Measurement Control

The measurement control panel is used to parameterize and control measurements.

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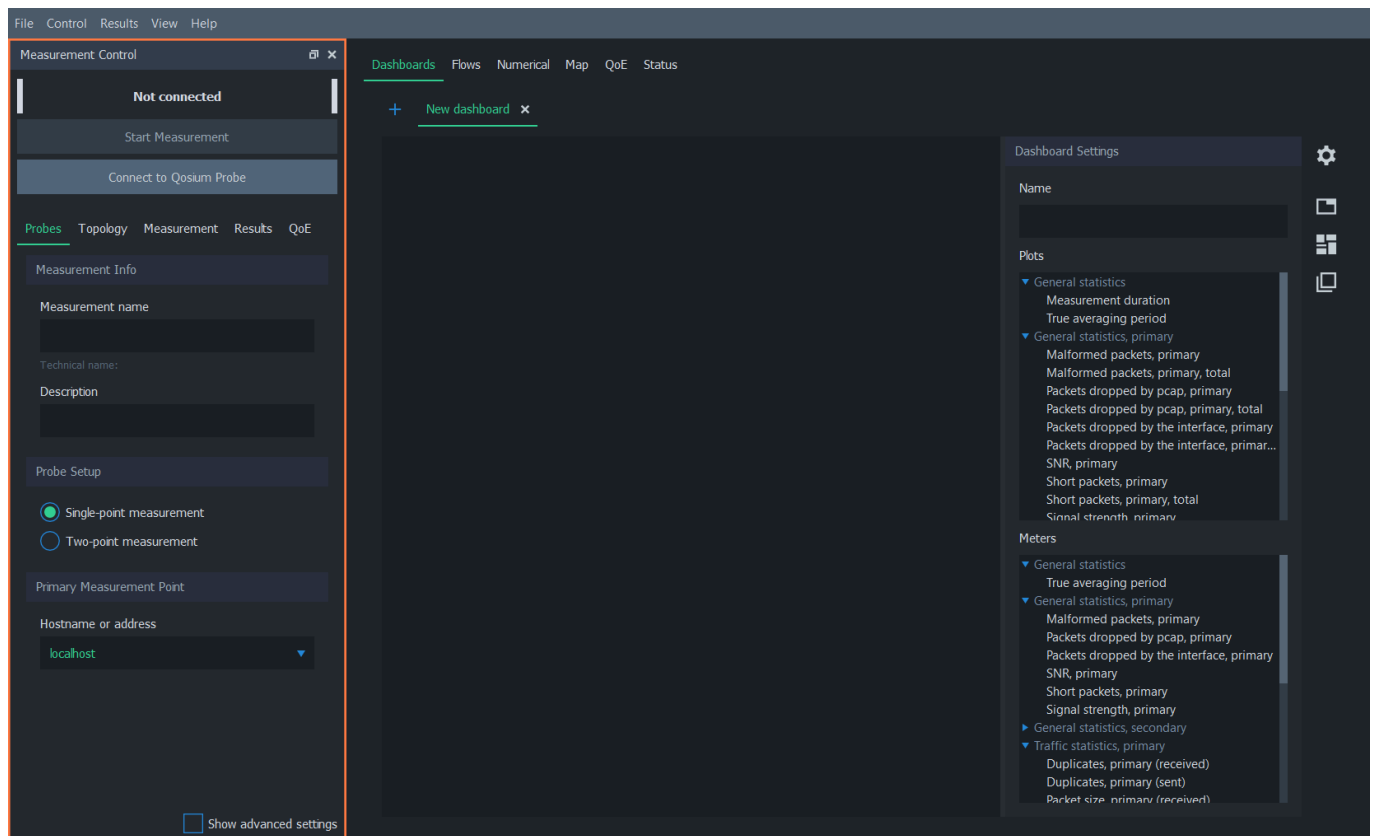
1. Overview

The measurement control panel is located on the left side of Scope window. It has three main elements:

- Status indicator
- Buttons for controlling the measurements
- Tabs for parameterizing measurements

On the bottom of the panel is the **Show advanced settings**. This toggles the visibility of some rarely needed settings.

2. Status Indicator

Scope has a simple status indicator located in the upper left corner of the measurement control panel. It shows the Probe connectivity status, whether currently conducting a single or two-point measurement, and whether a measurement is running. For example, when the measurement is running without issues, the status bar appears as follows:
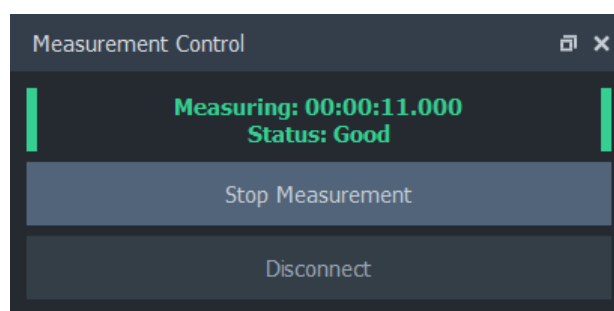
2.1. Status Warnings

Qosium has some built-in health inspection checks for the current measurement. If any anomalies are detected, they are reported in the status indicator.

First, if system clocks of measurement points are not in sync together, a warning message appears to the Status. This message is given only for larger synchronization errors (> 100 ms).

Another warning is given if Qosium observes some issues in one of the measurement points, e.g., dropped packets. These are typically caused by too high CPU load or insufficient system resources.

Also, temporary connection breaks between entities are shown here.

3. Control Buttons

Control buttons below the status indicator can be used to control the measurement. The actions of the two buttons vary depend on the current state of Scope as follows:

When no connection to Probe(s) is active, only connect button is available:
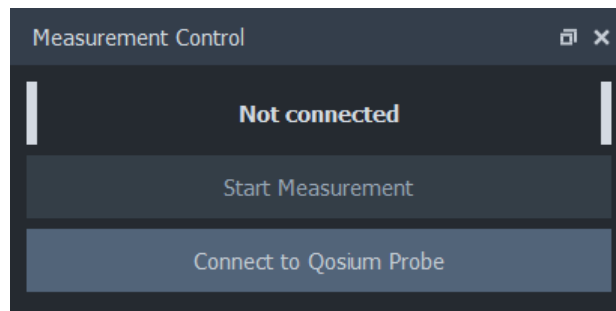
When a connection has been established, it's possible to either start a new measurement or disconnect:
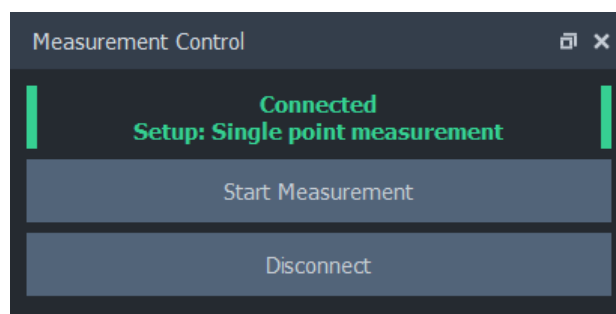
During measurement, the only action available is stopping the measurement:
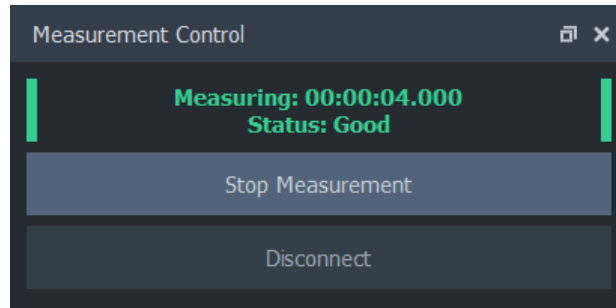
4. Parameterization Tabs

Measurements are configured by adjusting parameters. These parameters are located in the five tabs of the measurement control panel. See more details on each tab.
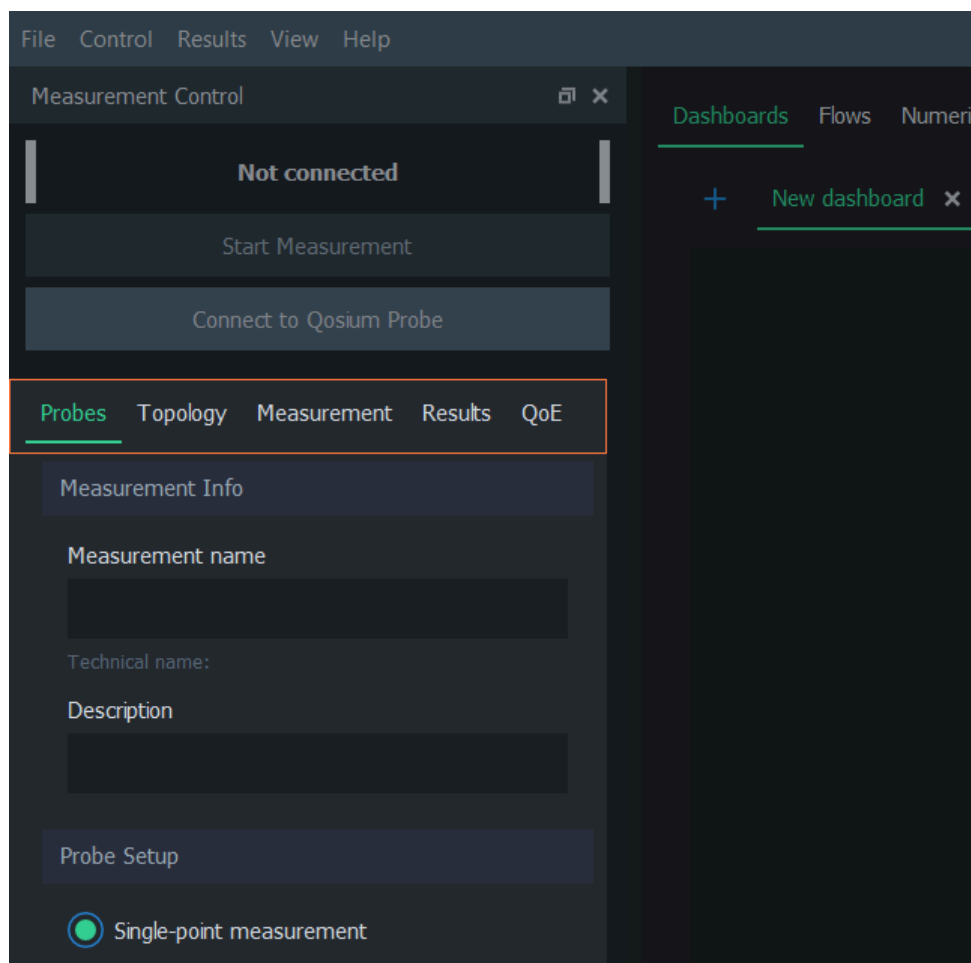
5. Probes Tab

The Probes tab in Scope measurement control panel contains Probe connection settings and other general settings for the measurement. It's usually the place where a new measurement parameterization is started.

5.1. Overview

This tab consists of the following settings groups. Detailed information on each group can be found in the following sections. All groups in this tab, excluding *Measurement Info*, are disabled when a connection to

Probe(s) is active. To re-enable the tab for editing, stop the current measurement and disconnect from Probes.

- **Measurement Info**
- **Probe Setup**
- **Primary Measurement Point**
- **Secondary Measurement Point** - Visible when two-point measurement is selected
- **Client Settings** - Visible when advanced settings are enabled
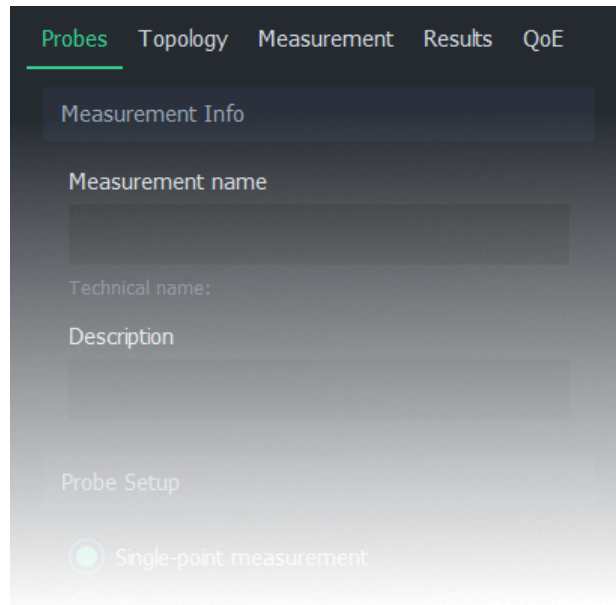
5.2. Measurement Info

The measurement info group contains the basic information of the measurement. While optional, it's a good practice to fill out this information for each measurement.
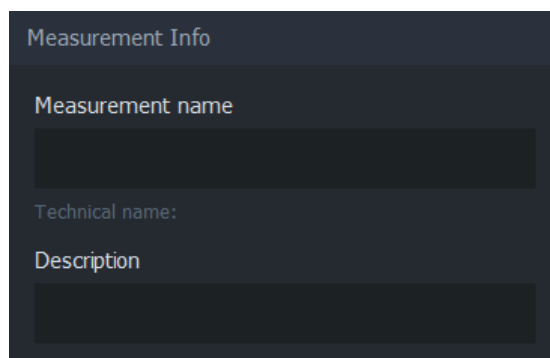
5.2.1. Measurement Name

The name or title of the measurement. Naming the measurement is optional.

> Technical name is a machine-friendly version of measurement name, which is used by Scope to, for example, suggest a filename for settings
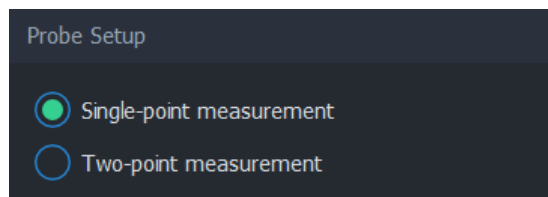
5.2.2. Measurement Description

Measurement description is an optional text you can use as you wish, e.g., to describe the measurement scenario or some details in the measurement. The text set here will be part of measurement results, appearing in the results files and results systems like Qosium Storage. It is up to you how to use this.

5.3. Probe Setup

In the Probe setup group, the selection between *single-point measurement* and *two-point measurement* can be made.

- **Single-point measurement** mode uses one Probe to measure a single network node or point
- **Two-point measurement** mode utilizes two Probes to measure a network path
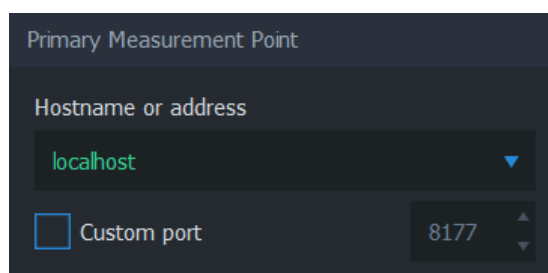
ⓘ Some measurement result types are not available in single-point measurement

ⓘ Some options in Scope are visible only when a two-point measurement is selected

5.4. Primary Measurement Point

The primary measurement point group contains connection settings for the Probe installed in the primary measurement point. Qosium Probe must be running and reachable via this address and port. For more information on installing and launching Probes, see Qosium Probe documentation.

5.4.1. Hostname or Address

The address can be either a hostname or an IPv4 address. If the primary Probe is installed on the same PC where Scope is running, use local address `127.0.0.1` or `localhost`.

5.4.2. Custom Port

🗒 Visible when advanced settings are enabled

If the primary Probe has been configured to listen to other than the default Qosium port `8177`, set the

correct port number here before connecting.

5.5. Secondary Measurement Point

📋 Visible only when a two-point measurement is selected

The secondary measurement point group contains connection settings for the Probe installed in the secondary measurement point. Qosium Probe must be running and reachable via this address and port. For more information on installing and launching Probes, see Qosium Probe documentation.

5.5.1. Hostname or Address

The address can be either a hostname or an IPv4 address. If the secondary Probe is installed on the same PC where Scope is running, use local address `127.0.0.1` or `localhost`.

5.5.2. Custom Port

📋 Visible when advanced settings are enabled

If the secondary Probe has been configured to listen to other than the default Qosium port `8177`, set the correct port number here before connecting.

5.6. Client Settings

📋 Visible when advanced settings are enabled

5.6.1. User ID

User ID is used to identify this controlling entity and differentiate it from other controlling entities. Setting user ID is typically not needed, except when multiple controlling entities collect measurement results to the same result pool. In that scenario, a user ID can be used to identify the user/device which carried out the measurement since it's saved into the measurement result files.

6. Topology Tab

Topology defines how Qosium Probes are located concerning the target network traffic. In Scope, this means defining network capture interfaces and Probe placement. Depending on the settings, it may also be necessary to define senders and receivers manually.

6.1. Overview

This tab consists of the following settings groups. Detailed information on each group can be found in the following sections.

- **Primary Probe**
- **Secondary Probe** - Visible when a two-point measurement is selected
- **Primary Probe Senders** - Visible when manual senders definition is required
- **Secondary Probe Senders** - Visible when a two-point measurement is selected, and manual senders definition is required
- **NAT Settings** - Visible when a two-point measurement is selected
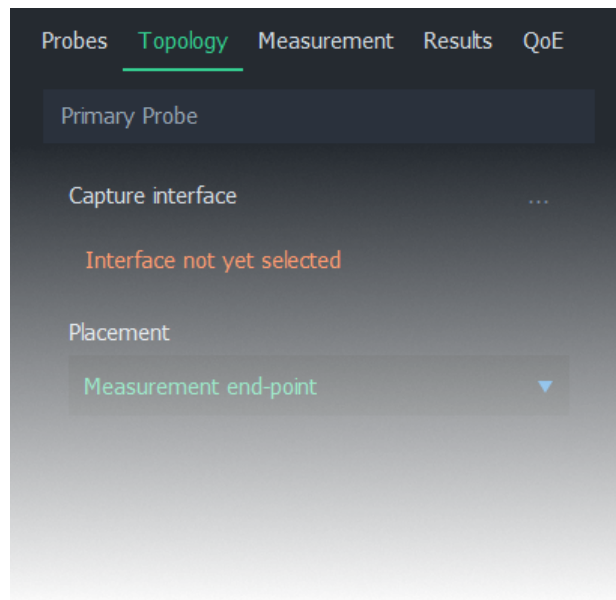
Before proceeding, it is recommended to complete the [Probes tab](#), connect to Probes(s), and then edit this tab. A connection must be made in any case for Scope to receive the list of available capture interfaces.

For more information on topology, see [Understanding Measurement Topology](#).

6.2. Primary Probe

In this group, capture interface and placement can be selected for the primary Probe.
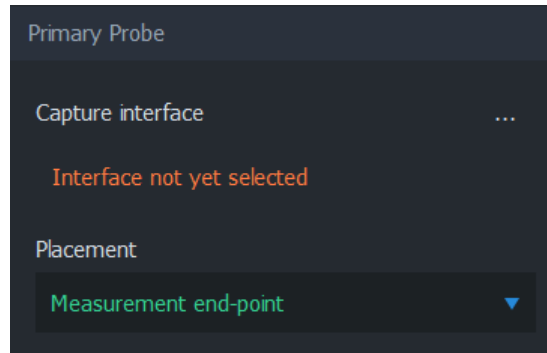
6.2.1. Capture Interface

⚠️ Interface can be selected only while connected to Probes

This field displays the selected interface, which the primary Probe uses for capturing network traffic. An interface can be selected by clicking the "..." icon on the right side. This opens up an interface selection dialog, which lists interfaces available for this Probe.
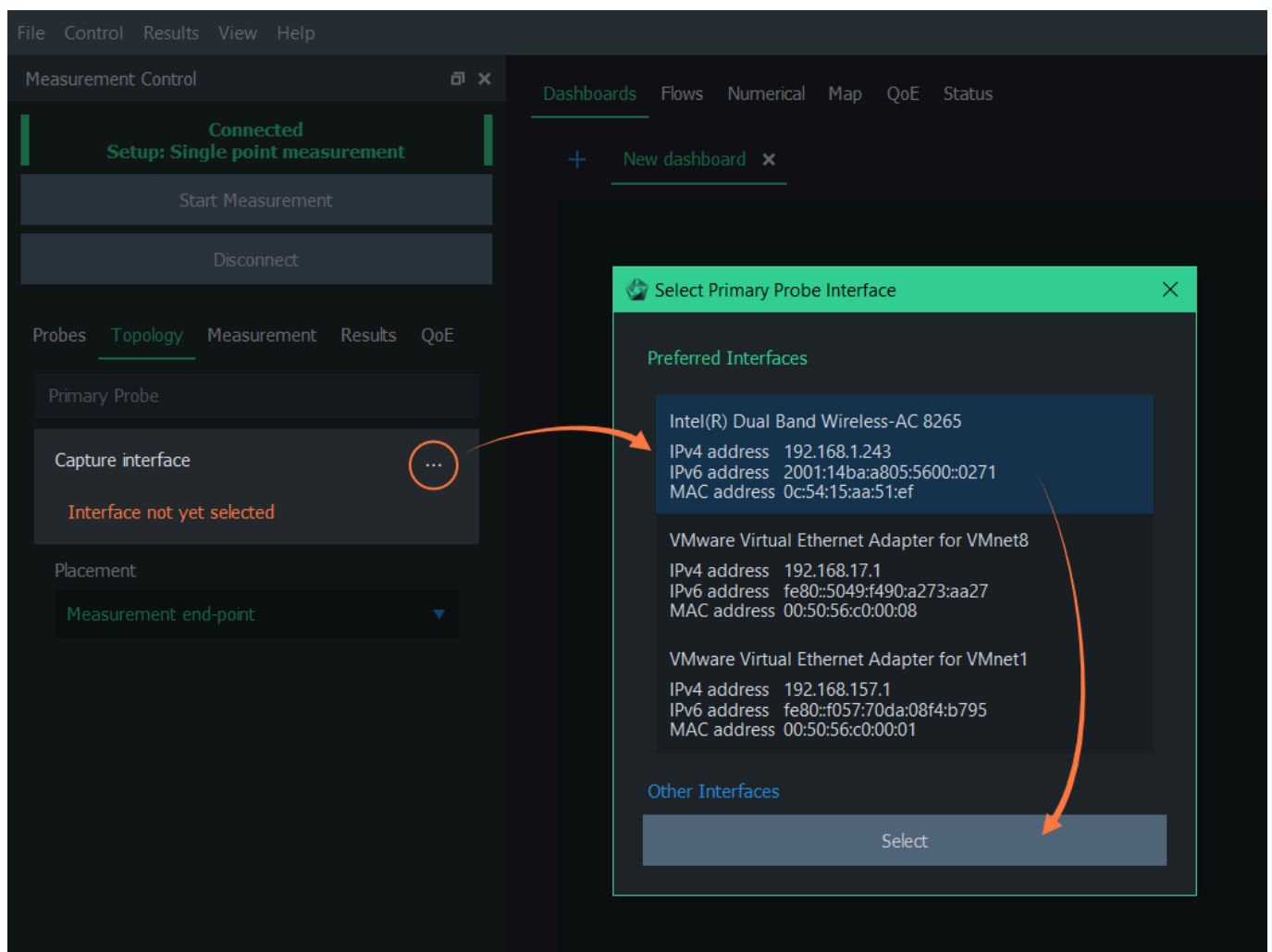
The interface selection dialog is split into two views:

▪ **Preferred Interfaces** - Interfaces that have valid addresses

- **Other Interfaces** - Other available interfaces

Locate the desired interface. Double-click on the interface, or click once and then press *Select*. It appears on the topology tab as the selected interface.

6.2.2. Placement

Placement indicates the location of the Probe concerning the measured network traffic. The options are:

- **Measurement end-point** - The Probe is in either one of the measured traffic endpoints. In other words, the device Probe is installed to is either sending or receiving the measured network traffic.
- **Within measured path** - The Probe is not located at either one of the end-points but instead resides somewhere along the path where the measured traffic traverses. Note: This option uses MAC addresses in flow direction analysis. Thus, if your measured interface does not have a MAC address (e.g., a cellular modem), select the **Off-path** option instead.
- **Off-path (e.g., mirrored traffic)** - The Probe is not located within the measurement path at all. This is the case, for example, when using mirror ports in switches. Also, if you wish to define *Senders* (see below) manually, select this option.

> ⚠️ Only end-point placements allow the Packet filter to be calculated automatically.

For more information on placement, see [Understanding Measurement Topology](#).

6.3. Secondary Probe

> 📝 Visible only when a two-point measurement is selected

This group contains topology settings for the secondary Probe. These settings are identical to the [Primary Probe](#) group, but they consider the secondary Probe instead.

6.4. Primary Probe Senders

> 📝 Visible only when manual senders definition is required

If Qosium is unable to determine the senders and receivers for the primary Probe automatically, the Primary Probe Senders group appears, allowing defining senders manually instead.
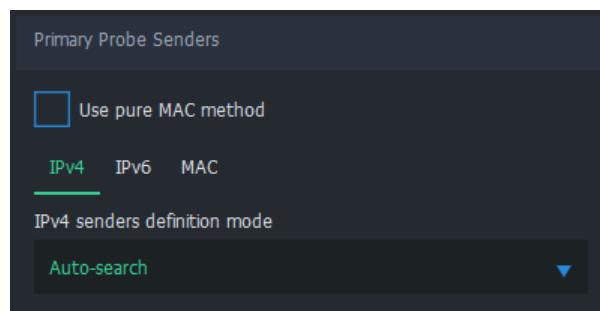
For more information on manual senders definition, see [Understanding Measurement Topology](#).

6.4.1. Pure MAC

First, senders definition has one top-level option: **Use pure MAC method**. If this method is desired, select it. Nothing more is required for senders definition for this measurement point.

When this mode is active, traffic direction is checked from the MAC-addresses. If the interfaces and the traffic is such that there are MAC-addresses, e.g., Ethernet NIC, then this setting works very well. However, in some interfaces, like Linux *any* interface, the MAC header is not visible, causing this mode to fail.

6.4.2. Manual Senders Definition

There are multiple methods of defining which addresses are considered senders. Any address that does not meet the given criteria is deemed to be a *receiver*.

The available options depend on the protocol. These options are covered in the following sections.

6.4.2.1. IPv4

The following options are available:

- **Auto-search** - Look up known addresses in interfaces and declare these as senders
- **According to secondary Probe** - Take the definition of the secondary Probe and reverse it
- **Mask** - Define a network address (e.g., 192.168.1.0) and a mask (e.g., 255.255.255.0)
- **Manual select** - Define a list of sender addresses

6.4.2.2. IPv6

The following options are available:

- **Auto-search** - Look up known addresses in interfaces and declare these as senders
- **According to secondary Probe** - Take the definition of the secondary Probe and reverse it
- **Mask** - Define a network address (e.g., fe80:1ab3:8f01:12df::0 and a mask (e.g., ffff:ffff:ffff:ffff::0)
- **Manual select** - Define a list of sender addresses

6.4.2.3. MAC

The following options are available:

- **Auto-search** - Look up known addresses in interfaces and declare these as senders
- **According to secondary Probe** - Take the definition of the secondary Probe and reverse it
- **Manual select** - Define a list of sender addresses

⚠️ When using the Pure MAC method or when sender addresses are defined inversely in one of the ends (According to primary/secondary Probe), the Packet filter cannot be calculated automatically.

6.5. Secondary Probe Senders

📋 Visible only when a two-point measurement is selected and manual senders definition is required

This group contains sender settings for the secondary Probe. These settings are identical to the [Primary Probe Senders](#) group, but they consider secondary Probe senders instead.

6.6. NAT Settings

📄 Visible only when a two-point measurement is selected

Qosium needs to be aware if a Network Address Translation (NAT) occurs between Probes. If this is the case, check the option **NAT between Probes**. For more information, see How to Measure over NAT.
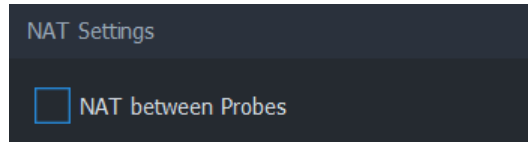
7. Measurement Tab

Qosium offers a wide selection of parameters for configuring how measurements are performed. In Qosium Scope, these parameters are configured in the measurement tab.

7.1. Overview

This tab consists of the following settings groups. Detailed information on each group can be found in the following sections.

- **Packet Capture Settings**
- **Measurement Settings**
- **Control Connection Settings** - Visible when advanced settings are enabled
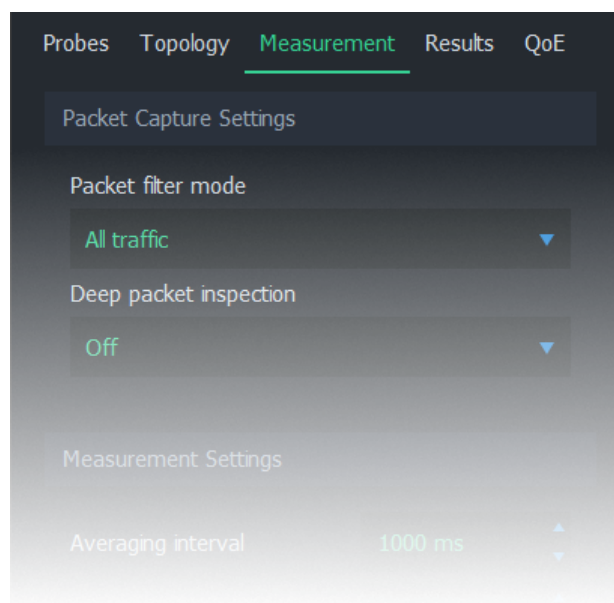
7.2. Packet Capture Settings

This group contains settings on how packets are captured and identified.
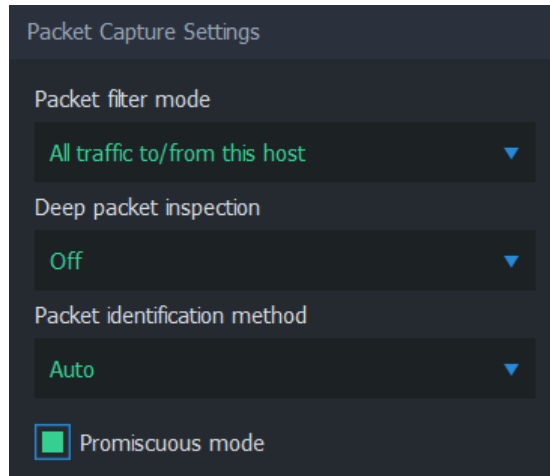
7.2.1. Packet Filter Mode

Packet filter mode determines how packets are filtered. In other words, packets that meet the given filter criteria contribute to the measurement results. The available options depend on current settings. For more information, see Packet Filters in Qosium.

The first option in the list is an *automatic* mode. The name and function of this setting depend on whether a single-point or two-point measurement is selected:

- In a single-point measurement, this option is named **All IP traffic to/from this host**. Only (IPv4 or IPv6) traffic originating from or targetted to the measurement point is captured.
- In a two-point measurement, this option is named **All IP traffic between hosts**. Only (IPv4 or IPv6) traffic that is generated by the measurement points and is targeted to the other measurement point is captured.

The second option in this list is **Manual filter**. When selected, a text field appears below, where an arbitrary packet filter can be typed manually.
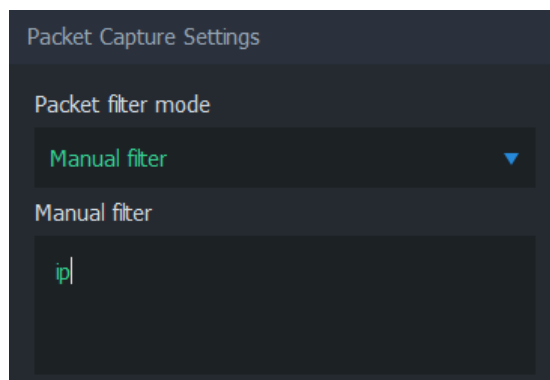
Regardless of the choices made, the final filter applied to the measurement can be seen on Status Tab once the measurement is started.

7.2.2. Secondary Probe Filter Mode

> 📄 Visible when two-point measurement, NAT between Probes, and manual filter are selected

Secondary Probe Filter Mode determines how the given manual packet filter is treated in the secondary Probe. Setting this option is relevant only if NAT occurs on the measurement path. For more information,

see [How to Measure over NAT](#).

- **Equal filter** (default) - The same filter as to the primary Probe is set to the secondary.
- **Strict autofilter** - The filter is composed automatically based on what kind of flow the primary Probe with its filter observes. The IPv4 addresses, protocol, and ports (when they exist) are included in the filter. Thus, this filter is *strict* in the sense that only a single flow will fit it.
- **Loose autofilter** - Similar to **Strict autofilter**, but only the IPv4 addresses of the flow are included in the filter. The filter is loose in the sense that multiple flows will fit that.

7.2.3. Deep Packet Inspection

> 📋 Available only in single-point measurements

Two measurement points are always required to perform a QoS measurement. However, some protocols themselves carry information from the other end, allowing QoS calculations to be made by a single Qosium Probe. Thus, this is still a two-point measurement, but now there is no Probe in the other end. Instead, the application/service acts as the secondary measurement point, providing valid information and enabling QoS calculation.

Qosium currently supports two protocols for this kind of deep packet inspection: RTP and MPEG-2 (TS). These methods enable packet loss statistic calculation by a single Qosium Probe. Please note that this QoS calculation can be done for received traffic only as there is no feedback channel for the sent traffic.

- **RTP** - Use RTP protocol header information.
- **MPEG-2 (TS)** - Use MPEG-2 Transport stream header information.

> ⚠️ The measured traffic stream must be of the selected type. Otherwise, the DPI-based QoS calculations cannot be made.

7.2.4. Packet Identification Method

> 📋 Visible when advanced settings are enabled.

The packet identification method defines how Qosium identifies packets between measurement points. Thus, the meaning of this is important under a two-point measurement and not that much in a single-point measurement. This is one of the parameters that you generally do not need to touch since the default automatic setting will handle most of the measurement cases. However, if you do need to set this manually, here are the options and their explanations.

- **Auto** (default) - Qosium selects the method from the options below based on the measurement scenario. The selection is made safely, i.e., a method typically known to function in most of the cases in a similar scenario is selected. This might not always be the optimal method.
- **IPv4 ID Field** - Qosium uses the *Identification field* in the IPv4 header for packet identification. Naturally, the first requirement for this to work is that the measured traffic shall be of IPv4 type. A second requirement is that the measured stream is using the IPv4 Identification field as specified. This is not always the case, but luckily the non-standard usage is rare. A restriction lies in the fact that the *Identification field* has only 16 bits, limiting the available unique numbering per time instance to 65536. Thus, if you are using a 1 s averaging interval, your measurement should be working fine, as long as the target measurement stream's packet rate is clearly less than this (e.g., < 30000 pkts/s). Beyond that, QoS calculation is not guaranteed to be entirely accurate. Then, if you are using a longer averaging interval,

e.g., 10 s, the safe packet rate drops to one-tenth of the previous, accordingly.

- **RTP Sequence Number** - Qosium uses the *Sequence number field* in the RTP header for packet identification. This lightweight option is ideal for measuring RTP streams. But, be aware that while Qosium checks that there is room in the packet for the RTP header, it does not check its actual existence. Thus, setting this option with non-RTP traffic can result in unpredictable behavior.
- **Payload-Based ID** - Qosium calculates the identification based on the packet payload. This method is not dependent on the protocol headers, so it works for IP packets and pure L2 (e.g., Ethernet) packets. If a packet has no payload, **IP4 ID Field**, when present, is used.
- **Extended Payload-Based ID** - Qosium calculates the identification based on the packet payload, including some parts of the transport layer header. This can be your choice if the measured traffic stream is composed of, e.g., very short packets or packets with duplicated data in their payloads. However, if your NIC is using offloading methods, this method might not always work correctly.
- **Pure Payload-Based ID** - This is a very similar method with **Payload-Based ID**, but packets without payload are just ignored from QoS calculation. In many ways, this is the most robust identification method. However, the drawback, as with all the payload-based methods, is that if the payloads between packets have little or no variation, QoS calculation might not always be accurate.
- **NAT bypasser + Payload based ID** - Operates as **Payload-Based ID** but with NAT bypasser functionality enabled. NAT bypasser lets you perform a passive measurement in a scenario where there is a NAT between the measurement points.
- **NAT Bypasser + Pure Payload Based ID** - Operates as **Pure Payload-Based ID** but with NAT bypasser functionality enabled.

7.2.5. Promiscuous Mode

> 📇 Visible when advanced settings are enabled.

Promiscuous Mode allows Qosium to capture packets that are not designated to the network card performing the capture. This is a fairly common case with Qosium, and it's recommended to leave this option enabled unless there's a specific reason to disable it. Some network cards might not support promiscuous mode, which is an example of such a specific reason.

7.3. Measurement Settings

Measurement settings contribute to the way how measurement results are gathered and interpreted.

7.3.1. Averaging Interval

As the name implies, this parameter defines the time interval each average sample represents. Coincidentally, averaging interval also determines how often Scope receives average results.

ⓘ Please note that this sets the target averaging interval.

If Qosium Probe is not running in a platform with a real-time operating system, the target is hardly ever fully met. For example, in Windows, it is quite common to see that the real averaging interval varies between 999 – 1001 ms when 1000 ms averaging interval is set. Instead of the target value, Qosium always uses *the true averaging period* in its calculations. Qosium also follows and corrects the behavior of the averaging interval's variations over time. Thus, the long-term averaged averaging interval should be relatively close to the set target value.

7.3.2. Delay Alert Threshold

Packets with a delay above this threshold are counted in QoS Statistics: Th. ex. delay pkts. This statistic provides a way to understand the number of highly delayed single packets without actual packet-level statistics.

7.3.3. Jitter Alert Threshold

Packets with a jitter above this threshold are counted in QoS Statistics: Th. ex. jitter pkts. This statistic provides a way to understand the number of single packets with high jitter without going to the actual packet-level statistics.

7.3.4. Flow Timeout

📑 Visible when advanced settings are enabled.

Flow timeout determines the duration in which a flow remains in the flow map after the most recent packet belonging to the flow has been registered.

Ideally, this value should be set as small as possible. However, if packets are arriving sporadically, flows may disappear from the flow map too early. This results in flows disappearing and re-appearing, as Scope deems these flows terminated prematurely. To counter this phenomenon, increase the flow timeout. As a result, the correct value is always somewhat dependent on the traffic flows' properties to be measured.

7.3.5. Packet Loss Timer

📑 Visible when advanced settings are enabled.

Packet Loss Timer determines the duration used to determine packet losses. Setting this parameter is always a compromise between reactivity and the capability to detect long delays. If not enabled, Qosium automatically sets a generally well-functioning value for this parameter. The final value can be seen on the Status Tab during the measurement.

7.4. Control Connection Settings

> 📄 Visible when advanced settings are enabled.

These settings are related to the QMCP connections between Qosium Products (e.g., from Scope to primary Probe to external Listener and Secondary Probe). Adjusting these settings is not typically needed.
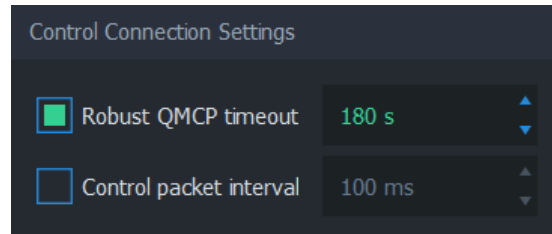
7.4.1. Robust QMCP Timeout

This parameter is for toggling *Robust QMCP Mode* on/off and for adjusting the duration of how long reconnection is tried before giving up. This is especially useful when measuring over a weak, unreliable network path.

Set this value according to your needs. Very large values are ideal while carrying out long-term monitoring, while small values are recommended for carrying out short measurement campaigns.

7.4.2. Control Packet Interval

This parameter affects the control packet interval between the Qosium Probes in a two-point measurement. It is recommended to leave this option unchecked to allow Qosium to calculate an optimal value automatically instead. The final value can be seen on the [Status Tab](#).

8. Results Tab

In Scope, each result type has to be explicitly selected for gathering. The selected result types can then be selected to be saved to file for later analysis. These and other results-related parameters are configured in the results tab.

8.1. Overview

This tab consists of the following settings groups. Detailed information on each group can be found in the following sections.

- **Results Gathering**
- **Save to File Settings**
- **Limit Results**
- **Results Direct Distribution** - Visible when advanced settings are enabled
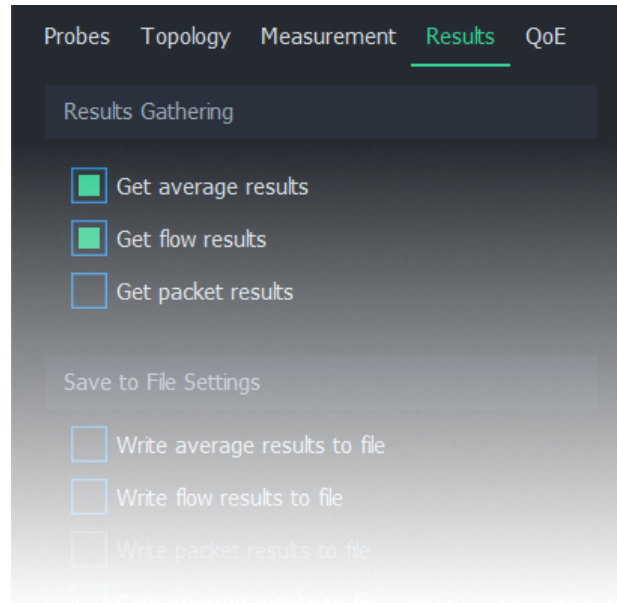
8.2. Results Gathering

Scope gathers different types of results only when explicitly instructed to do so. In this group, you may select the result types for the next measurement.
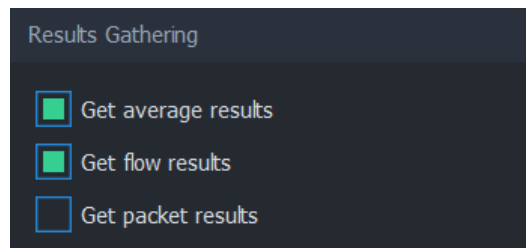
For more information on each result type, see Measurement Results in Qosium.

8.2.1. Get Average Results

When this option is selected, average results will be gathered during measurement. Average results are the most common type of results in Qosium measurements. In Scope, there are several options available for handling average results:

- View the results in dashboards
- View the results in numerical form
- Save the results to file during measurement
- Save the results to file after measurement

8.2.2. Get Flow Results

When this option is selected, flow results will be gathered during measurement. In Scope, there are two options available for handling flow results:

- Observe flowmap, which displays currently active flows
- Save the complete list of flows to file during measurement

8.2.3. Get Packet Results

When this option is selected, packet results will be gathered during measurement. In Scope, there are two options available for handling packet results:

- View the results in numerical form
- Save the packet results to file during measurement

8.3. Save to File Settings

Each result type can be selected to be saved to files in real time during measurement.
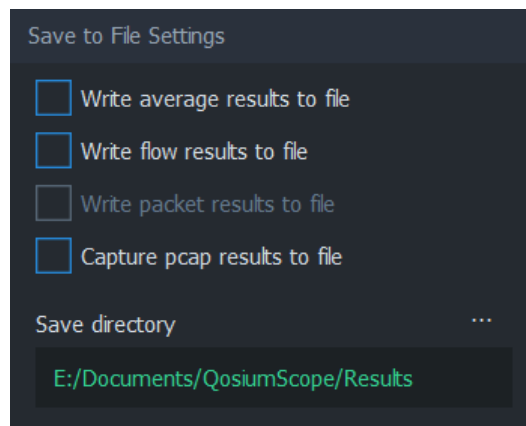
8.3.1. Write Average Results to File

> Enabled when Get average results is selected

When this option is selected, average results will be written to file in real time during the measurement. The directory where this file will be saved is determined by Save directory.

The file will be named `averages_[technical_name].txt`, where `[technical_name]` is auto-generated from the Measurement Name.

8.3.2. Write Flow Results to File

> Enabled when Get flow results is selected

When this option is selected, flow results will be written to file in real time during the measurement. The directory where this file will be saved is determined by Save directory.

The file will be named `flows_[technical_name].txt`, where `[technical_name]` is auto-generated from the Measurement Name.

8.3.3. Write Packet Results to File

> Enabled when Get packet results is selected

When this option is selected, packet results will be written to file in real time during the measurement. The

directory where this file will be saved is determined by [Save directory](#).

In a single-point measurement, this option produces a single file with filename format
`pk_info_[technical_name].txt`.

In a two-point measurement, this option produces two files with filename formats
`pk_qos_DL_[technical_name].txt` and `pk_qos_UL_[technical_name].txt`.

The `[technical_name]` is auto-generated from the [Measurement Name](#).

8.3.4. Capture Pcap Results to File

When this option is selected, full packet traces will be written to file in real time during the measurement. The directory where this file will be saved is determined by [Save directory](#).

For more information, see [How to Take Packet Capture?](#).

8.3.5. Save Directory

The save directory determines the folder where results files will be written during measurement. Click on **…** to select another directory.

It's recommended to have a separate directory for each measurement scenario to avoid mixing up the results.

Save directory has no effect if none of the result types have been selected for real-time saving.

8.4. Limit Results

The number in **Keep samples in memory** states how many results per result type Scope holds in memory. Set this value high enough for the measurement purpose. The limit can also be disabled, but this is not recommended, as this will eventually consume the available memory of the computer where Scope is running.
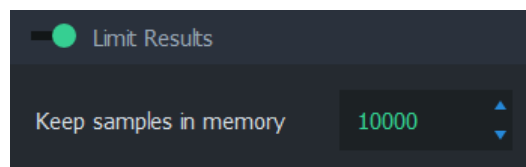
Limiting results in memory does not have an impact on results saved to files. The selected results will be saved regardless of whether this setting is enabled or what limit is given.
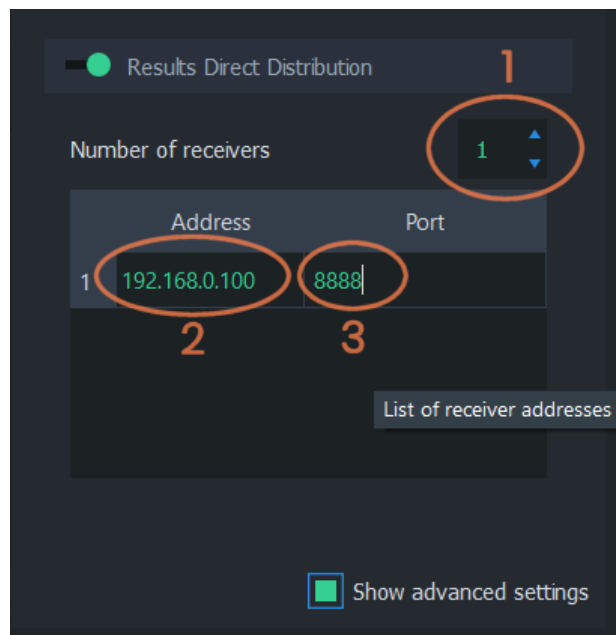
8.5. Results Direct Distribution

> 📋 Visible when advanced settings are enabled

Qosium supports direct results sending to external systems. Such a system can be, for example, [Qosium Storage](#) or any QMCP listener. See the possibilities for [integration](#) if you are interested in receiving results directly in your system.

In Qosium Scope, the external receivers are defined in this group. Activating results distribution is straightforward:

1. Set the number of result destinations,
2. Set the IPv4 address(es) of the destination(s), and

3. Set the port(s) of the destination(s).

Once you start the measurement, the results distribution destinations will be connected. The distribution takes place in the same phase as Qosium Scope's result reception.

> ⚠ **Result receivers have to be running before starting the measurement.**

9. QoE Tab

Configuring Quality of Experience models has its own dedicated tab in Qosium Scope. GQoSM and PSQA models can be selected and parameterized in this tab.

9.1. Overview

This tab consists of the following settings groups:

- GQoSM
- PSQA
- **Sample Averaging** - Visible when advanced settings are enabled
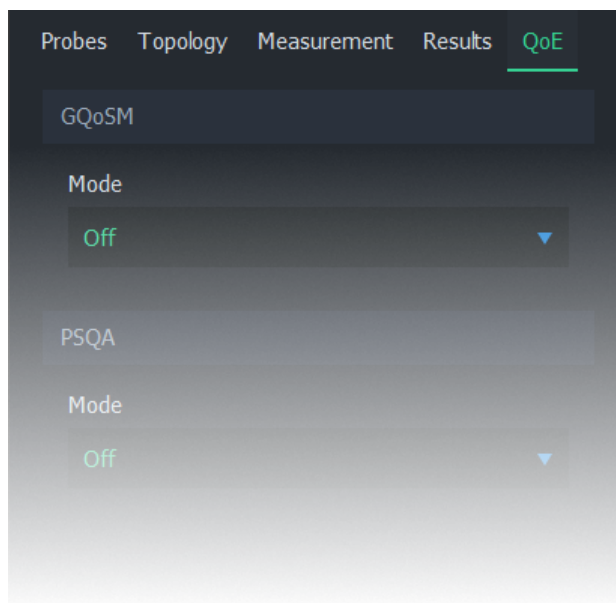
9.2. GQoSM

Setting this option from *Off* to **Manual** enables GQoSM samples in *average results*.

The model can use up to 4 QoS parameters in QoE calculation: **Delay**, **jitter**, **packet loss**, and **connection break length**. Each of these parameters can be enabled/disabled individually. Each parameter has 2 adjustments: **Bad performance limit** and **form factor**. For more information on how to configure this model, see [Quality of Experience](#).

9.3. PSQA

Pseudo-Subjective Quality Assessment (PSQA) uses a trained feed-forward neural network for determining quality. For more information on how to configure this model, see [Quality of Experience](#).

The available options depend on the current

- **Off** - The model is not calculated
- **VoIP Listening** - A model for voice over IP for one-way listening
- **VoIP Conversational** - A model for voice over IP for a two-way conversation
- **Streaming Video (H.264) AV** - A model for streaming video
- **Streaming Video (H.264) AV MLP** - A model for streaming video

9.3.1. VoIP Listening

This listening model is applicable when the targeted traffic consists of a one-direction VoIP flow. The model has a few parameters:

- **Codec** - The codec of the VoIP stream
- **FEC mode** - The Forward Error Correction mode
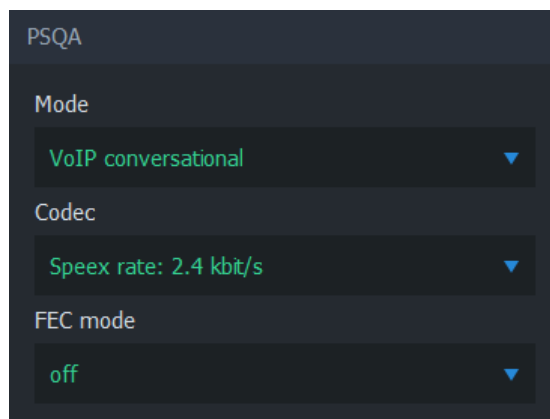- **Packetization interval** - The duration of audio each packet contains

9.3.2. VoIP Conversational

This conversational model is applicable when the targeted traffic consists of a two-direction VoIP conversation flow. The model has a few parameters:

- **Codec** - The codec of the VoIP stream
- **FEC mode** - The Forward Error Correction mode

9.3.3. Streaming Video (H.264) AV

This streaming video model is applicable when the targeted traffic consists of a video stream. The model has a few parameters:

- **Resolution** - The resolution of the video frame
- **Motion level** - The amount of motion in the video content

9.3.4. Streaming Video (H.264) AV MLP

This streaming video model is applicable when the targeted traffic consists of a video stream. The model has a few parameters:

- **Resolution** - The resolution of the video frame
- **Motion level** - The amount of motion in the video content
- **Error concealment** - Whether the codec is attempting to conceal errors or not
- **Calculated movement quantity**

9.4. Sample Averaging

📋 Visible when advanced settings are enabled

Sample averaging settings can be adjusted to pre-average QoE samples. This reduces sporadic fluctuations in the results when using small averaging interval, or when the quality model yields low scores for brief deterioration of network conditions not visible in the end-application.

9.4.1. Weighted Moving Averaging

When enabled, the average is calculated by using the weighted moving average algorithm. See [Wikipedia article on weighted moving average](#).

9.4.2. Sliding Window Averaging

When enabled, the average is calculated from a fixed number of most recent samples. The number can be adjusted manually.

10. Glossary

Promiscuous Mode

A mode in network interfaces, which allows packet sniffers to process packets even if they are not designated to said network interface.

This mode is essential in Qosium, since it's fairly common to measure network traffic by placing Probes somewhere in-path or off-path via port mirroring instead of end-points.

Some network interfaces do not support promiscuous mode, so try turning it off if starting measurement results in an error, or no packets are captured.

For more information, see the [Wikipedia article on Promiscuous mode](#).

Packet Loss Timer

Qosium determines packet losses by waiting each packet a predefined amount of time. Packet loss timer defines this duration.

If this value is set too small, packets exceeding this duration in the traversal of the measurement path will be incorrectly considered lost. A large value yields more precise results, but causes a lag to the reporting of lost packets, since Qosium needs to wait for this duration for packets before reporting them as lost.

Loss timer should be always at least 2 × control packet interval. The latter parameter is typically set automatically according to the averaging interval, but it can be also changed manually. In order to have short packet loss timer value, set the control packet interval as well.

Robust QMCP Mode

A feature which allows Qosium products to re-connect each other and carry on the measurement, even if connectivity is momentarily lost.

If robust QMCP mode is not enabled, the measurement is stopped if the connection between Qosium products is lost. It is recommended to keep this feature always on unless there's a good reason to disable it.