Network Connectivity Guide

This document contains network connectivity guide to test FAST udp multicast services over Internet VPN sessions. Production connections are available only in dedicated networks and do not use VPN.

1.1.Configure a VPN connection with MOEX using Windows XP

To configure a VPN connection, do the following:

- 1. Make sure you are connected to the Internet;
- 2. Click *Start*, and then click *Control Panel*;

Control Panel					_ 🗆 >
<u>File Edit View Favorit</u>	es <u>T</u> ools <u>H</u> elp				
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	Name	*	Comments		
See Also	* 🔂 Ad	d or Remove Programs	Install or remove pr		
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Windows Update	🍓 Au	tomatic Updates	Set up Windows to		
Help and Support	Co 🛼	nfiguration Manager	View or Edit Configu		
	e Da	te and Time	Set the date, time,		
	💁 Dis	play	Change the appear		
	Fol	der Options	Customize the displ		
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	🙈 Inc	lexing Options	Change how Windo		
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	Sa Pri	nters and Faxes	Shows installed prin		
	Pro	ogram Download Monitor	Manages downloadi		
	🖸 Qu	ickTime	Configures QuickTi		
	Re	altek HD Sound Effect Manager	Realtek HD Audio C		
	🞈 Re	gional and Language Options	Customize settings		
	1 Re	mote Control	Configures remote		
	Ru	n Advertised Programs	Runs advertised pr		

3. In Control Panel, double click Network Connections: Connects to other computers, networks, and the 1



4. Click *Create a new connection* in the *Network Tasks* task pad:^{2 objects}

New Connection Wizard	
	 Welcome to the New Connection Wizard This wizard helps you: Connect to the Internet. Connect to a private network, such as your workplace network.
	To continue, click Next.

5. In the Network Connection Wizard, click Next:



w Connection Wizard	
Network Connection How do you want to connect to the r	network at your workplace?
Create the following connection:	
C Dial-up connection	
Connect using a modem and a re Network (ISDN) phone line.	gular phone line or an Integrated Services Digital
• Virtual Private Network con	nection
Connect to the network using a v Internet.	rirtual private network (VPN) connection over the
	< <u>B</u> ack <u>N</u> ext > Canc

7. Click Virtual Private Network connection and then Next:

8. Type Company Name (e.g. MOEX VPN Connection), and then click Next:

w Connection Wizard			
Connection Name Specify a name for this connection to y	your workplace.		
Type a name for this connection in the f	ollowing box.		
Company N <u>a</u> me			
MICEX VPN Connection			
For example, you could type the name o will connect to.	f your workplace or t	he name of a serv	er you

9. Click *Do not dial the initial connection*, and then click *Next*:

w Connect	tion Wizard				
Public N Wind	etwork ows can make sur	re the public netwo	ork is connected f	irst.	Ĩ
Windonetwo	ows can automatic irk, before establis	cally dial the initial hing the virtual co	connection to the nnection.	Internet or other p	public
œ	Do not dial the in	nitial connection.			
С	Automatically dia	al this initial connec	ction:		
					*
			< Back	Next >	Cancel

10. Type the server address provided by MOEX team, and then click *Next*:

New Connection Wizard

VPN Server Selection What is the name or address of the VPN server?

Type the host name or Internet Protocol (IP) address of the computer to which you are connecting.

Host name or IP address (for example, microsoft.com or 157.54.0.1):

	New Connection Wizard
	Connection Availability You can make the new connection available to any user or only to yourself.
	A connection that is created for your use only is saved in your user account and is not available unless you are logged on. Create this connection for:
11. Click <i>My use only</i> and then <i>Next</i> :	< <u>B</u> ack <u>N</u> ext> Cancel

New Connection Wizard	
	Completing the New Connection Wizard You have successfully completed the steps needed to create the following connection: MICEX VPN Connection
	The connection will be saved in the Network Connections folder. Add a shortcut to this connection to my desktop To create the connection and close this wizard, click Finish.
12. Click Finish:	K <u>B</u> ack Finish Cancel

onnect MICE	VPN Connection	? ×
	1 (4	Z
User name: Password:		
☐ Save this ☑ Me on ☑ Anyon	user name and password for the follow y who uses this computer	ing users:
<u>C</u> onnect	Cancel Properties	Help

- 13. Leave User name and Passwod empty, and then click Properties
- 14. On Security tab, click Advanced (custom settings) and then Settings...:

reneral	Options	Security	Network	king A	dvanc	ed	
Secu	ity options		1 2 2				
OI	pical (recor	nmendeo	d settings)				
V	alidate my id	entity as	follows:				1000
Г						1	*
Г	A <u>u</u> tomatic password	ally use (and doi	my Windo main if any	ws logo /)	on nam	ie and	
Г	Require d	ata encr	yption (dis	connec	st if no	ne)	
۰Ä	dvanced (cu	istom se	ttings				
U	sing these s security pro	ettings re tocols.	equires a k	knowlei	dge	<u>S</u> ettings	
				24	IDCo	Cottings	
				-	1000	5 Dettings	

15. Choose *Optional encryption (connect even if no encryption)* data encryption and then click *OK*:

16. On *Networking* tab, choose *PPTP VPN* type of VPN and then click *OK*:

	Properties	?
eneral Options Securi	ty Networking Advar	nced
Typ <u>e</u> of VPN:		
PPTP VPN		•
		<u>Settings</u>
This connection uses the	following items:	
🗹 🏹 Internet Protocol ((TCP/IP)	
	7 L I	V19 202
File and Printer Sr	haring for Microsoft Netw	orks
Gient for Microsof	haring for Microsoft Netw eduler it Networks	OTKS
Pile and Printer St QoS Packet Sche Client for Microsol	haring for Microsoft Netw eduler it Networks	orks
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Pile and Printer Sf QoS Packet Sche QoS Packet Sche QoS Packet Sche Description Transmission Control P wide area network prot across diverse intercon	rotocol/Internet Protocol ocol that provides comminected networks	Properties
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1.2. Configure a VPN connection with MOEX using Windows 7

- 1. Make sure you are connected to the Internet
- 2. Open *Control Panel*→*Network and Internet*→*Network and Share Center* and then click *Set up a new connection or network*:

3. Choose *Connect to a workplace* and then click *OK*:

- 4. Choose No, create a new connection and then click Next
- 5. Click Use my Internet Connection (VPN):

🚱 🜆 Connect to a Workplace	
How do you want to connect?	
 Use my Internet connection (VPN) Connect using a virtual private network (VPN) connection through the Internet. 	
🔊 — 🎱 — 🕪	
Dial directly Connect directly to a phone number without going through the Internet.	
ing ing ing	
What is a VPN connection?	
	Cancel

6. Type the server address provided by MOEX team to the *Internet address* field, type MOEX VPN Connection to the *Destination name* field, check *Don't connect now; just set it up so I can connect later* and then click *Next*:

A = -		
Connect to a Workp	lace	
Type the Internet a	ddress to connect to	
Your network administra	ator can give you this address.	
Internet address:		ĵ –
Destination name:	MICEX VPN Connection	
Use a <u>s</u> mart card		
🜍 🦳 <u>A</u> llow other peol This option allov	ple to use this connection vs anyone with access to this computer to use this connection.	
Don't connect n	ow; just set it up so I can connect later	
	Ne	ext Cancel

7. Leave the next page without changes and then click *Next*:

📀 📠 Connect to a Workpl	ace	
Type your user nan	ne and password	
<u>U</u> ser name:		
Password:		
	Show characters Remember this password	
Domain (optional):		
		<u>C</u> reate Cancel

	🚱 📠 Connect to a Workplace	
	The connection is ready to use	
		
	Connect now	
		ž
8. Click <i>Close</i>		<u>C</u> lose

9. Open *Control Panel*→*Network and Internet*→*Network and Share Center* and click *Change adapter setting*:

- 10. Choose *Properties* of the just created connection:
- 11. On Security tab choose Point to Point Tunneling Protocol (PPTP) VPN type, choose Optional encryption (connect even if no encryption) data encryption and then click OK:

	ecurity Networking Sharing
Type of VPN:	
Point to Point Tunn	eling Protocol (PPTP)
Data encryption:	Advanced settings
Optional encryption	(connect even if no encryption)
Authentication	
O Use Extensible	Authentication Protocol (EAP)
	Ŧ
<u>.</u>	Properties
	1 jobertes
Allow these pro	tocols
	d password (PAP)
Unencrypted	Charles and Arren A
Unencrypted	andshake Authentication Protocol (CHAP)
Unencrypted Challenge <u>H</u>	andshake Authentication Protocol (CHAP) IAP Version 2 (MS-CHAP v2)
<u>Unencrypted</u> <u>Unencrypted</u> <u>Challenge H</u> <u>Microsoft C</u> H <u>Automat</u>	andshake Authentication Protocol (CHAP) IAP Version 2 (MS-CHAP v2) ically use my Windows logon name and

1.3. Configure a VPN connection with MOEX using OpenSUSE

- 1. Make sure you are connected to the Internet;
- 2. Install *pptp* client using the following command:

```
sudo zypper install pptp
```

3. Run the following command:

sudo /usr/sbin/pptp-command setup

4. Type '4' and press enter:

```
1.) Manage CHAP secrets
2.) Manage PAP secrets
3.) List PPTP Tunnels
4.) Add a NEW PPTP Tunnel 5.)
Delete a PPTP Tunnel
6.) Configure resolv.conf
7.) Select a default tunnel
8.) Quit
?: 4 + <enter>
```

5. Type '1' and press enter:

Add a NEW PPTP Tunnel.

```
1.) Other
Which configuration would you like to use?: 1 + <enter>
```

6. Type 'micex_vpn_connection' and press enter:

Tunnel Name: micex_vpn_connection + <enter>

7. Type '<server address>' and press enter:

Server IP: <server address> + <enter>

8. Type 'del default' and press enter:

route: del default + <enter>

9. Type 'add default gw 1.1.1.1 TUNNEL_DEV' and press enter: route: add default gw 1.1.1.1 TUNNEL_DEV

10. Simply press enter:

route: <enter>

11. Type 'test' and press enter:

Local Name: test

12. Leave a default value, simply press enter: Remote Name [PPTP]: <enter>

13. If you have done everything correct, you will see:

```
Adding micex_vpn_connection - <server address> - test - PPTP
Added tunnel micex_vpn_connection
```

- 14. Type $v_{8'}$ and press enter to exit the setup wizard.
- 15. The next step is to make a few changes in a configuration file which was created on previous steps by the wizard. At first open it using the following command:

sudo vim /etc/ppp/peers/micex_vpn_connection

16. Needed changes are colored by red:

#

```
# PPTP Tunnel configuration for tunnel micex_vpn_connection
# Server IP: <server address>
# Route: route del default
# Route: route add default gw 1.1.1.1 TUNNEL_DEV
#
noauth
#
# Tags for CHAP secret selection
# name test
remotename PPTP
#
# Include the main PPTP configuration file
#
# file /etc/ppp/options.pptp
```

17. Please be careful and don't forget to save this file before closing. That's all. Now you are ready to establish the VPN connection using the following command:

sudo /usr/sbin/pptp-command start micex vpn connection

You will see something like this:

Using interface ppp0 Connect: ppp0 <--> /dev/pts/1 local IP address 1.1.1.19 remote IP address 1.1.1.1 Script ?? finished (pid 30023), status = 0x0 Script /etc/ppp/ip-up finished (pid 30032), status = 0x0 Route: add -net 0.0.0.0 gw 1.1.1.1 added Route: add -net 1.1.1.0 netmask 255.255.255.0 gw 1.1.1.1 added All routes added. Tunnel micex vpn connection is active on ppp0. IP Address: 1.1.1.19

18. To stop this connection use the following command:

sudo /usr/sbin/pptp-command stop

19. Important: After the VPN connection is stopped you will need to return the default route rule you had before. Otherwise the next tries to establish the VPN connection will be failed. It's recommended to make a script which will be responsible for the default route rule restoring.

1.4.Troubleshooting

- 1. The VPN connection is established but your application doesn't receive UDP packets (Windows 7)
- 1.1 Open status of your VPN connection and check if the count of 'Received' bytes is continuously growing; If it's not so, ask for help the MOEX support team.
- 1.2 Check firewall settings. Temporary turn off the firewall. If after that all seems ok, turn on firewall again but add the firewall rule:
 - ✓ Open *Windows Firewall→Advanced* settings;
 - ✓ Choose *Inbound Rules* and on the right click *New Rule*:

- ✓ Leave the first page without changes and click *Next*:
- \checkmark On the next page you need to specify path to your program:

👹 New Inbound Rule Wi	zard	×
Program		
Specify the full program path	n and executable name of the program that this rule matches.	
Steps:		
Rule Type	Does this rule apply to all programs or a specific program?	
Program		
Action	All programs	
Profile	Rule applies to all connections on the computer that match other rule properties.	
Name	This program path:	
	Browse	
	Example: c:\path\program.exe %ProgramFiles%\browser\browser.exe	
	Learn more about specifying programs < <u>Back</u> <u>N</u> ext > Cancel	

✓ Leave the pages below without changes:

🔐 New Inbound Rule Wiz	ard	x
Action		
Specify the action to be take	n when a connection matches the conditions specified in the rule.	
Steps:		
Rule Type	What action should be taken when a connection matches the specified conditions?	
Program	Allow the connection Allow the connection	
Action Profile	This includes connections that are protected with IPsec as well as those are not.	
• Frome	Allow the connection if it is secure	
Name	Learn more about actions	
	< <u>B</u> ack <u>N</u> ext > Cancel	

✓ Here you should to specify the name of this rule. E.g. MyApplicationRule.

Mew Inbound Rule Wizard		×
Name		
Specify the name and description of t	this rule.	
Steps:		
Rule Type		
Program		
Action		
Profile	Name:	
Name		
	Description (optional):	
	< Back Finish Cancel	