

ConnectME

UAT CONNECTIVITY

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DOCUMENT SERIES

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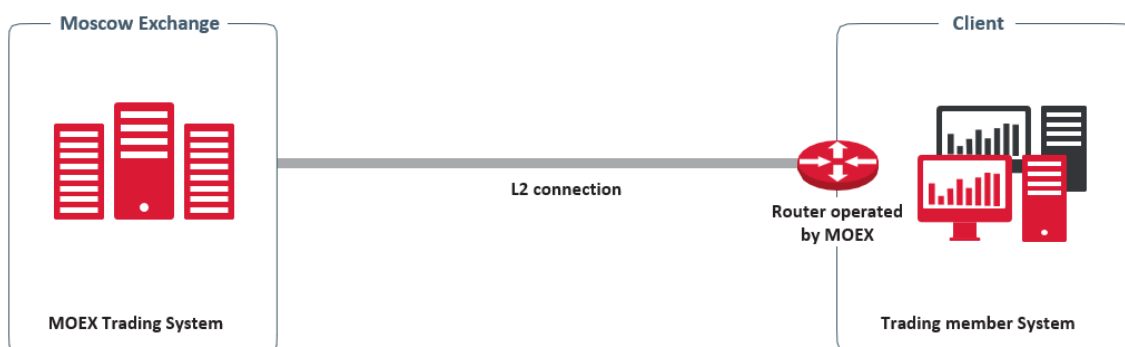
NETWORK CONNECTIVITY SOLUTIONS - TESTING ENVIRONMENT

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NAVIGATION

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OVERVIEW



ConnectME is one of the methods to establish network connection to Moscow Exchange. The scheme includes point-to-point lines from a telecommunication carrier chosen by the client, client devices managed by MOEX and segments established by the client according to MOEX's standards for allocating its trading systems. For further details, please see the [Technical Diagram](#) below.

MOEX's connection point is at:

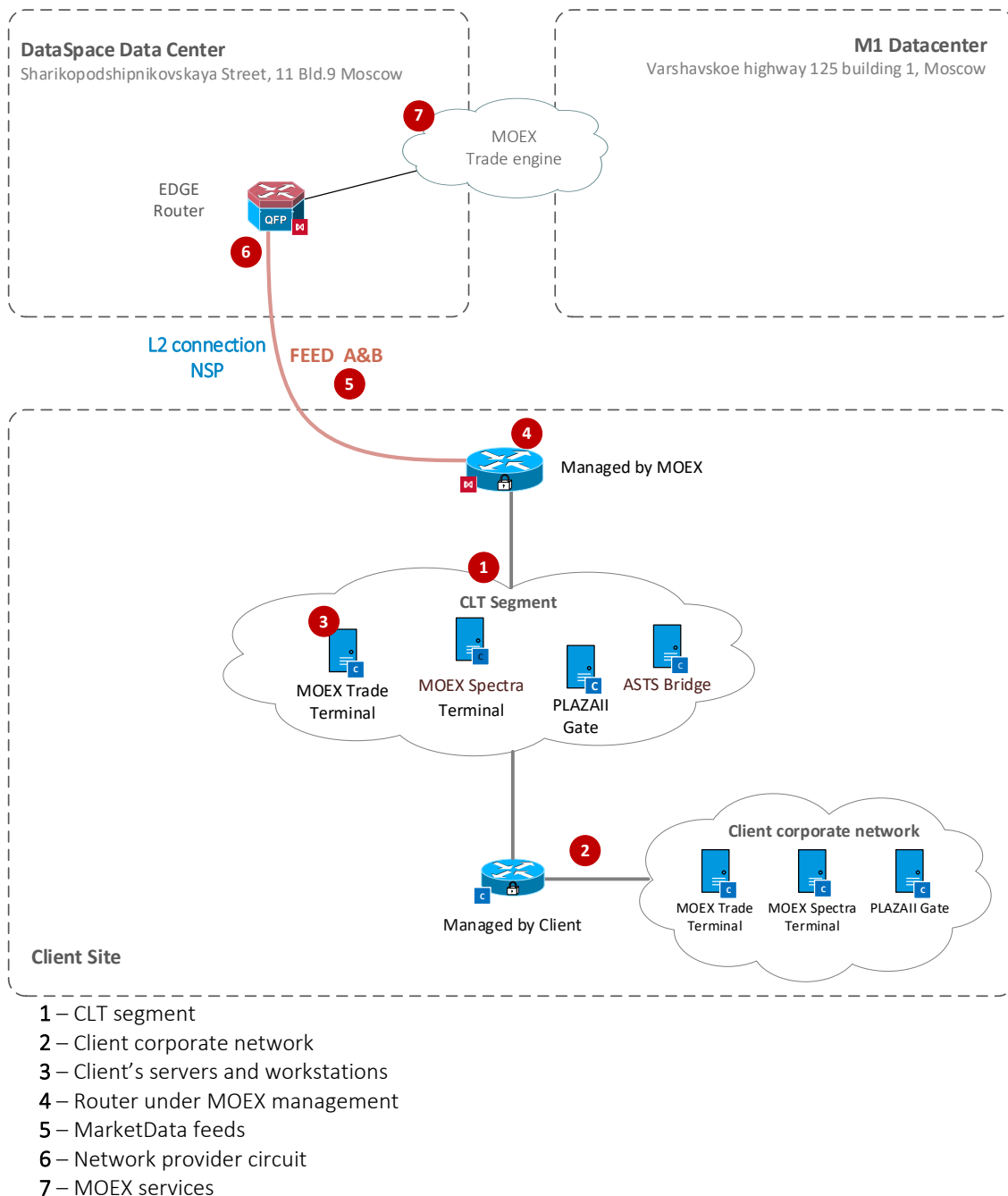
- Dataspace1 Data Center (Sharikopodshipnikovskaya St. 11 building 9), hall 217, cabinets F1 and F9;

The Client's connection points can be located in any area accessible for telecom operators.

ConnectME is provided under the Information Technology Service Agreement, and consists of two parts:

- Connection to the Technical Center's equipment;
- Setup and support of the Client equipment configuration.

TECHNICAL DIAGRAM



CLT segment (#1 on the diagram above) is a dedicated segment of the Client’s network designed to install specialized software and exchange systems (item 4) as well as establish a L3 link to the Client’s internal network. VLAN (IEEE 802.1Q standard) tagging is supported; VLAN ID must be transferred to MOEX’s specialists at the setup stage.

Client corporate network (#2 on the diagram above) can be connected to systems installed within CLT segment or MOEX’s services. Such connection is configured by Client’s specialists. In this case, source IPs must be from the CLT IP address range (see [addressing plan](#)).

Router under MOEX management (#4 on the diagram above) is installed on client site according to the [supported hardware](#) section.

If the Client uses **FAST UDP multicast marketdata**, then feed subscription must be done using PIM SSM or IGMP v3 protocols, depending on the client network design.

Cross-connect type on MOEX side (#6 on the diagram above) can be copper or fiber. For fiber cables MOEX supports 1000BASE-SX for Multimode and 1000BASE-LX/LH for Singlemode. Any use of other standards requires a prior approval by MOEX.

MOEX services are in 91.203.252.0/22, 10.63.0.0/24 and 10.61.0.0/24 IP ranges. Information on products and services is available at <https://www.moex.com/s397>.

SUPPORTED HARDWARE

Routers produced by Cisco Systems™ are eligible as client routers managed by MOEX. We recommend that you use Cisco ISR 4000 series routers with IP Base license:

Data from the vendor's official website
<https://www.cisco.com/c/en/us/products/routers/4000-series-integrated-services-routers-isr/models-comparison.html> :

	4221	4321	4331	4351	4431	4451
Features						
Form factor	1 RU Desktop	1 RU Desktop	1 RU	2 RU	1 RU	2 RU
Integrated WAN Ports	GE / SFP	GE / SFP	GE / SFP	2 PoE GE / SFP	2 PoE GE / SFP	2 PoE GE / SFP
	GE	GE	GE	GE / SFP	2 GE / SFP	2 GE / SFP
			SFP			
Performance	35Mbps	50 Mbps	100 Mbps	200 Mbps	500 Mbps	1 Gbps
	Upgradable to 75 Mbps	Upgradable to 100 Mbps	Upgradable to 300 Mbps	Upgradable to 400 Mbps	Upgradable to 1 Gbps	Upgradable to 2 Gbps

If Client needs to use other models of Cisco equipment, the configuration of the equipment must first be agreed with the Moscow Exchange by contacting the [technical support](#).

At least two physical Ethernet ports are required on the router.

NETWORK CONNECTION REQUIREMENTS

The bandwidth Client needs is the sum of the following values depending on the number of the services in use and the amount of FAST UDP Multicast feeds:

- 4 Mbit/s multiplied by the number of the gateways/terminals in use
- 10 Mbit/s multiplied by the number of the gateway/terminals with full order/trade log feed (FORTS_ORDLOG_REPL/FORTS_DEALS_REPL)
- 15-50 Mbit/s for each of A and B copies of Equity & Bond Market FAST feeds
- 15-50 Mbit/s for each of A and B copies of FX Market FAST feeds
- 6-15 Mbit/s for each of A and B copies of Derivatives Market FAST feeds

For further details, please read the [Load Test Report](#).

ADDRESSING PLAN

IP address for router connection to MOEX network (WAN) is provided as a part of [initial configuration](#).

Network address for CLT segment is allocated by the Exchange during the service configuration from the range indicated in the table below:

Segment	Network address	Prefix	Subnet mask
CLT	10.178.X.0	/24	255.255.255.0

The Client determines on its own end IP addresses for its systems*; no further notice is needed. The IP addresses shall be specified in the login requests and other connectivity service requests; they can be

passed to the trading member in a special application (except for addresses for receiving marketdata via FAST protocol).

** The last five addresses in each subnet are reserved by the Exchange.*

MOEX's services addresses are available at <https://www.moex.com/s745>, and via a request to the [Technical Support Service](#).

EQUIPMENT SETUP

To transfer the router management to MOEX specialists, client needs to do the initial configuration on the device:

```
enable secret 123
interface {to MOEX}
    ip address {allocated by MOEX} 255.255.255.252
    no shut
    speed auto
    duplex auto
    exit
ip route 0.0.0.0 0.0.0.0 {configured on MOEX's side}
line vty 0 4
    no access-class * in
    transport input telnet
    password 123
    login
end
```

After the initial configuration is done, MOEX specialist will be able to access the router remotely, perform full configuration and make sure that it works.

Configuration of routing on the Client's side designed to access MOEX's services requires that an IP address set on the router interfaces (X.X.X.252) is determined as a next hop.

The following is a basic routing in the syntax of the Windows command line:

Transaction services:

```
route add -p 91.203.253.46 mask 255.255.255.255 GW_CLT
route add -p 91.203.255.46 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.58 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.59 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.60 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.62 mask 255.255.255.255 GW_CLT
route add -p 91.203.252.62 mask 255.255.255.255 GW_CLT
route add -p 91.203.254.62 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.199 mask 255.255.255.255 GW_CLT
```

FAST feeds:

```
route add -p 91.203.253.238 mask 255.255.255.255 GW_CLT
route add -p 91.203.255.238 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.239 mask 255.255.255.255 GW_CLT
route add -p 91.203.255.239 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.235 mask 255.255.255.255 GW_CLT
route add -p 91.203.255.235 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.242 mask 255.255.255.255 GW_CLT
route add -p 91.203.255.242 mask 255.255.255.255 GW_CLT
route add -p 91.203.253.243 mask 255.255.255.255 GW_CLT
route add -p 91.203.255.243 mask 255.255.255.255 GW_CLT
route add -p 239.195.1.64 mask 255.255.255.192 GW_CLT
route add -p 239.195.1.192 mask 255.255.255.192 GW_CLT
route add -p 239.195.9.0 mask 255.255.255.192 GW_CLT
```

```
route add -p 239.195.137.0 mask 255.255.255.192 GW_CLT
```

For customers on the exchange network, a domain name service (DNS) is available at the addresses: 91.203.252.10, 91.203.254.10 and the network time protocol (NTP): 91.203.252.12, 91.203.254.12.

HOW TO GET STARTED

To get started, the client must perform the following steps:

- Consult a manager from the technology service sales team by phone on +7 (495) 363-3232, ext. 5656 or email at itsales@moex.com to make sure that the chosen solution best suits client needs, find out what paperwork is required and which next steps should be taken.
- Choose telecom operator for establishing the communication link. Agree on commercial terms and SLA with them. Enter into tri-party agreement between Client, MOEX and the Operator.
- Enter into the Information Technology Service Agreement with Moscow Exchange (perhaps it already exists!) and order ConnectME Test service. Exchange managers will help to complete the forms.
- Choose connectivity protocols and software (the choice might depend on the current trading software in use).
- **(Optional)** Pass the Software certification procedure in order to connect to MOEX's trading systems (required, if non-standard trading software is used).
- Enter into the access agreement with Moscow Exchange with respect to the software and information products.

HOW TO GET TECHNICAL SUPPORT

If client experiences a malfunction of the Service or have a question regarding the connection to MOEX, the technical support service should be contacted with the following information:

- Company name;
- Connectivity option to MOEX: ConnectME UAT;
- IP-addresses used to connect;
- Issue overview;
- **(Optional)** Telecom provider;
- **(Optional)** Results of your tests.

Technical support service:

T +7 (495) 733-9507, +7 (495) 287-7691,

T +7 (495) 363-3232, ext. 2345

E-mail: help@moex.com

AUTHORIZED NETWORK SERVICE PROVIDERS

Connection circuits may be provided by any telecom operator at the client's choice.

FAQ

Where are ConnectME points of connectivity located?

The service is available in Dataspace1 (11 bld.9, Sharikopodshipnikovskaya Str., Moscow) data center.

Can I use the fiber channel connectivity?

Yes, you can. 1000BASE-SX and 1000BASE-LX\LH are both available. The use of other standards needs a prior approval from the Exchange.

Can I use network equipment other than Cisco, i.e. Juniper or Arista?

Only Cisco equipment is allowed. For more information, please refer to our [technical requirements](#).

Does Connect ME connectivity imply restrictions on the use of DMA interfaces?

ConnectME makes available any protocols and interfaces to access all MOEX UAT services.