Valkyrie2544 (v2.17)
A STEP-BY-STEP GUIDE
AGENDA

- Add Chassis
- Add/Configure Port/s
- Protocol Segment Profiles
- Test Configuration
- Multi-Stream configuration
- Reporting
- CLI Option (RFC2544 Automated)
Click the “Add Chassis” button.
ADD CHASSIS

Enter the IP of the Management port under “Chassis Address:”
Use “xena” as default “Chassis Password”.

![Add Chassis Interface Panel](image)
ADD PORT(S)

1. Choose the Port(s) you need to use:

2. On selected ports + on “Reserve Used Ports”
CONFgURE PORT(S)

Choose the Port/s you need to configure:
### Port Addressing

<table>
<thead>
<tr>
<th>Column</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port Name</td>
<td>The name (ID and type) of the port.</td>
</tr>
<tr>
<td>Port Speed</td>
<td>The physical port speed to use in the test. Normally this should be left at the default AUTO value, but certain DUTs require that the port speed is fixed to a specific rate.</td>
</tr>
<tr>
<td>IP Address</td>
<td>The IP address that you want to use for the port. (*)</td>
</tr>
<tr>
<td>Prefix</td>
<td>The decimal network prefix for the address. (*)</td>
</tr>
<tr>
<td>Gateway Address</td>
<td>The gateway address for the assigned IP address. This field may be left empty if the ports are located on the same IP subnet. (*)</td>
</tr>
<tr>
<td>Protocol Segment Profile</td>
<td>The protocol segment profile to use for this port. Profiles can be created, edited and deleted in the separate Protocol Segment Profiles panel.</td>
</tr>
</tbody>
</table>

(*) Requires a protocol segment profile with an IP header
2 Physical Port Properties
   Inter-Frame Gap
   - Set to 20 -> 12B (Minimum allowed by Ethernet at 100% load)
   - (12+8B Preamble equals 20B)
   - can be set to 16B to achieve >100% load for port pressure testing
     * Values range between 16B-20B

   Adjust PPM
   Specifies an optional speed reduction on the transmit side of the port,
   expressed as a ppm value.

   Enable PAUSE mode
   - This means enable Flow Control on this port

   Enable FEC
   - This means enable FEC on this port – if supported by the port

   Latency offset
   - Used to automatically eliminate transceiver + cable latency.

3 Rate Cap Type:
   Specifies whether to override the physical port speed
   with the custom speed specified below.

4 Enable/Disable Auto Negotiation.
CONFIGURE PORT(S)

<table>
<thead>
<tr>
<th>Port Name</th>
<th>Port Speed</th>
<th>Lat Off</th>
<th>IP Address</th>
<th>Prefix</th>
<th>Gateway Address</th>
<th>Protocol Segment Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-C-1-0 (10GBASE-T)</td>
<td>AUTO</td>
<td>0</td>
<td>0.0.0.0</td>
<td>24</td>
<td>0.0.0.0</td>
<td>1. Ethernet</td>
</tr>
<tr>
<td>P-C-1-1 (10GBASE-T)</td>
<td>AUTO</td>
<td>0</td>
<td>0.0.0.0</td>
<td>24</td>
<td>0.0.0.0</td>
<td>1. Ethernet</td>
</tr>
</tbody>
</table>

**Main Port Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Address Properties</td>
<td></td>
</tr>
<tr>
<td>Public IP Address</td>
<td></td>
</tr>
<tr>
<td>Public IP Prefix</td>
<td>24</td>
</tr>
<tr>
<td>Remote Loop IP Address</td>
<td></td>
</tr>
<tr>
<td>Remote Loop MAC Address</td>
<td>00:00:00:00:00:00</td>
</tr>
</tbody>
</table>

**Address Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway Address</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>Protocol Segment Profile</td>
<td>1. Ethernet</td>
</tr>
</tbody>
</table>
## CONFIGURE PORT(S)

### 5 Public Address

<table>
<thead>
<tr>
<th>Property</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public IP Address:</strong></td>
<td>If a port is located behind a NAT firewall/router it may be necessary to provide the public IP address offered by the NAT firewall/router. The Valkyrie2544-2G will then perform an ARP request for the public IP address before starting the test, to avoid packet loss due to an initial ARP phase. The real (internal) IP address of the port must still be configured in the main port grid as it may be used to send Gratuitous ARP packets from the port to the router before the test starts.</td>
</tr>
<tr>
<td><strong>Public IP Prefix:</strong></td>
<td>The network prefix value for the public IP address.</td>
</tr>
</tbody>
</table>

### Remote Loop Address

<table>
<thead>
<tr>
<th>Remote Loop IP Address:</th>
<th>When a port with layer-3 protocol segments (IPv4/IPv6) has been configured as a looped port you must specify the IP address of the remote port so the Xena tester can perform an ARP request for the MAC address.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Loop MAC Address:</td>
<td>When a port with pure layer-2 protocol segments (Ethernet + optional VLAN) has been configured as a looped port you must specify the MAC address of the remote loop port to avoid excessive flooding.</td>
</tr>
</tbody>
</table>
2. Select the new Profile.
3. Click “Add” to add additional headers.
4. Choose Segment.
5. Click “OK”.

![PROTOCOL SEGMENT PROFILES](image)
Available Profiles List
The list-view at the top show all defined profiles.

Managing Profiles
You can create and delete profiles to match the need of the current test scenario.
To create a new profile press the Add Profile button.
To delete a profile select it in the list view and press the Remove Profile button.

Default Profiles
When you create a new Valkyrie2544 configuration it will be populated with a number of default profiles.
You can however freely modify and even delete one or more of the default profiles.

Profile Editor
You can edit each profile by selecting it in the top list-view and using the tree-view control below.
Add and Remove Segment Headers

To add a new segment header press the Add button in the Segments section to the right.
You will then be presented with a dialog listing all built-in segment types from which you can select one or more types to be included.
If you want to use a segment not currently supported by Valkyrie2544 you can add a raw segment and specify the length in bytes.
You can then afterwards edit the values in the resulting segment using the hex editor at the bottom.

Editing Field Values

The segment editor provides a tree-view similar to the one found in the Wireshark protocol analyzer.
You can thus expand each segment branch to view and optionally modify the various field values.
Each field title is preceded with a small icon indicating the type of field value (decimal, hexadecimal, binary or IPv4/IPv6 address).
MAC and IP Addresses

The address fields in the Ethernet and IP section headers will usually be overridden by the Valkyrie2544 when the test-streams are created:

- The **Source MAC (SMAC) address field** in the first Ethernet segment will be set to the MAC address of the source port.
- The **Destination MAC (DMAC) address field** in the first Ethernet segment will be set to the MAC address of the destination port.

If an IP segment has been defined and a gateway IP address is defined for a source port, Valkyrie2544 will still attempt to resolve the MAC address of the gateway using ARP or NDP and will then use this MAC address as the DMAC.

The IP Source/Destination Address fields in the IP segment header will be set to the values configured on the ports.

This replacement will only be performed if you leave the fields at their default (all-zeros) value. If you specify anything else this value will be used instead.
TEST CONFIGURATION

Topology and Frame Content

1. Overall Test Topology
   - Topology: Pairs, Blocks, Mesh
   - Direction: East -> West, West -> East, Bidirectional

2. Frame Sizes
   - Fixed Sizes Per Trial
     - IETF Default: 64, 128, 256, 512, 1024, 1280, 1518
     - Custom Sizes: 512
   - Varying Sizes Per Trial
     - Incrementing: Min. size: 64, Max. size: 1500
     - Butterfly Sizes
     - Random Sizes
     - Mixed Sizes: Configure
   - Size Range
     - Start size: 100, End size: 1500, Step size: 100

3. Frame Test Payload
   - Use Micro-TPLD if needed: False
   - Payload Type: Incrementing
   - Pattern: [blank]
TEST CONFIGURATION

Topology and Frame Content

Pairs
- Each port in the definition is paired with another port.
- Traffic will only flow between defined pairs.
- This requires the definition to have an even number of ports.

Blocks
- The ports are divided into two groups, EAST and WEST.
- Each member of one group will then send traffic to every member of the other group, depending on the Direction setting.

Mesh
- Represents a true multipoint topology.
- Every port sends traffic to all other ports in the definition.
- A Mesh is by nature always bidirectional.
## TEST CONFIGURATION

### Topology and Frame Content

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
</table>
| **East -> West** | Marks a unidirectional traffic pattern.  
                    | ports in the EAST group will transmit data.  
                    | Only ports in the WEST group will receive data. |
| **West -> East**  | Marks a unidirectional traffic pattern.  
                    | Only ports in the WEST group will transmit data.  
                    | Only ports in the EAST group will receive data. |
| **Bidirectional** | The traffic flows both ways.  
                    | Each port will both transmit and receive data. |
IETF Default:
The default setting is to use the IEEE standard frame sizes: 64, 128, 256, 512, 1024, 1280 and 1518 bytes.

The following options are also available:

Custom Sizes:
Lets you specify a comma-separated list of values. This is e.g. useful if you only want to test using one or two packet sizes

Size Range:
Lets you specify a range of packet sizes and the steps.

Incrementing Sizes:
Lets you specify a Min and Max size – the sizes: Min, Min+1, Min+2, ..., Max.

Butterfly Sizes:
Lets you specify a Min and Max size – the sizes: Min, Max, Min+1, Max-1, Min+2, Max-2, ...

Random Sizes:
Lets you specify a Min and Max size – The sizes will vary among Min – Max randomly.
**Topography and Frame Content**

2. **Mixed Sizes:**

   The Xena tester will use a more or less random mix of packet sizes when sending traffic.

   ![Mixed Weights Configuration](image)

   *Note that the use of this option will introduce a slight inaccuracy when calculating various results, as the packet sizes are not deterministic. A weighted average will be used.*
Topoigrapy and Frame Content

Frame Test Payload:

Use Micro TPLD if Needed:
When using regular TPLD 20B shall be used.
*This means for ETH+IP+UDP(+TPLD)+FCS = 14+20+8(+20)+4 = 66
With Micro TPLD the TPLD size to 6B.

Payload Type:

Pattern mean you can set your own custom pattern:

Incrementing means “000102030405...FF00010203...” provides built-in data integrity check for payload.

PRBS provides Pseudo Random Bit Sequence of 2^31-1 pattern
No data integrity with adding Payload checksum in port properties.
TEST CONFIGURATION

Test Execution Control

1. Flow Creation
   - Stream-based
   - TID Alloc. Scope: Configuration Scope
   - MAC Base Address: 04 F4 BC

2. Port Scheduling
   - Speed Reduction Sweep: unchecked
   - Use Port Sync Start: checked
   - Port Stagger Steps: 0
   - Resulting Delta: 0

3. MAC Learning Options
   - MAC Learning Mode: Every Trial
   - Learning Frame Count: 1 frames
   - Toggle Port Sync: checked
   - Sync Off Period: 1 seconds
   - Delay After Sync On: 1 seconds

4. ARP/NDP Learning Options
   - Learning Rate: 1.00 percent
   - Learning Duration: 5 seconds
   - Enable Refresh: checked
   - Refresh Period: 4.00 seconds
   - GW MAC as DMAC: checked

5. Flow-Based Learning Options
   - Use Flow-Based Learning Preamble: unchecked
   - Learning Frame Count: 1 frames
   - Delay After Preamble: 500 msecs

6. Reset and Error Handling
   - Stop on LOS: checked
   - Delay After Reset: 5 seconds
1) **Flow Creation:**
This property determines how test flows between ports are created.

The default **Stream-based** setting will use one Xena stream for each flow from one port to another.

This enables fine-grained per-port statistics and also lets you specify field modifiers for various protocol fields. But as the number of streams that can be created on each test port is limited this will limit the total number of test ports in your configuration.

If you encounter this limitation in a Layer-2 test you can select the **Modifier-based** option instead. In this mode Valkyrie2544-2G will use a single stream for all flows from one port instead of one stream for every flow between two ports.

*This option will however force Valkyrie2544 to override the native port MAC addresses.
The user can specify the 3 upper bytes of the MAC address using the **MAC Base Address** option but the lower part of the address will be assigned sequentially.*
Test Execution Control

2 Port Scheduling:

The Speed Reduction Sweep property assigns a small speed reduction value to each port on a test module, so they get a different value. This property is available for Blocks and Mesh topologies.

Check Use Port Sync. Start to get ports started as simultaneously as possible. You can also have Port Stagger Steps (1 Step = 64 microseconds). Resulting Delta is Port Stagger Steps * 64 microseconds.
Test Execution Control

3 MAC Learning Options:

The **MAC Learning Mode** property can be used to instruct the testers to emit initial MAC learning packets in order for any network switches to learn the MAC addresses of the ports and avoid excessive flooding of packets.

You can specify if you want MAC learning to be performed either at the start of every trial (the default), once when the test starts or not at all.

You can also specify how many time each learning packet will be repeated every time with the **Learning Frame Count** option.

If the **Toggle Sync State** property is checked the sync state for all selected ports will be toggled off and on at the start of each test trial. This may ensure that the DUTs MAC-tables are cleared at the start of each test. The **Sync Off Period** is the number of seconds to keep the port sync state off. **Delay after Sync On** is waiting time in seconds after Sync On before next action.
ARP/NDP Learning Options:

These options control how the Xena tester advertises the IP addresses configured for its ports. The tester will use ARP for IPv4 and NDP for IPv6.

The Learning Rate defines the percentage of the configured port rate that is used for the initial L3 learning traffic. The Learning Duration is the number of seconds the initial L3 learning traffic should run.

If the Enable Refresh checkbox is checked the tester will periodically emit ARP requests (for IPv4) or Neighbor Advertisement requests (for IPv6). The period can be set using the Refresh Period field. This will prevent the ARP/NDP caches in the attached router from timing out during long test period thus causing a packet loss.

If the test uses multiple ports and/or you have used modifiers to emulate multiple IP address on one port, the number of periodic refresh requests may be large. The tester will retransmit all refresh requests within the specified period, but it will not send them all in one batch. The tester will distribute the necessary requests evenly over the specified period.
Flow-Based Learning:

Some DUT`s have learning curve for new flows to eliminate the initial latency spikes

Check **Use Flow-Based Learning Preamble** to send a few frames as a learning preamble using the full header segment configuration before the actual test starts.

**Learning Frame Count** is the number of frames to be sent in the preamble.

**Delay After Preamble** is the delay in milliseconds between the preamble and the start of the actual test traffic.
Reset and Error Handling:

If **Stop on LOS** is enabled the actual test will be aborted if the port loses the SYNC state during the test.

At the start of a test Valkyrie2544 will reset all selected ports to ensure that they are in a well-defined state. **Delay After Reset** is the number of seconds to wait after resting the ports before the next action is executed.
TEST CONFIGURATION

Test Types Configuration - Throughput

Throughput Test Options
- Common Options
  - Duration Type: Time
  - Duration: 1 Second
  - Iterations: 1

Pass Criteria
- Use Pass Threshold: False
- Pass Threshold: 0.0000 percent
- Acceptable Loss: 0.0000 percent

Rate Iteration Options
- Initial Rate: 100.000 percent
- Minimum Rate: 0.100 percent
- Maximum Rate: 100.000 percent
- Resolution Rate: 0.500 percent
- Rate Result Scope: Common Result
- Enable Fast Search: False

Enable All
- Enable All: True
- Disable All: False
TEST CONFIGURATION

Test Types Configuration-Throughput

1 **Common Options:**
   - **Duration Type:** Set **Duration** as Time or number of Frames
   - **Duration:** Fill in the duration of each iteration (at least 60 sec is RFC2544 compliant). If **Duration Type** is Time **Duration** can be set in **Seconds**, **Minutes** or **Hours**
   - **Iterations:** Fill in the number of iteration per this test.

2 **Rate Iteration Options:**
   - **Initial Rate:** The test will start with this rate.
   - **Minimum Rate:** The test will not go below this value.
   - **Maximum Rate:** The test will not go above this value.
   - **Resolution Rate:** The resolution will determine the result resolution e.g. End Pass 99.9% or higher resolution 99.994%.
   - **Acceptable Loss:** Select a value that is considered acceptable and the rate should not change due to packet loss.
   - **Rate Result Scope:** Determines the scope of the rate result.

The **Common Result** setting will iterate towards a single throughput rate result for all ports, which will be the lowest common rate found. This is the default setting. If the **Per Source-Port Result** setting is selected Valkyrie2544 will try to iterate a separate rate value for each source port. This will obviously produce a (potentially different) result for each source port.
2 Rate Iteration Options:

Enable Fast Search:

The default iteration algorithm used is a standard binary search, where the next attempted rate is found as the mean value of the sum of last passed and the last failed rate.

If the fast search property is enabled the algorithm will take the measured loss rate into account when iterating down.

This may in many cases result in a substantial reduction in the number of trials needed to reach the throughput rate result.
Test Types Configuration-Throughput

3 Pass Criteria:
   • Use Pass Threshold: If selected the Pass Threshold will be used.
   • Pass Threshold: If enabled the Throughput test will only pass if the resulting throughput rate is larger or equal to the Pass Threshold.
   • Acceptable Loss: The Acceptable Loss for the Throughput test in percent of the maximum rate.

4 Test Data:
   • Collect Latency/Jitter: If selected Latency and Jitter data will be collected during the Throughput test
TEST CONFIGURATION

Test Types Configuration - Latency & Jitter

1. Common Options
   - Duration Type: Time
   - Duration: hh:mm:ss
   - Iterations: 1

2. Rate Sweep Options
   - Start Rate: 50.00
   - End Rate: 100.00
   - Step Rate: 50.00

3. Misc. Options
   - Latency Mode: Last-To-Last
   - Relative to Throughput: checked
TEST CONFIGURATION

Test Types Configuration - Latency & Jitter

1. **Common Options:**

   - **Duration Type:** Set **Duration** as Time or number of Frames
   - **Duration:** Fill in the duration of each iteration (at least 60 sec is RFC2544 compliant).
     
   *If Duration Type is Time Duration can be set in Seconds, Minutes or Hours*

   - **Iterations:** Fill in the number of iteration per this test.

2. **Rate Sweep Options:**

   - **Start Rate:** The test will start with this rate.
   - **End Rate:** The test will not go below this value.
   - **Step Rate:** The rate will increment by this value.

3. **Misc. Options:**

   - **Latency Mode:** The latency mode used when measuring the latency.
   - **Relative to Throughput:** If checked the starting and ending rates will be calculated relative to the result from a preceding throughput test for the same frame size.
     
   *If the throughput test has not been performed in the same test this setting is ignored.*
TEST CONFIGURATION

Test Types Configuration - Frame Loss Rate
Common Options:

Duration Type: Set Duration as Time or number of Frames
Duration: Fill in the duration of each iteration (at least 60 sec is RFC2544 compliant).
If Duration Type is Time Duration can be set in Seconds, Minutes or Hours
Iterations: Fill in the number of iteration per this test.

Rate Sweep Options:

Start Rate: The test will start with this rate.
End Rate: The test will not go below this value.
Step Rate: The rate will increment by this value.

Pass Criteria:

Use Pass Threshold: If selected the Pass Threshold will be used.
Pass Threshold: If enabled the Throughput test will only pass if the resulting throughput rate is larger or equal to the Pass Threshold.
TEST CONFIGURATION

Test Types Configuration-Frame Loss Rate

4 Convergence:

**Gap Monitor Enable:** If selected Gap Monitor (Convergence time) results will be included in the Frame Loss Rate report.

**Gap Monitor Start:** The Gap period will start after **Gap Monitor Start** microseconds without traffic.

**Gap Monitor Stop:** The Gap period will start after **Gap Monitor Stop** has been received.
Test Types Configuration-Back-To-Back
Test Types Configuration-Back-To-Back

1. **Common Options:**
   - **Duration Type:** Choose to set **Initial Duration** as Time or number of Frames.
   - **Initial Duration:** Fill in the duration of each iteration (at least 60 sec is RFC2544 compliant).
   - **Iterations:** Fill in the number of iteration per this test.

2. **Rate Sweep Options:**
   - **Start Rate:** The test will start with this rate.
   - **End Rate:** The test will not go below this value.
   - **Step Rate:** The rate will increment by this value.
   - **Burst Resolutions:** Resolution of burst size changes to achieve Pass/Fail.
Each row in the table represents a "stream endpoint connection" which denotes the logical connection between two test port pairs.

The connection can be uni-directional – one stream, created on the source port.

Or it can be bi-directional – so two streams, i.e. one stream created on each port.

The columns in the table show the actual values used for each stream endpoint connection. For an IP configuration the Address columns will show the resulting IP addresses.

If the configuration uses pure layer-2 segment profiles (no IP segment) the Address columns will show the resulting MAC addresses.
### MULTI-STREAM CONFIGURATION

Enable Multi-Streams: Checking this option will enable the multi-stream function for the current Valkyrie2544 configuration.

Stream Count Per Port-Pair: This value sets the stream count per port pair.

Address Offset: The offset from zero (0) used when auto-generating the incrementing addresses. This can be used to avoid using the default gateway for an IP subnet (which usually is xxx.xxx.xxx.1).

Address Increment: The incrementing value used when auto-generating the addresses.

MAC Address Prefix: The MAC address prefix used when auto-generating the MAC addresses. This can be used to avoid collision with the factory-assigned Xena testport MAC addresses.
1 Report Identification:

This section contains a number of options that can help identify the test context.

**Customer Name:**
The name of the customer for which the test is performed.

![Customer Name: Xena Networks](image)

**Customer Service/Access Id:**
These two options let you identify the network circuits you are testing.

![Customer Service ID and Customer Access ID](image)

**Comments:**
Lets you provide any multi-line comments for the test configuration.
REPORTING

2 Report generation Options:

Report Naming
Report Filename Prefix:
Specifies the prefix for the report filename.
Append Timestamp to Filename:
Adds a timestamp on the form <YYYYMMDD-HHMMSS> to the filename prefix.

Report Content
Packets/Frames Terminology:
This lets you choose if the units of data are referred to as "packets" or "frames".
Include Module Information in Report:
If checked the report will also contain information for each module.
Include Detailed Port Information in Report:
Click to include detailed results for each port (otherwise only totals will be reported)
Include Stream Information in Report: If checked the per-stream information will also be included in the reports.

Include Charts in Report: Click to include bar charts of the test results (only applicable for PDF reports)

Throughput Unit for Charts: Choose frames/second or bits/second as the unit for throughput charts.
REPORTING

3 Report Formats:

This section lets you to select which types of report(s) will be generated. You can enable several types. The generated report files will be given a file extension that matches the selected type i.e. "\.pdf" for PDF files and so forth.

*XML Report Specification
You can find the [specification for the XML Report here](#).

Also Log Intermediate Results
Results from intermediate test steps are logged in a .csv file, which can be found in folder: \Documents\Xena\Valkyrie2889\Reports\ResultLog

Add Timestamps For Each Line
Adds a timestamps for each intermediate test steps logged in the .csv file mentioned above

Use Report Name Prefix
If you check “Use Report Name Prefix” the “Report Name Prefix” will also be used for naming of the Intermediate Results files
Xena RFC2544 CLI OPTION

1. Give configuration an appropriate name.
2. Save configuration.
Use the Valkyrie2544.exe to parse and run your configuration:
* This one command can be executed from a script via one line of code.
e.g. TCL: EXEC “C:/.../Valkyrie2544.exe –ec MyConfig.v2544”
Use "--help" to learn about other parameters options:

```
C:\Program Files (x86)\Xena Networks\L2-3\L23Tools>Valkyrie2544.exe --help
C:\Program Files (x86)\Xena Networks\L2-3\L23Tools>

Valkyrie2544 version 2.63
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Valid options:
  -c, --config       Load a test configuration file with the specified path.
  -e, --execute     Execute the specified test configuration file (requires
                    -c <file>).
  -g, --gennewcfg   Generate an empty configuration file to the path
                    specified and exit.
  -u, --user        Set the username used when logging on to Xena testers
                    (default: valkeryrun).
  -r, --reportpath  Set the directory where reports are saved.
  -o, --company     Set the company name used in reports.
  -l, --logo        Set the path to the report logo file.
  -f, --clogfile    Full path to logfile (including filename) receiving
                    console output.
  --help            Display this help screen.
```

If the -e (--execute) option is used the program will not show the GUI but will run in command line mode.
Want more?

CHECK TECHNICAL DOCUMENTATION

TRY OUR LIVE DEMO SYSTEM

BOOK A GUIDED SW TOUR

CONTACT US: support@xenanetworks.com