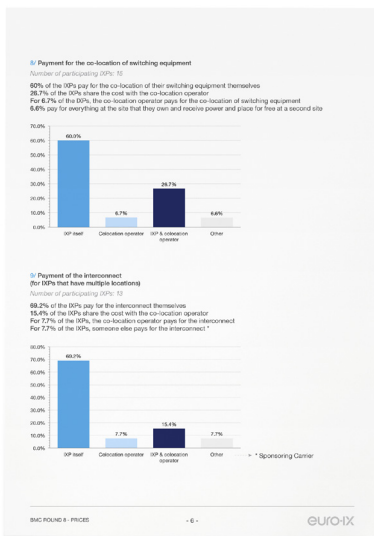
The Switch database is particularly useful for IXPs that are looking to update their software. One can easily see any issues that other IXPs have had while upgrading or make contact with an IXP that has already made the update and ask them if they had experienced any problems or had any other advice.

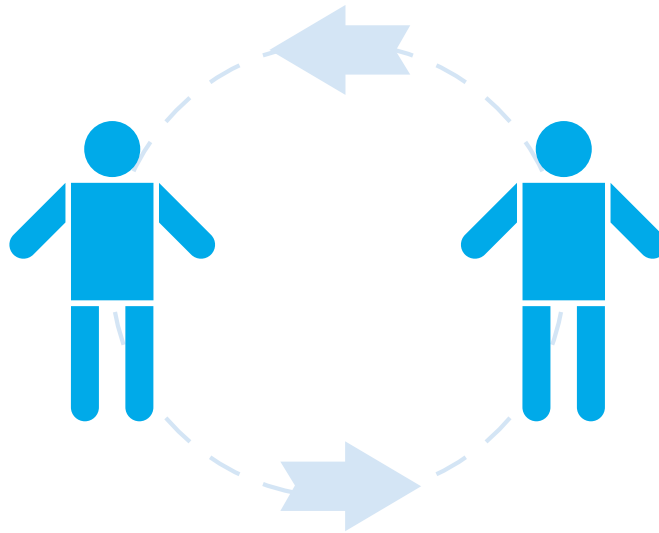
## 6/ Benchmarking club

The Euro-IX Benchmarking club allows members to compare certain performance aspects of their IXPs. The survey is conducted once a year and covers the following topics:

- Prices
- Financial Performance, Margins & Policies
- Traffic & Ports
- Network Management
- Service Delivery Times
- Membership/Customer Base
- Member/Customer Satisfaction
- Staff Issues

Participation in the benchmarking club is done on a voluntary basis, however it should be noted that full details of the results of the survey are only given to those whom participated. It is possible to participate in one or all of the benchmarking club sections.





## 7/ Euro-IX Staff exchange initiative

One of the great successes of Euro-IX is the strong and close community that has been built up between the IXPs over the years, with a constant willingness to help one another. The Euro-IX Staff Exchange initiative helps members to express their ability to support other affiliated IXPs.

As some of our affiliated IXPs are run by either volunteers or on a skeleton staff, we are aware that not all IXPs have the man power to be able to help out other members. Therefore we have created a database that allows individual IXPs to list their level of ability to help other affiliated IXPs. The main areas that an IXP may offer assistance in includes (*\*It should be noted that all of the following areas of assistance are subject to staff availability and certain conditions may apply*):

- **Email:** answer e-mails from other IXPs that are directed to your IXP.
- **Telephone:** talk to other IXPs via the phone in an effort to help resolve an issue or give advice on a certain topic.
- **New customer checks:** for customers that are not registered in your in country an IXP may be willing locally look up the validity of a company that is applying for membership at another IXP.
- **Staff loan:** send your staff to another IXP to help them with specific issues.
- **Staff secondments:** allow staff from other IXPs to visit your IXP.
- **Staff training:** allow staff from other IXPs to visit your IXP with the attention of giving them training on specific issues.
- **Test lab:** allow staff from other IXPs to visit and use your test lab.

## 8/ Regulatory updates

Euro-IX employs a part-time regulatory officer whom reports back to the membership on many relevant and interesting regulatory topics that might affect IXPs and/or their connected customers. Given the complex writing style and terminology used in many new laws that are introduced, it is extremely appreciated by our international community to have these summarized in layman terms for an easier understanding and appreciation of their impact.

The affiliated IXPs are updated on new legislations by mailing list communications, live presentations at the biannual Euro-IX Forums and our dedicated Euro-IX Public Affairs web portal (\*updated with relevant news on a frequent basis) that all affiliated IXPs have access to.

While there is a certain focus on European legislation, there are more and more regulations affecting the Internet on a global scale. Our regulatory officer does his best to keep us updated with these affairs for the benefit of all IXPs around the world.

## 9/ IXP specific Tools

The IXP network infrastructure has its own specific monitoring and trouble shooting needs. Thus our IXP community is constantly creating and developing new tools or adapting current ones to the IXP specific environment. The tools below are an example of the tools that are freely available to Euro IX affiliates:

- **Net::sFlow** - AMS-IX sFlow is an industry standard technology for monitoring high speed switched networks. The technology is built into network equipment and gives complete visibility into network activity, enabling effective management and control of network resources. The sFlow module provides a mechanism to parse and decode sFlow datagrams. It supports sFlow version 2/4 (RFC 3176) and sFlow version 5.
- **Inter Providers Traffic Analyser (IPTA)** - MIX The Inter Providers Traffic Analyser, is a tool to detect “anomalies”, i.e. sudden peaks or troughs or abnormal events, in ISPs traffic at an Internet exchange (follow referred as IX).
- **Peering Matrix Builder** - INEX Peering Matrix Builder is a package which will build a HTML peering matrix based on a list of AS numbers and a list of associated aut-num: objects in RIPE- 181 or RPSL format. The resulting HTML table will indicate who peers with whom at a particular IXP, according to information published at the relevant RIR.
- **IXP-Watch** - LINX IXP Watch was created by LINX (London Internet Exchange) to assist us in monitoring the broadcast/flooded traffic on the LINX peering network, which is a layer 2 switched network. There are certain types of traffic that we consider to be potentially harmful or against our policies of acceptable use of the exchange.

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# Joining Euro-IX

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One of the main objectives of Euro-IX is to facilitate the share of knowledge between IXPs. Therefore, potential new memberships are always encouraged. Some basic guidelines have been drawn up to help define what an IXP is. Euro-IX has accepted the industry definition of an IXP as:

**A network infrastructure with the purpose to facilitate the exchange of internet traffic between Autonomous Systems and operating below layer 3**

You may apply to join Euro-IX if your organisation:

- Meets the above definition
- Is up and running with at least 3 peers
- Provides a members list and traffic statistics

3 possibilities for IXPs to join Euro-IX:

- Standard Membership
- Associate Membership
- Remote Membership

*Euro-IX Region*





## M

### STANDARD MEMBERSHIP

Standard full membership allows IXPs to vote on major decisions made at Euro-IX, receive certain subsidies for attending Euro-IX Forums and access to all services that Euro-IX has to offer. All IXPs that meet the Euro-IX joining requirements and fall within the 'Euro-IX member region' (see blue border of the Euro-IX Region map) may only apply for full membership at Euro-IX.

Annual membership fee = **4,000 €**



## A

### ASSOCIATE MEMBERSHIP

Associate members have full access to all meetings and benefits that Euro-IX has to offer, however do not receive a right to vote at Euro-IX General Meetings, do not receive accommodation subsidies at Euro-IX forums, and current and future Euro-IX services may not be extended to cover regions outside of Europe. The lowered associate member fee also reflects the fact that associate members may only have the time or finances to attend one forum per year (however they are naturally encourage to attend both forums).

All IXPs that meet the Euro-IX joining requirements and fall outside the 'Euro-IX member region' (see red border of the Euro-IX Region map) may only apply for associate membership at Euro-IX.

Annual membership fee = **3,000 €**



## R

### REMOTE MEMBERSHIP

This membership category has been established for those IXPs who would like to affiliate themselves with Euro-IX, gain access to the restricted web pages and databases as well as subscribing to the Euro-IX mailing lists, however, do not envisage attending Euro-IX forums on a regular basis. These IXPs do not receive a right to vote at Euro-IX General Meetings, do not receive accommodation subsidies at Euro-IX forums, and furthermore would be required to pay an attendance fee if they wished to send a representative to an Euro-IX Forum.

Annual membership fee = **1,000 €**

## Memberships overview

	Requirements		Benefits				Annual Fee
	Profile	Location	Access to online services + Mailing Lists	Access to Forum Free of charge for 2 pers	Hotel Coverage during forums (2 pers / 2 nights)	GM Vote	
Standard Membership	Meets the joining requirements	IXP located within the Euro-IX region	YES	YES	YES	YES	€ 4,000
Associate Membership	Meets the joining requirements	IXP located anywhere in the world	YES	YES	NO	NO	€ 3,000
Remote Membership	Meets the joining requirements	IXP located anywhere in the world	YES	NO	NO	NO	€ 1,000



## First year free

In certain situations qualifying affiliates may not have the funds to pay the Euro-IX membership fees. On Executive Board approval, an applicant may be granted exemption for the first year membership fee, and will then be required to pay an appropriate membership fee per annum thereafter.

There are no simple rules to this first year free subsidy. Each application will be reviewed on a case-by-case basis with many factors being taken into account. It may also be the case that an applicant only receives part of the first year free (i.e. three or six months), to allow for budget synchronization, once again depending on the financial circumstances of the individual applicant.

IXPs that feel they would qualify for such a subsidy should make contact with the Euro-IX Secretariat or an Executive Board member to further discuss the matter.

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# Application Procedure

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## 1/ Read the Euro-IX [Articles of Association](#)

## 2/ Fill in the online application form

- <https://euroix-en/forixps/join-euro-ix/become-member/>

Your submitted form will then be passed on to the Euro-IX Executive Board whom will have 14 days to approve the application.

## 3/ Approval

Once your membership application has been approved the secretariat will contact you with the membership agreement. You will need to print, sign and mail the agreement form.

Your IXP will be listed on the Euro-IX website, you will be given restricted web page access accounts and you will be introduced to the Euro-IX community.

## 4/ Membership Fees

Initial membership fees will be calculated on a quarterly pro rata basis and annual fees will be charged in January of each subsequent year.

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# Contact us

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If you have any further questions or would like to discuss your IXP's affiliation with Euro-IX, please feel free to make contact with us and we will be more than willing to talk with you and discuss how we get you to join our community. Please direct all initial enquiries to:

## **European Internet Exchange Association**

Postal Address:

PO Box 73533

London

E2 2DP

E. [secretariat@euro-ix.net](mailto:secretariat@euro-ix.net)

W. [www.euro-ix.net](http://www.euro-ix.net)

Trade register: 34158563

VAT number: NL810002292

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