



Deploying Solstice on your Network – Quickstart Guide

Introduction

Solstice is a real-time video streaming application for content based collaboration that runs on a host network to share live desktops, videos, documents, and images to a meeting room display. To get the most from your Solstice deployment, your network must be configured accordingly and be capable of supporting live video streaming.

This document outlines the key steps that should be taken to ensure that your deployment of Solstice meets or exceeds both IT and end-user’s performance expectations in terms of latency and throughput. The steps provided here apply to all deployments regardless of size or stage of development such as a proof of concept.

Step 1: Confirm Network Performance

Before you begin deploying Solstice, it’s important to ensure that your network meets the recommended specifications outlined in the chart below. If your network does not meet these requirements, it is recommended the necessary changes be made, including revisions to routing tables, the addition or modification of a VLAN, or additional wireless access point coverage.

The network statistics below are measured between a client and the Solstice Host on the network.

Expected Use Case	Min. Bandwidth Available	Maximum Packet Latency	Maximum Network Jitter	Maximum Packet Loss
Business Application sharing (PowerPoint/Documents)	.75 Mbps * Number of Simultaneously Devices	175ms	1.2 Standard Deviations	1.25%
1080p Full HD Video Sharing from Desktop	1.1 Mbps * Number of simultaneously connected devices	35ms	1 Standard Deviation	0.2%

Table 1: Minimum network performance specifications for a successful Solstice deployment for two different common use cases. Because of the broad variety of factors affecting network performance, these specifications should be used as a guideline only.

Once you have verified that your network meets the performance specifications, follow the steps below to deploy Solstice on the network.

Step 2: Open Required Network Ports

Refer to the ports listed below and ensure that these ports are open where Solstice traffic will need to traverse subnets.

Required Ports			
Base communication between Solstice client devices and the Solstice Host attached to the display. All traffic is routable TCP/IP and can traverse subnets if a valid route between host and client exists.			
Port Number(s)	Port Type	Traffic	Comments
53100, 53101, 53102	TCP	Solstice communications between clients and hosts	Reconfigurable ports. Base ports can be set to any three consecutive ports via the local Solstice configuration panel or via the Solstice Dashboard.
80,443	TCP	User QuickConnect from browsers, web-based configuration, and over-the-air updates	

Display Discovery (select one approach)

Display discovery allows users to connect to Solstice displays by selecting from a list of pre-populated display names in their client interface. Which ports to open for discovery depends on the discovery approach that will be used in your deployment. Broadcast can be used in situations that support UDP broadcast traffic. Otherwise use the Solstice Directory Service (SDS) for routable TCP-based display discovery.

Port Number	Port Type	Traffic	Comments
55001	UDP	Broadcast Service	Broadcasts display connection information approximately every 5 seconds, including name and IP address. Disable on networks that do not support/allow broadcast traffic.
53200, 53201	TCP	Solstice Discovery Service (SDS)	SDS discovery responds to client requests for available displays via TCP traffic. Requires SDS software to be installed and setup on the network.

iOS Mirroring

To enable your users to share the screen of their iOS devices through the Airplay protocol, open the ports listed below.

Port Number	Port Type	Traffic	Comments
6000-7000	TCP/UDP		Needed for multiple AirPlay sessions.
7100, 47000, 47010	TCP		
5353, 7011	UDP		

OpenControl Protocol (Optional)

OpenControl allows 3rd party devices and software to communicate directly with a Solstice display. If your deployment will make use of the OpenControl protocol, open the port listed below.

Port Number	Port Type	Traffic	Comments
53300	TCP	OpenControl Commands	

Step 3: Setup Display Discovery

Displays can be discovered by users simply by launching the Solstice app on their device. This feature provides click-to-connect capabilities for end-users so they don't need to manually enter the display IP addresses each time they connect. Follow the steps below to ensure display discovery is operational.

- Name your displays with an intuitive display name.** For example, a name that matches the room name for a display (e.g. Conference Room 10) allows users to pick it from the discovery list. You can name a display in the configuration page of the Solstice Host or by using the Solstice Dashboard.
- Determine if your network supports UDP broadcast.** If Solstice Hosts and Clients (users) will be connected to a single subnet/network or are isolated to a VPN that supports UDP Broadcast – go to step 3. Otherwise, go to step 4.
- [Using Broadcast Discovery].** Configure your Solstice Host(s) with the '*Broadcast display name on the network*' setting enabled. This setting can be found under the 'Naming and Discovery' section of the configuration panel or the Solstice Dashboard.
 - Test your setup by launching a Solstice client that is connected to the same network as the Solstice display. You should see the display name appear in the client discovery panel visible when the client is launched.
- [Using Solstice Directory Service].** Download Solstice Directory Service (SDS) from the Mersive website at <https://www.mersive.com/land/get-sds/>.



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- a) Select a windows machine that can host the Solstice Directory Service and is reachable from your Solstice displays on the network. This host needs a fixed IP address as displays will need to be configured to look for that IP address.
- b) Install SolsticeDirectoryService.exe on the Windows PC or Virtual Machine. The directory service is a simple Windows service that manages active display listings for clients and has minimal requirements on the PC.
- c) Configure your Solstice Host(s) with the '*Published display name to Solstice Directory*' setting enabled. You can disable the '*Broadcast display name on the network*' option at this point.
- d) Configure your Solstice Hosts with the IP address of the SDS Host PC that you installed SDS on in step 4b. Enter the SDS host IP address in the '*Primary SDS Host (not required)*' field, found under the '*Naming and Discovery*' section of the configuration panel or Dashboard.

Step 4: Validating Solstice is Up and Running

At this point, you should be able to test the end-user experience, manage your Solstice Host(s) centrally with the Solstice Dashboard, and more deeply customize your deployment to match your needs. Follow the steps below to ensure your deployment is operating as expected.

1. **Connect a PC-Based Client using a Web Browser.** Open a browser on a Windows or OSX laptop and enter the IP address shown on the welcome screen of a Solstice display. You should see a 'Connect' button. Once clicked, the client application should download. When launched it should automatically connect to the Solstice display.
2. **Validate Discovery.** Disconnect from the Solstice display in the Solstice client application. The discovery panel should appear with a list of Solstice displays available for connection. You can click 'clear' to remove displays from your *Most Recently Used* list.
3. **Test Desktop Sharing of Business Applications.** Connect to a Solstice display and share the desktop of your client device in the Solstice client interface. Move windows and content on the client desktop. Open documents and PowerPoint. You should see that your desktop is updated live on the Solstice display, and transitions between slides and changes to documents are immediately visible on the display.
4. **Test Desktop Share with Video.** Open a browser while sharing your desktop and play a web video. Do the same with a video you've downloaded to your desktop. You should see about 22-30 fps from a 1080p resolution device, depending on its specs. Audio should be synchronized.
5. **Share your Android 5.0+ Device Screen.** Download the Solstice app from the Play Store to an Android mobile device. Make sure that device is on the network with your Solstice Host. Open the Solstice client and tap the Solstice Display Name. Next, select 'Mirror my screen' and make sure the device's screen appears on the display.
6. **Validate iOS Mirroring.** Download the Solstice app from the Apple Store. If your network does not support Apple's Bonjour protocol for discovery, you'll need to first connect to the display using the Solstice app. Launch the Solstice app and select the name of the display shown in the list. Once you are connected, swipe up from the bottom of the screen and select AirPlay. You should see the Solstice display name in the AirPlay list. Select the Solstice display name and enable mirroring via the toggle button. Your iOS device screen should now be visible on the Solstice display. If you don't see the Solstice display in your AirPlay list, make sure the 'iOS Proxy' feature is enabled on your Solstice display and re-validate that your network ports are correctly open.