

# Network Requirements for Q-interactive Assess



## Snapshot

- This document is intended primarily for large organizations that utilize the Q-interactive® Assess application within an environment where the Wi-Fi network is set up to cover a large area utilizing sub networks (e.g., large buildings with multiple wings or floors).
- This guide will help you ensure that your network environment is optimized so the Q-interactive Assess application can share information between the client and practitioner devices.
- Utilize this guide ONLY IF you are having trouble with your two iPad® devices connecting and have exhausted all other troubleshooting steps.
- While Assess does not require an active Wi-Fi connection, the network must have the correct communication protocols enabled for the devices to discover each other automatically via Apple's Bonjour technology. We have included an overview of the networking requirements needed for Bonjour to function properly.

For detailed information about Bonjour, see [Apple's Support documentation](#).

## Local Network

Assess uses a direct connection method to communicate through the local network. In environments with multiple wireless nodes, node-to-node communication must be enabled.

Your devices must be on the same VLAN or subnet within the network to connect. Apple's Bonjour technology cannot cross subnets/VLANs natively. If you require your devices to be on different subnets, then a Bonjour Gateway may be needed for your network. While some network hardware has this functionality built in, others may require a third-party solution.

A Bonjour Gateway allows Bonjour to cross subnets/VLANs so your devices can communicate. [Aerohive](#) and [Cisco](#) are two such developers of Bonjour Gateways.

## Multicast

Your local network must be allowed to run Bonjour and mDNS (multicast DNS).

*Note: Multicast must be enabled, but multicast drop should be disabled.*

The Bonjour protocol consists of service announcements and queries that allow devices to ask for and advertise specific applications. DNS-SD (Domain Name System – Service Discovery) over a multicast link is used to query the local network for registered services. Each query or advertisement is sent to the Bonjour multicast address for delivery to all clients on the subnet.

Apple's Bonjour protocol relies on mDNS operating at UDP port 5353 and sends to these reserved group addresses:

- IPv4 Group Address - 224.0.0.251
- IPv6 Group Address - FF02::FB

The addresses used by the Bonjour protocol are link-local multicast addresses and are only forwarded locally. Routers cannot use multicast routing to redirect traffic because the time to live (TTL) is set to one, and link-local multicast is meant to stay local.

**For a full list of TCP and UDP ports used by Apple software products, see [Apple's Support documentation](#).**

## **Multicast Groups**

Some networks may use a multicast group to manage multicast traffic. When multicast is enabled, all multicast traffic will flow to all connected clients in a subnet. By using a multicast group to limit the number of clients receiving the multicast data, you can reduce the network's overall workload.

*Note: Using groups is typically not required, but it can be helpful if there are many Bonjour devices on the network.*

**When creating multicast groups, there are three important factors to consider:**

1. Multicast groups must include the subnets or VLANs where Assess devices are connected.
2. All Assess devices must be members of the multicast group.
3. If using multicast groups, IGMP Snooping must be enabled on your network to allow your devices to listen to the multicast group and see the multicast group traffic without affecting the rest of your network.

Detailed information about multicast groups and IGMP Snooping can be found [here](#).

Using all the information contained in this guide, you should be able to ensure that any network is optimally configured for Q-interactive Assess.

**For answers to specific questions or more advanced configuration details, contact your network hardware manufacturer.**