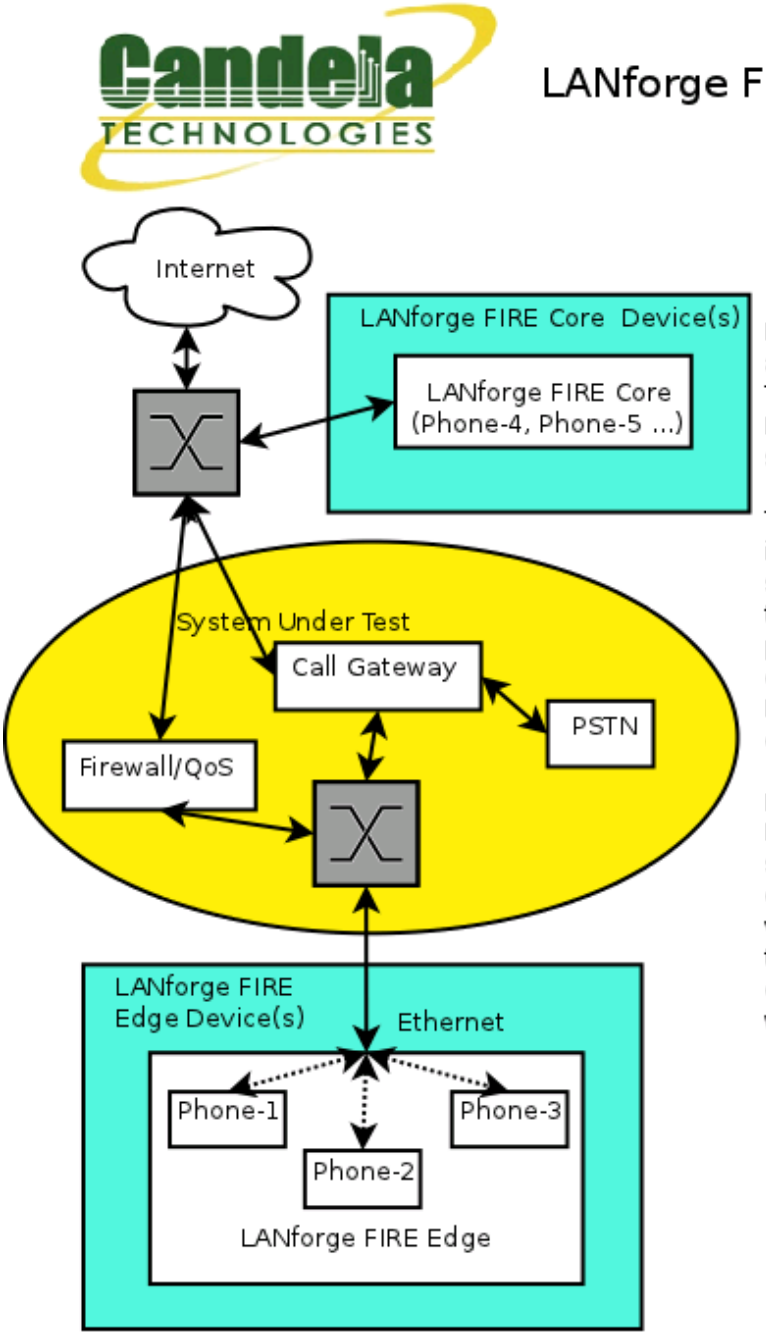
CT506 LANforge-FIRE VoIP Call Generator

The CT506 supports SIP VOIP call support, including RTP data-stream generation. It can make 140 calls to itself (280 VoIP soft phones) per chassis. The CT506 is excellent for testing whether or not an existing infrastructure can handle increased VoIP call load, and can also be used to test SIP gateways and other infrastructure. The CT506 uses the MAC-VLAN feature in the Candela Linux kernel to allow one virtual interface per phone, so each phone can use a unique IP address and use standard SIP protocol ports. Normal LANforge FIRE traffic generation features (Ethernet, UDP, TCP, HTTP, etc) is also supported by the CT506 at no additional charge.

The CT506 1U rackmount chassis fits into a standard rack and is only 14 inches deep. It supports standard VGA, Keyboard, and Mouse interfaces for easy console/desktop access to the system. The rackmount chassis is relatively noisy, so it is better for a data center deployment than a desktop environment. Other form factors better suited for traveling or desktop use are also available at similar prices and performance. Multiple LANforge systems can be clustered together into a single managed realm for increased call capacity. No additional hardware or software is required, but you may wish to manage the system using the LANforge-GUI on a separate machine.

NOTE: This product may have a different hardware configuration than the system pictured above.
Refer to your official quote for details.

Example Network Diagram



LANforge FIRE supports multiple Ethernet and Virtual interfaces. To the System Under Test, it appears as if each interface is a separate PC or network appliance generating independent stateful traffic streams.

Thousands of 802.1Q and MAC-VLAN virtual interfaces are supported. LANforge can send traffic between any two interfaces, including two interfaces on the same machine. Each physical and virtual interface can be configured on the same, or on different IP subnets. Each interface has its own IP-Port space, so each call can be on the standard ports (5060 for SIP).

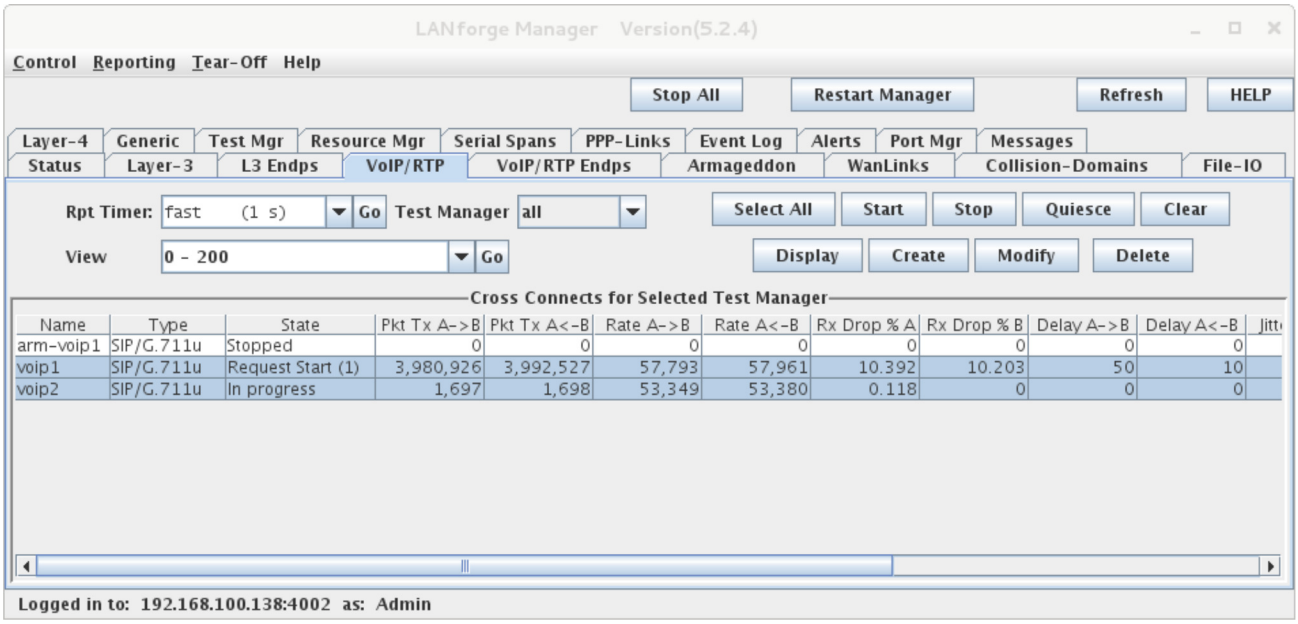
In the configuration on the left, the LANforge FIRE Core can be one interface and act as one side of the call. The LANforge FIRE Edge can be other interfaces on the same system. It is also valid to use multiple LANforge systems configured to act as a single realm. Using multiple systems can increase total capacity and is necessary when endpoints are physically far apart.

Quick Start Guide

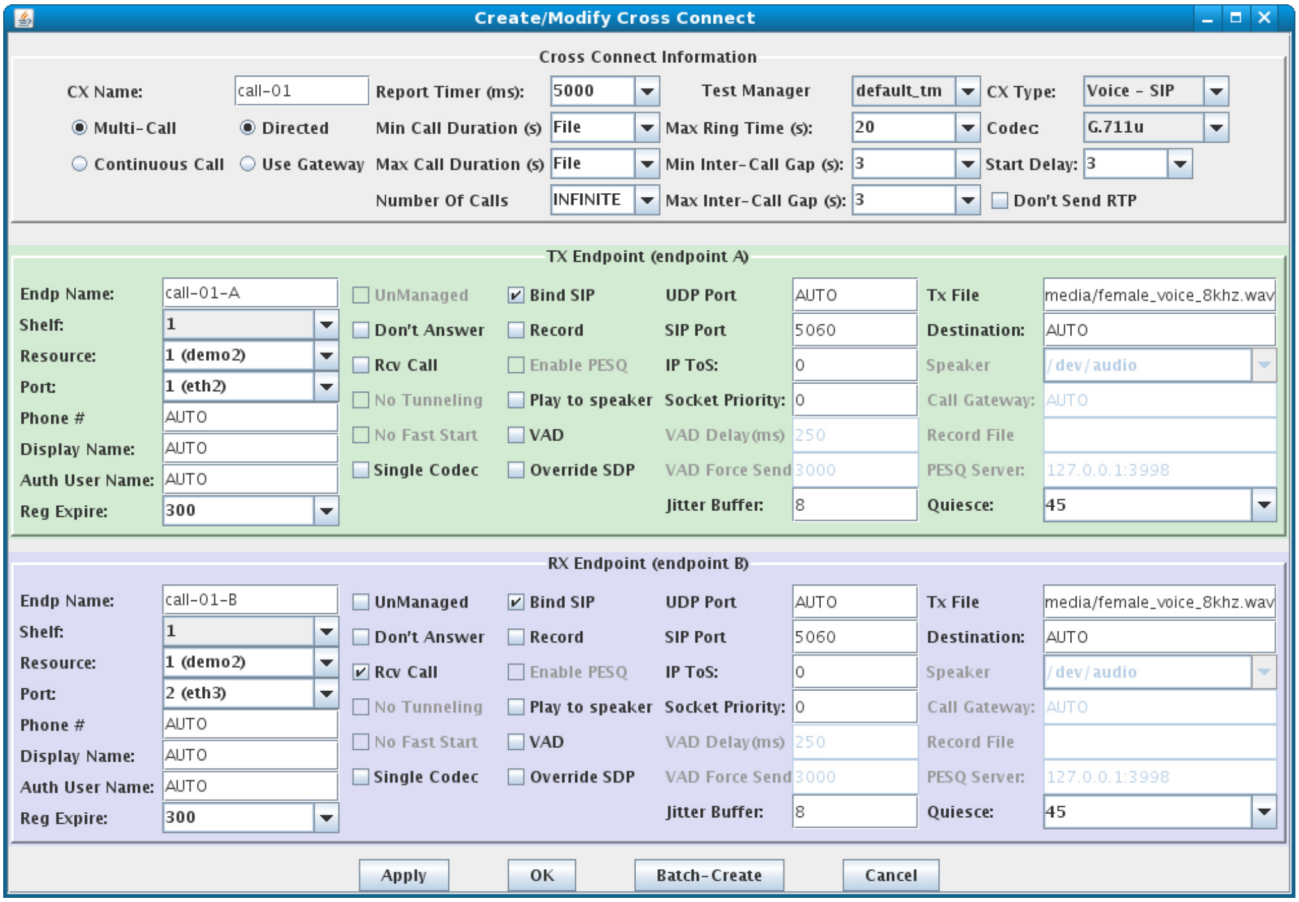
1. Connect Management ethernet port to Management network or management PC. If connecting directly to a PC, an ethernet cross-over cable should be used. Or, connect VGA, Keyboard, and Mouse to the chassis and manage it locally.
2. Connect one traffic generating port to the downstream side of the device under test. This usually is considered the 'client' side of the network and will host most of the virtual interfaces.
3. Connect second traffic generating port to the upstream side of the device under test. Virtual interfaces may also be added here in order to emulate multiple servers.
4. Connect power plug to a standard US or European AC power source.
5. If managing remotely, install the LANforge-GUI on a separate management PC or Laptop. Windows and Linux GUIs are supported: Select the correct one from the CDROM or Candela Technologies Download page and install it.
6. The CT506 should now boot. If DHCP is enabled on the Management network, the CT506 will automatically acquire an IP address. If DHCP is not available, the IP address will be set to 192.168.1.101 by the LANforge scripts.
7. Start the LANforge-GUI on the management PC, or the CT506 server if managing locally, and click the 'Discover' button. It should find the CT506 appliance and add the IP address to the drop-down box in the Connect widget. Press 'Connect' and you will be connected to the CT506.
8. Select the Layer 3, VOIP/RTP, Layer 4 and other LANforge FIRE related tabs in the GUI to see existing traffic connections and to modify them or add new ones. You can also view a real-time report of the test with the 'Display' button for some traffic types. Any modifications take place immediately after you click 'Submit'.

LANforge-FIRE VoIP Call Generator Related Shots

VoIP/RTP Connections



VoIP Create/Modify Screen



Software Features

LANforge VoIP/RTP Call Generator Feature Highlights.

- SIP protocol used for call management.
  - SIP over UDP is supported on both Windows and Linux.
  - Can use directed mode, where VoIP phones call directly to themselves.
  - Can also use Gateway mode where the VoIP phones register with a SIP gateway.
  - SIP authentication is supported.
- RTP protocol used for streaming media transport, and supports the following CODECS. More codecs may be supported in the future.
  - G.711u: 64 kbps data stream, 50 packets per second.
  - Speex: 16 kbps data stream, 50 packets per second, www.speex.org (Linux ONLY).
  - G.726-16: 16 kbps data stream, 50 packets per second.
  - G.726-24: 24 kbps data stream, 50 packets per second.
  - G.726-32: 32 kbps data stream, 50 packets per second.
  - G.726-40: 40 kbps data stream, 50 packets per second.
  - G.729a: 8 kbps data stream, 50 packets per second.
  - NONE: A messaging-only configuration is supported.
- Supports PESQ automated voice quality testing.
- RTCP protocol used for streaming media statistics (SIP only).
- Each LANforge VoIP/RTP endpoint can play from a wav file and record to a separate wav file. Almost any sound file can be converted to the correct wav file format with tools bundled with LANforge. Sample voice files are included.
- Current benchmarks show support for 280 or more emulated VoIP phones per high-end machine.
- LANforge VoIP/RTP endpoints can call other LANforge endpoints or third party SIP phones like Cisco and Grandstream. Third party phones can also call LANforge endpoints and hear the WAV file being played.

LANforge VoIP/RTP Call Generator Feature Highlights.

- Supports real-world protocols:
  - Layer 2: Raw-Ethernet.
  - 802.1Q VLANs.
  - PPPoE: Integrated PPPoE support.
  - Layer 3: IPv4, IPv6, UDP/IP, IGMP Multicast UDP, TCP/IP.
  - Layer 4: FTP, HTTP, HTTPS, TFTP, SFTP, SCP
  - Layer 4: VOIP Call Generator (SIP, RTP, RTCP).
  - Layer 4: TELNET, PING, DNS, SMTP, NMAP (via add-on script).
  - File-IO: NFSv3, NFSv4, CIFS, iSCSI.
- Supports up to 1000 concurrent TCP connections with base license package.
- The CT506 is able to support 140 calls and 1Gbps or more of regular network traffic, depending on protocol mix and speed of the network under test. The portable chassis configurations may run at different speeds than the 1U rackmount systems.
- Hardware supports over 30,000 TCP connections on a single machine, but base license package includes 1000 licenses. Contact sales for additional licenses.
- Supports real-world compliance with ARP protocol.
- Supports ToS (QoS) settings for TCP/IP and UDP/IP connections.
- Uses publicly available Linux and Windows network stacks for increased standards compliance.
- Utilizes libcurl for FTP, HTTP and HTTPS (SSL), TFTP and SCP protocols.
- Supports file system test endpoints (NFS, CIFS, and iSCSI file systems, too!). File system mounts can use the virtual interface feature for advanced testing of file server applications.
- Supports custom command-line programs, such as telnet, SMTP, and ping.
- Comprehensive traffic reports include: Packet Transmit Rate, Packet Receive Rate, Packet Drop %, Transmit Bytes, Receive Bytes, Latency, Jitter, various Ethernet driver level counters, and much more.
- Supports generation of reports that are ready to be imported into your favorite spread-sheet.
- Allows packet sniffing and network protocol decoding with the integrated Wireshark protocol sniffer.
- GUI runs as Java application on Linux, Solaris and Microsoft Operating Systems (among others).
- GUI can run remotely, even over low-bandwidth links to accommodate the needs of the users.
- Central management application can manage multiple units, tests, and testers simultaneously.
- Includes easy built-in scripting for iterating through rates and packet sizes, with automated reporting. Also supports scriptable command line interface (telnet) which can be used to automate test scenarios. Perl libraries and example scripts are provided!
- Automatic discovery of LANforge data generators simplifies configuration of LANforge test equipment.
- LANforge traffic generation/management software is supported on Linux, Solaris and MS Windows.

Hardware Specification

- High-End Intel Multi-Core 1U rackmount server.
- Operating System: Fedora 64-bit Linux with customized Linux kernel.
- 4 built-in 10/100/1000 Ethernet interfaces, one of which should be used for management.
- 1 IPMI port.
- High-availability Ethernet hardware bypass option available.
- One Quad-Core Intel E3 v2 processor, 3.6+Ghz
- 1 PCIe x16 slot (2-6 port 10/100/1000, 1-2 port 10G fibre, etc)
- 8 GB or more RAM.
- 40 GB or larger Hard Drive.
- Solid State Drive option available.
- Standard US or European power supply (automatically detects EU v/s US power).
- Weight: 18 lbs or 8.2 kg.
- Dimensions: 17 x 14 x 1.75 inches (14-inch deep 1U rackmount server) Metric: 432 x 356 x 44 mm.
- Power Supply: Fixed 350W AC
- Estimated Power Usage: 1.4 Amps @ 120VAC under load, 0.7 Amps idle.
- ROHS compliant.

List Price: $42,395 List Price with 1 Year support: $49,602

Additional Feature Upgrades

Unless otherwise noted in the product description, these features usually cost extra:

- WanPaths (LANforge-ICE feature set)
- Virtual Interfaces: MAC-VLANs, 802.1Q VLANs, WiFi stations, etc
- FIRE Connections: Base FIRE license includes 1000 active connections.
- LANforge-ICE Network Emulation.
- VOIP: Each concurrent call over the included package requires a license.
- Armageddon: Each pair of ports requires a license if not already included.

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