ESTOS ICE-Test 1.0.0.7 Quick Start Guide

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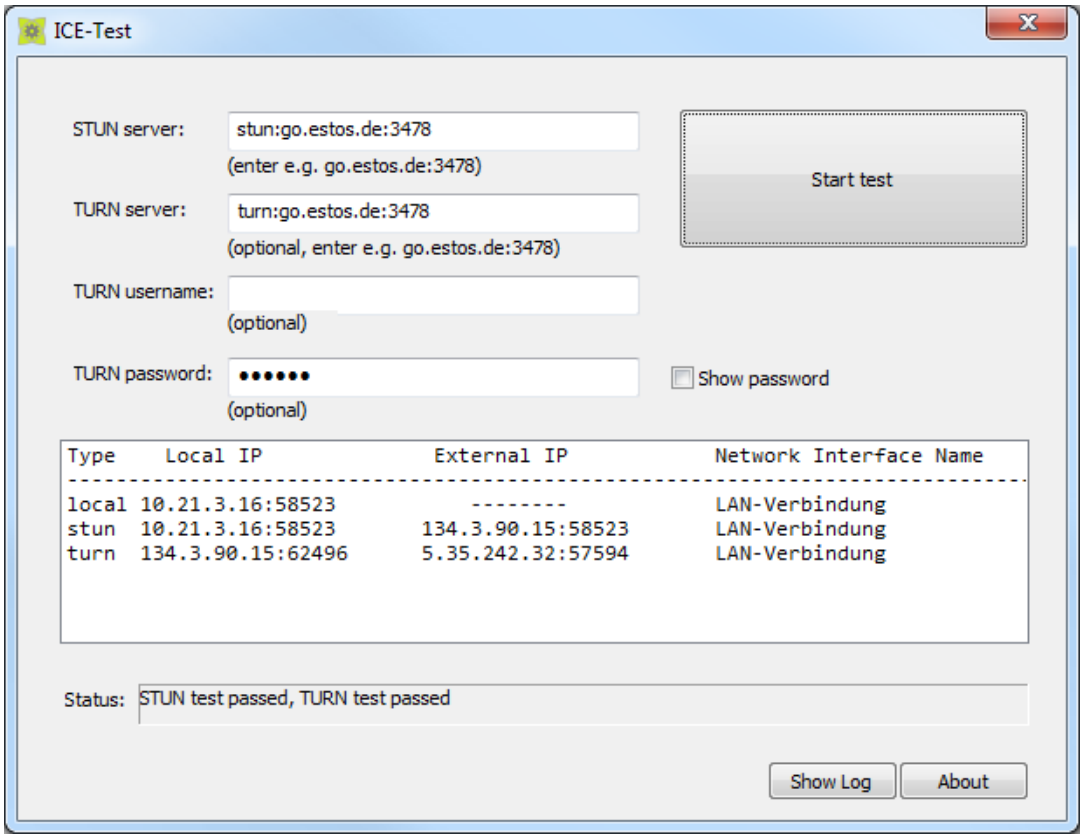
1. ICE-Test program

This software provides basic testing capabilities regarding the availability of TURN and STUN servers located at the internet. The ProCall Enterprise product of ESTOS GmbH offers for example VideoChat capabilities requiring these TURN and STUN servers. The ICE-Test tool helps system administrators to verify the TURN and STUN server availability and settings like the URL, user name and password. For more information regarding ProCall Enterprise please refer to:
http://www.estos.de/produkte/unified-communications/procall5.html



Picture 1: ICE-Test tool user interface

The tool uses the same WebRTC components (see Chapter 2, licenses) than used in the ProCall Enterprise product. Therefore the usage of the tool is not limited to a verification of the TURN/STUN server availability only. It is also very useful for checking the interoperability between the TURN/STUN server and the ProCall Enterprise product. Further, the tool allows a verification of the permeability for TURN/STUN requests of the local internet routers and firewalls (or NAT devices) towards the public internet.

1.1 STUN test

To verify the availability of a STUN server the URL and port number at the “STUN server” field should be entered by the user. If no port number is specified the default value for STUN servers “3478” is used. The STUN server parameters can be entered as URL or as IPv4 address according to the examples listed below:

- `go.estos.de`
  the URL of the STUN server is specified only. The tool completes the data by adding the default port number “3478” and the “stun:” service prefix. By pressing “enter” or clicking the “Start test” button the line is completed to the full format „stun:go.estos.de:3478“.
- „`go.estos.de:3478`“
  the URL and the port number are specified.
- „`stun:go.estos.de:3478`“
  the full format comprising of service prefix, URL and port number is specified.
- „`5.35.242.32`“
  an IPv4 address is specified. By starting the test the line is converted to the full format like „stun:5.35.242.32:3478“.

By pressing “enter” or by clicking the “Start test” button the test begins and the “Status” field shows the progress and the result of the test. The status “ICE gathering in progress” indicates that the STUN (or TURN) server has been addressed and an answer is awaited. Typically this takes a very short period of time. For the case that the STUN server is unreachable the ICE gathering may take up to ten seconds until the test result “STUN test failed” is shown. The tool may show additional information about failure reasons, for example “no answer”. If the STUN server replies an acceptable (e.g. compatible) answer in time the testing result “STUN test passed” is shown. Using the STUN server test is optional. If the STUN and TURN parameters are specified, both test results are displayed at the “Status” line.

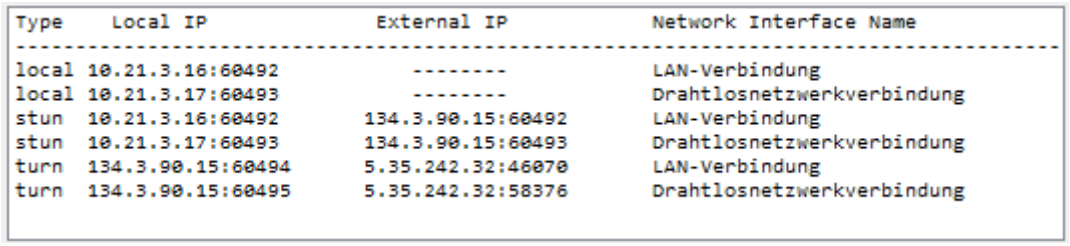
1.2 TURN test

The input and test result presentation of the “TURN server” parameter is according to the description of the STUN test. The TURN server test is optional. If the STUN and TURN parameters are specified, both test results are displayed at the “Status” line. If the service provider of the TURN server provided username and/or password parameters they can be entered at the corresponding optional fields. Note that specifying a password is possible even if no username is used. The “Password” field shows the characters entered as unreadable bold dots. By toggling the “Show password” check mark the password field shows the password characters accordingly.

1.3 Details view text field

A large text field displays additional information about testing result details.

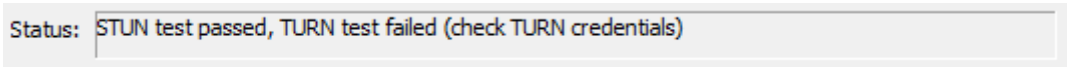
- **Type:** type of data like “local”, “stun” or “turn” data.
- **Local IP:** shows the local (internal) IP address and port number of the test system used (even if no STUN server has been found). With the data type “turn” this parameter specifies the public IP address of the network (or NAT) the TURN server finds towards the test tool.
- **External IP:** with the data type “stun” this parameter specifies the public IP address of the network (or NAT) that the STUN server finds. Data lines of the type “local” don’t provide an “External IP” address. Data lines of the type “turn” show at the column „External IP“ the IP address given by the TURN server as external relay address.
- **Network Interface Name:** each network interface controller (NIC) is represented by a name or number. This can be also simply a “0” for the first NIC followed by a “1” for the next NIC and so on. As an example if a system comprises of a WLAN adapter and a LAN adapter two „local“ IP addresses and also two TURN and STUN entries are provided.



Picture 2: Detail view of the test result at the large status text field

1.4 Status line, testing result

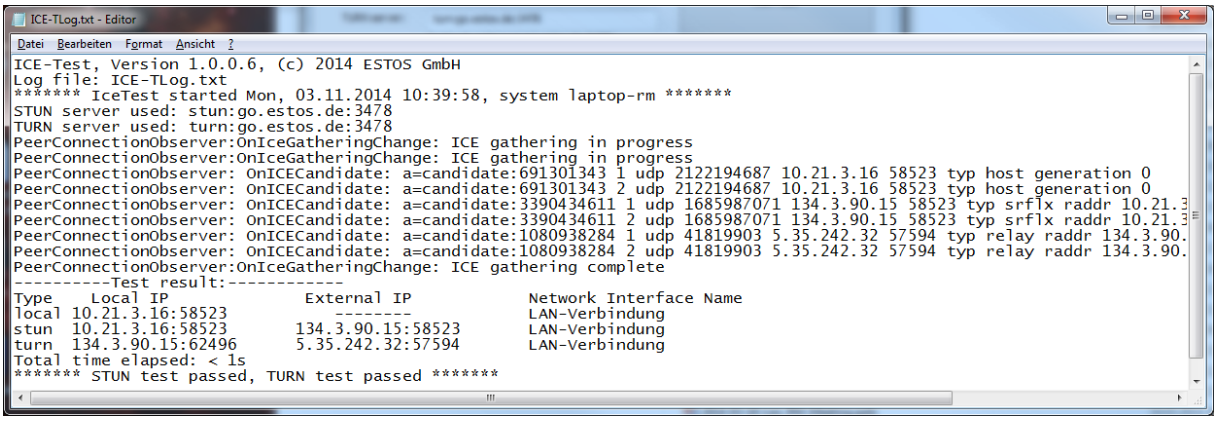
The “Status” line shows the final testing result and information about the testing progress. If the STUN test is started (without TURN parameters specified) only the STUN result is displayed like “STUN test passed”. If TURN and STUN parameters are entered both results are displayed at the “Status” line like “STUN test passed, TURN test passed”. In the case of a failed test additional diagnostics information is displayed if available like “check credentials” (to verify the password entered).



Picture 3: Testing result at the “Status” line

1.5 "Show Log" button

By pressing the "Show log" button a text editor window is opened showing the actual content of the log file "ICE-TLog.txt" (if not specified differently). If the button is pressed after running a STUN and/or TURN test the full progress of the test, the test result and additional diagnostics information (if available) is shown.



Picture 4: Editor window showing the log file

The preferred location of the log file is at the same directory than the test tool resides. If no write access rights for this directory are granted by the system the tool tries opening the log file at the temporary user home directory, for example at "C:\Users\MEIN~USER.NAME\AppData\Local\Temp\ICE-TLog.txt". If the path and file name of the log file is changed due to command line parameters the access path and file name changes accordingly. If no write access rights are granted by the system no log file is created and no log file can be shown.

1.6 Command line parameters and return values

The ICE-Test tool supports a set of command line options for running tests automatically for example called by a script. If TURN and/or STUN parameters are specified per command line the corresponding test is started immediately (without further user invention required). If a specific parameter is given (see below, "autoexit") the tool finishes automatically and an exit code is returned. During the test in command line mode the log file "ICE-Tlog.txt" is written if not specified differently.

1.6.1 Parameters

`[/stunurl […]]` setting of STUN URL and port number,
for example: `/stunurl go.estos.de:3478`

`[/turnurl […]]` setting of TURN URL and port number,
for example: `/turnurl go.estos.de`

`[/turnusr […]]` setting of TURN username,
for example: `/turnusr Myname`

`[/turnpw […]]` setting of TURN Password,
for example: `/turnpw secret`

`[/logfile […]]` setting of log file name and path
for example: `/logfile „C:\Users\MEIN~USER.NAME\AppData\Local\Temp\ICE-TLog.txt "`

`[/autoexit]` finishes the test automatically and returns an exit code

Example:
The ICE-Test tool shall verify the availability of the STUN server at go.estos.de using the STUN port number 19302. Once the test completes the tool shall terminate itself and return an exit code according to the test result:

```
ice-test.exe /stunurl go.estos.de:19302 /autoexit
```

1.6.2 Program exit codes

The program exit code can be utilized by a calling program (for example by using "ERRORLEVEL" running a Windows cmd shell script).

The upper half byte (hexadecimal) represents the return result of the TURN test. The lower half byte represents the return result of the STUN test.

Description	Turn Result	Stun Result
Test not utilized	0x**0**0	0x0**0**
Test passed	0x**1**0	0x0**1**
Test failed, unspecified	0x**2**0	0x0**2**
Test failed, no answer (no response from server)	0x**3**0	0x0**3**
Test failed, check credentials (check password or username)	0x**4**0	n/a
Parameter syntax error	0x**8**0	0x0**8**
No local system IP address found (check cable)	0x0A	
System error (e.g. out of memory)	0x0B	
Input error, unspecified	0x0C	

Table 1: Program exit codes

For example if a combined TURN and STUN test succeeds the program exit code is 0x11 (decimal 17).

1.7 Operating Systems

The ICE-Test tool is tested to work with Windows® 7, Windows® 8.1 and Windows Server® 2012.

2. Licenses

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```
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