

# Two-step speed test

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The two-step speed test marries the device-based speed test (either via a web browser or a smartphone) with the instant router-based speed test. This provides a measurement of:

- Performance from the user's device to the Internet; and
- Performance from the user's SamKnows-enabled router to the Internet.

This combination of these two results can be used to infer whether a performance issue exists inside the customer's home or on the Internet connection. This can be used to better inform the customer about their in-home network performance, potentially allowing them to resolve an issue without placing a customer support request.

The results from a customer's two-step speed tests are also visible to their ISP's staff via SamKnows One. This allows ISP support staff to better support customers if they do contact them.

## Methodology

The two-step speed test relies on the SamKnows Router SDK having been integrated into the ISP's router. It also requires a SamKnows-enabled client application, which can be a web or smartphone application. Third-party applications can integrate the SamKnows web and mobile SDKs to support two-step speed test functionality.

The client application (the SamKnows-enabled smartphone or web app) will communicate with the SamKnows Instant Testing API, documented above. Client applications may authenticate with a set of SamKnows One

credentials, or via federation with an ISP's backend.

If a SamKnows-enabled router is discovered and supports the instant testing functionality, the client application will be able to run a two-step speed test. If not, the client application will revert to a pure device-based test (from the client application to the internet directly). Additionally, restrictions may be placed within the application to ensure that the two-step speed test can only be run if the client device is on the same network as the SamKnows-enabled router.

Measurements are carried out according to the following process:

1. The client application will authenticate with the SamKnows Instant Testing API and retrieve a list of SamKnows-enabled routers that the user is authorised to carry out measurements on. If multiple devices are found, the user is prompted to select one.
2. The client application will instruct the router to carry out a set of download, upload, and latency measurements to the Internet. These results will be returned to the client device once completed. This set of results represents the router-to-internet performance.
3. The client application will carry out a set of download, upload and latency measurements to the Internet. This set of results represents the device-to-internet performance.
4. The client application analyses both sets of active measurement results, coupled with the environmental data,

and can optionally provide a recommendation to the user.

5. The client application will submit all of the measurement results and environmental data to SamKnows One.