SPIRENT INE

1 AND 2 PORT VERSIONS FOR DESKTOP OR LAPTOP INSTALLATIONS

WINDOWS

The technology partnership between Spirent Communications and iTrinegy provides tools and services to enable you to adopt a proven procedure to analyse/predict, test and monitor networked application performance throughout the project lifecycle.

CREATING THE RIGHT NETWORKS CONDITIONS AT THE DESKTOP

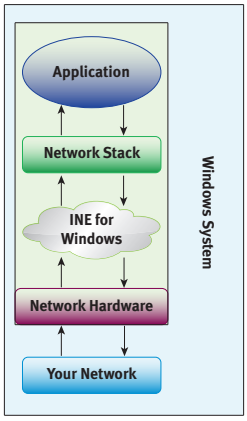
With more and more applications being expected to work over Wide Area Networks (WANs), Wireless LANs, GPRS/3G/LTE/4G and Satellite networks it makes sense to include application function and performance testing in these environments as part of your application development and testing process.

HOW CAN INE FOR WINDOWS HELP ME?

Spirent INE for Windows is aimed at the Professional Developer, Tester or IT Specialist looking for a cost effective, simple to use Network Emulator for testing how their applications perform between individual workstations and servers.

INE for Windows is network emulation software designed to install onto a Windows XP/Vista/7 system and allow some or all of the applications running on that Windows system to "experience" realistic network conditions when accessing the network, rather than the near perfect LAN they're connected to.

Using INE for Windows may be the first step, before a full multi-user test for which the **INE Enterprise** version is recommended.



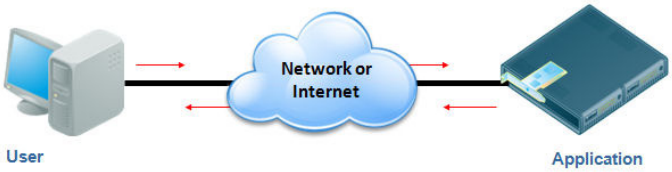
Spirent INE for Windows 1-Port intercepting network communications on a single desktop or laptop

HOW DOES EACH VERSION WORK?

INE for Windows 1-Port runs on your desktop, and when activated, intercepts network communications between the application on your system and the network.

This allows your LAN network, which might be 100 Mbit/s with less than 1ms Delay (Latency) and almost 0% Loss, to behave like a WAN (Wireless, Satellite, or other non-LAN network) with very different parameters. So now when you run your application it's just like running it in that network.

INE for Windows 2-Port software can be installed on a suitably configured dedicated Windows PC, laptop, workstation or server (i.e. with a 2nd network card) in order to convert it into simple-to-use 2 Port inline network emulator.



Spirent INE for Windows 2-port converts your laptop or desktop PC into an online network emulator

WHAT NETWORK CHARACTERISTICS CAN BE CONTROLLED?

INE for Windows allows you to control all the major network parameters that affect application behaviour in networks:

- **Link Speed:** e.g. T1, E1, Modem, (A)DSL, GPRS, 3G, Satellite etc.
- **Available Bandwidth:** How much of the link the application can use.
- **Delay (Latency):** How long the network packets take to reach their destination e.g. inter city, nationally, internationally or over wireless networks like GPRS, 3G or WiMAX.
- **Jitter:** How much variation there is in the delay, which can have a profound effect on applications like VoIP, and live Video over IP etc.
- **Loss:** How much data is lost by the network, for example in wireless networks and some types of WAN data, losses may be as high as 10% or even more.

SYMMETRY & ASYMMETRY

All of the above parameters are controllable asymmetrically as well as symmetrically i.e. you can have separate values for data leaving the Windows system compared to data arriving at the Windows system.

HOW EASY IS INE FOR WINDOWS TO USE?

INE for Windows has been designed with speed and ease of use in mind.

From the main control interface it is a simple process to make changes to Bandwidth, Delay (Latency) and Packet Loss. Simply set the appropriate slider to the required setting, click update and you are ready to see how your application will perform in the new network environment.

CAN I SAVE MY NETWORK SETTINGS?

Yes, INE for Windows can store your current settings as a Network Scenario File for subsequent reuse.

BUT WHAT IF I DON'T KNOW WHICH SETTINGS TO USE IN THE FIRST PLACE?

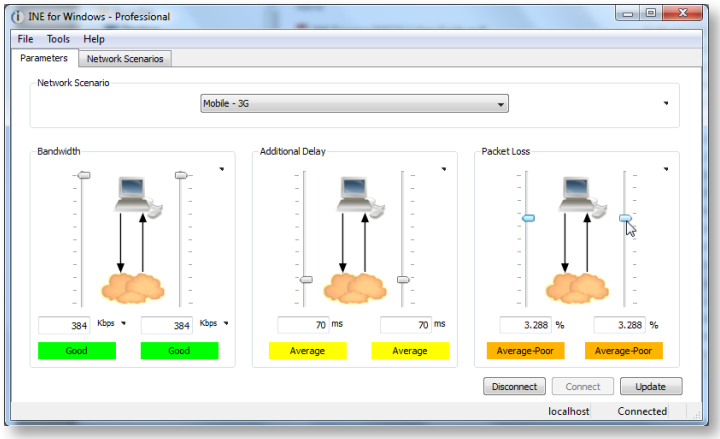
If you are not sure which network settings to apply you can download predefined network scenarios from the networks scenario repository.

Alternatively, a network specialist within your organisation could create and save suitable scenarios as Network Scenario files

Another option is to use a product like the INE Network Profiler which can record (and replay) traffic going across your network and then create a network scenario based on this data.

WILL INE FOR WINDOWS AFFECT ALL NETWORK COMMUNICATION TO AND FROM MY DESKTOP?

No, you can specify which IP Address Ranges, Ports and IP Protocols will be subject to being controlled by INE for Windows. This is very important when wishing to avoid, for example, impeding traffic to your MS Exchange e-mail server as this would harm your normal work but would have no relevance to the application being developed or tested.



The Spirent INE for Windows Control Interface is easy to use

IS INE FOR WINDOWS A SINGLE-USER ONLY NETWORK EMULATOR?

No, INE for Windows can be deployed in single user or multi-user situations:

Single User: When installed on a client system, INE for Windows can be thought of as a Personal Network Emulator controlling the network traffic between your system and other systems (servers) in the network.

Multiple User: INE for Windows can be installed onto multiple Windows systems within an organisation, allowing multiple developers and testers to use the product simultaneously and independently of each other while sharing predefined network scenarios from the INE Network Scenario Server.

This also allows simultaneous tests of an application from multiple locations, by utilising separate Windows Client machines with different network control parameters set for each one e.g. one setup for London to Washington and another for San Francisco to Washington. INE for Windows can also be installed onto a server, allowing a shared network experience.

THE INE PRODUCT RANGE

INE for Windows Product Range

- INE for Windows 1 Port
- INE for Windows 2 Ports

INE for Windows is part of Spirent's comprehensive range of INE network emulator products designed to suit the needs of Application Developers, QA and Test Specialists, Network Professionals, IT Purchasers and Infrastructure Architects.

The range includes:

INE Enterprise – A high-end, multi-site, multi-path, multi-user network emulator

INE Ultra – High speed, high volume network emulation for large scale testing

SPECIFICATIONS			
INE Feature Description	**INE Windows**	**INE Enterprise**	**INE Ultra**
NETWORKING INTERFACES			
10/100/GigE Copper (RJ45) Ports	2	22	22
GigE Fibre (Multi-mode SFP, LC connector)	2	22	22
10 GigE Copper	0	0	4
10 GigE Fibre (Multi-mode SFP, LC connector)	0	0	4
BANDWIDTH EMULATION			
0.1 Kbps to 10 Mbps (including T1/E1, T3 rates)	Yes	Yes	Yes
10 Mbps to 1 Gbps (including OC3/12, STM1/4 rates)	No	Yes	Yes
1 Gbps to 10 Gbps (including OC48/192, STM16/64 rates)	No	No	Yes
Auto Classification	No	No	80000
Symmetrical and Asymmetrical Bandwidth	Yes	Yes	Yes
Dynamic Mobile Bandwidth (2.5G/3G/WiFi/WiMax)	Yes	Yes	Yes
Background Traffic Emulation	Yes	Yes	Yes
Dynamic Production Network Bandwidth Utilization Record/Playback (INE Network Profiler)	Yes	Yes	Yes
Number of SubNets per Port	0	Unlimited	Unlimited
Selective Traffic Passthrough	Yes	Yes	Yes
Routes per Virtual Interface (VI)	0	Unlimited	Unlimited
Packet Shaping	No	Yes	Yes
Switch/Router Queue Emulation	No	Yes	Yes
Packet Processing Performance (varies based on WAN Model Complexity)	10 Mbps	20 Gbps	›30 Gbps
OPERATING MODES			
Tunnel Mode, Bridge Mode, Routing Mode, Passthrough	Yes	Yes	Yes
Routing Mode	Yes	Yes	Yes
VLAN Switching/Trunking	No	Yes	Yes

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SPECIFICATIONS (CONTINUED)			
INE Feature Description	INE Windows	INE Enterprise	INE Ultra
LATENCY OPTIONS			
Fixed, Uniform Distribution/Jitter	Yes	Yes	Yes
WAN Latency Playback (using INE Network Profiler)	Yes	Yes	Yes
PACKET LOSS OPTIONS			
Periodic Loss, Random Loss, Burst Loss, Congestion	Yes	Yes	Yes
WAN Packet Loss Playback (using INE Network Profiler)	Yes	Yes	Yes
PHYSICAL ERROR OPTIONS			
Bit Errors	No	Yes	Yes
Link Faults (e.g. Routing Protocol Fail Over)	No	Yes	Yes
DYNAMIC PACKET EFFECTS			
Out–of–Order Packets, Duplicate Packets, IP Fragmentation, TTL Effects	No	Yes	Yes
NETWORKING FEATURES			
Traffic Filtering	Yes	Yes	Yes
Multicast/Broadcast Emulation	No	Yes	Yes
MAC/VLAN/MPLS-based WAN Emulation	No	Yes	Yes
User–configurable Bit Pattern Match–based WAN Emulation	No	Call	Call
IPv6	Call	Yes	Yes
IPv4	Yes	Yes	Yes
Dynamic Backup Routes based on Link Failure or Link Utilization Level	Call	Yes	Yes
Dynamic Path Selection (Probability, Time, Filter)	No	Yes	Yes
Multipoint Internet User Class Simulation	No	Yes	Yes
QoS Emulation	No	Yes	Yes
Deterministic Packet Erroring	Call	Call	Call
Real-time Packet Modification	No	Call	Call
Built-in Packet Capture Buffers	No	Yes	Yes
Load Tool & Test Automation Tool Integration	Call	Yes	Yes
Integration with Spirent Automation	Call	Yes	Yes
Virtual Interfaces	2	440	Unlimited
MANAGEMENT			
Console, Serial, Ethernet, Web GUI	No	Yes	Yes
Native Windows GUI	Yes	Yes	Yes
Advanced Multi-User Emulation Testing	No	Yes	Yes
Appliance Capacity Monitoring	Yes	Yes	Yes
Dynamically Configurable Parameters	Yes	Yes	Yes
Scenario Server	Yes	Yes	Yes

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