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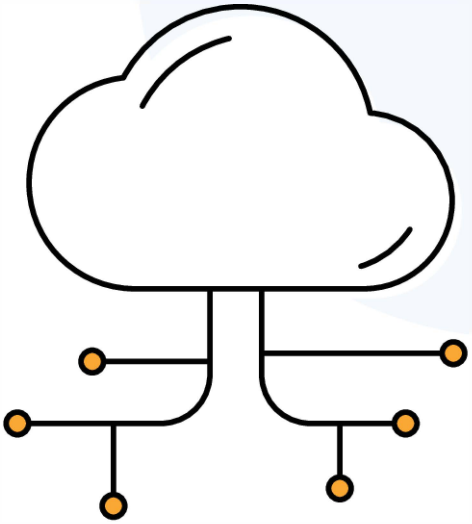

Solstice Cloud Deployment Guide

Updated January 27, 2022

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Solstice Overview

Solstice is Mersive's award-winning collaboration software, installed on a dedicated hardware platform to deliver a turnkey wireless content sharing solution. The Solstice Pod is directly connected to any room display via HDMI, then attached to the networks that participants will use to connect and share to the display. Then, users on the network can follow the on-screen instructions to get the Solstice app and connect to the display to begin collaborating.

Key Terms

- **Solstice display**: Any flat panel or projector display connected via an HDMI video cable to a Solstice Pod or Solstice Display Software host PC.
- **Solstice host**: Used to reference a Solstice Pod or Solstice Display Software for Windows.
- **User device**: Any type of user device that is supported by the Solstice App that users can use to share and control content on the Solstice display. Supported user devices include Windows, macOS, Android, and iOS devices.
- **Posts**: The individual pieces of multimedia, application windows, or desktop shares published to the Solstice display.

Configuring Solstice Displays

There are multiple ways that you can configure a Solstice Pod. You can configure the Pod without a network by plugging a USB mouse and keyboard directly into the Pod. However, Mersive recommends using the Solstice Dashboard to configure your Pods in order to streamline deployment and management.

There are a few methods to access your Pod's configuration settings.

- **Individually configured:** Every Solstice Pod can be configured via the individual Pod's configuration panel. The Pod's configuration panel can be accessed by connecting a USB mouse and keyboard to the Pod, or by entering the Pod's IP address into a web browser, then clicking the Settings icon in the lower right-hand corner of the screen. If the presence bar at the bottom of the Solstice screen is hidden, you can use the mouse to long click or hit the Esc button on your keyboard to show the presence bar and access the Pod's local settings.
- **Centrally configured via the Solstice Cloud portal:** Solstice Cloud is a secure cloud-based portal that allows you to centrally manage your deployment from any location. Solstice Cloud allow administrators to easily deploy, manage, monitor, and update Solstice Pods, and also provides intuitive analytics on your Solstice meetings.
- **Centrally configured via the Solstice Dashboard:** For admins who need an on-premises solution, or who are unable to utilize cloud-based management, Solstice Dashboard is a centralized management tool installed on a local machine or server that can be used to monitor, configure, and update Solstice Enterprise Edition Pods and Windows Software instances over the local network. Instead of individually configuring each Solstice display via its local configuration panel, the Solstice Dashboard streamlines the deployment process and allows IT administrators to manage their deployment from an on-premises, central location.

Solstice Setup

The Solstice Pod leverages existing TCP/IP-based networking. Since the Solstice Pod is a network-attached device, IT administration and Network Security should be involved in designing an appropriate deployment.

Before you deploy Solstice, it is recommended that you read the information below and ensure your network meets the necessary requirements.

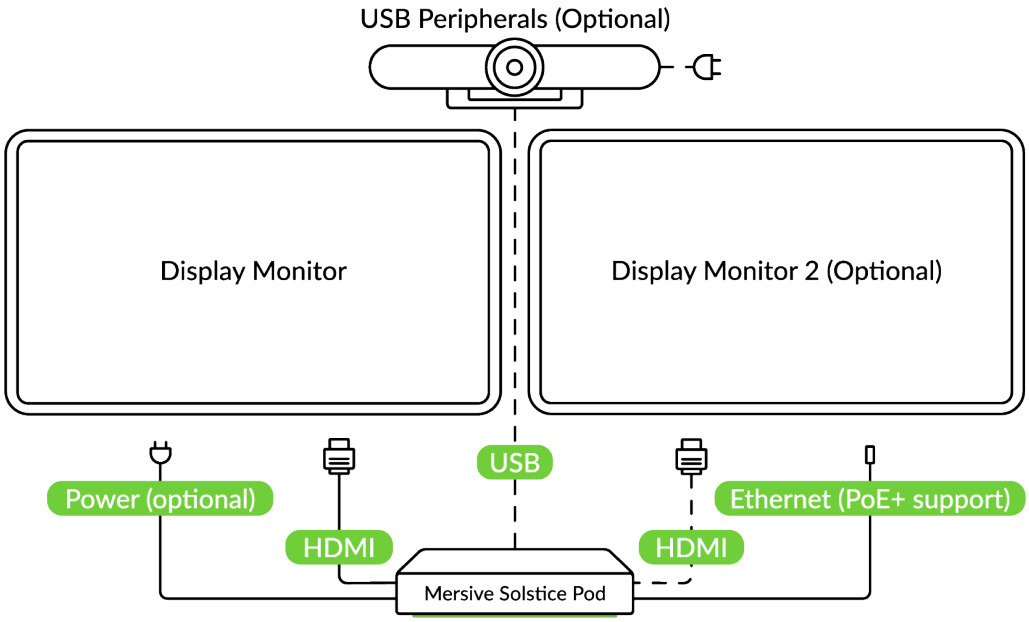
For security-conscious environments, initial configurations for each of your Pods can take place on a standalone network prior to being deployed on your enterprise network. This will ensure that your Pods are configured to be secure before being attached to your network.

System Components

Physical setup and configuration of a Solstice-enabled room is straightforward. The system only requires a few components.

- **Solstice Pod.** The Solstice Pod is a network-attached wireless collaboration device that is connected to up to two display monitors.
- **USB room camera and/or USB microphone (optional).** To enable your Solstice room to support video conferences with Solstice Conference, you can attach a USB room camera and/or microphone to the Solstice Pod via USB.
- **User devices.** These devices are brought to the room by users attending the collaboration session and are used to share content to the Solstice display. User devices can share to the Solstice display using the Solstice app, or any of our app-free sharing options (AirPlay, Miracast, browser-based sharing, HDMI input).
- **Solstice app.** The Solstice app is installed on user devices and is used to share and control on the Solstice display. The Solstice app can be downloaded from mersive.com/download. It can also be deployed centrally for Windows devices using the MSI or SCCM installer. If users are unable to install the app on their device, there are multiple app-free sharing options supported such as AirPlay, Miracast, browser-based sharing or wired HDMI input.
- **Ethernet (recommended).** Mersive recommends connecting your Pods to Ethernet for best performance. However, the Solstice Pod can be connected to Ethernet, a wireless network, and up to 3 VLANs simultaneously.
- **Display monitors.** The Solstice Pod can be connected to up to two display monitors via HDMI.

Sample Room Setup Diagram



Physical Setup Tips

Because the Pod does not store user credential information, unencrypted passwords, or users' data that has been shared to the display, the physical Pods do not have to be located in secure locations. However, other considerations related to theft and environmental conditions should be considered.

- Solstice supports plug-and-plug USB devices. Devices, such as room cameras, should be connected to the Pod via USB and must be in-room. View list of supported devices. Note that DSPs and other processing hubs may not be compatible and should be avoided.
- Display monitors must be directly connected to a Solstice Pod through HDMI video cables to an HDMI port on the back of the Pod.
- When connected to two display monitors, the Solstice Pod will send audio out over the inner HDMI 2 port. However, when a media file is shared, both ports will send audio.
- Select an appropriate physical mounting solution for the Pod that cannot be detached. Consider the use of mounting locks and/or hidden VESA mounting systems behind the display. Specific mounting orientation is not an important factor as the Pod is operational in any orientation.
- Ensure that appropriate environmental controls have been taken into account. The device should operate within an ambient temperature range of 0° C (32° F) to 50° C (122° F). This may require ventilation or active airflow. Solstice Pods should never be stacked on top of each other.
- The Pod should not be mounted in direct contact with a surface that exceeds 30° C (86° F).

Network Requirements

Solstice uses all TCP/IP standard network traffic to communicate across all the required and optional components of the Solstice system. The network(s) that Solstice is ultimately deployed on needs to allow peer-to-peer TCP connections. Additionally, for enterprise networks, firewall exceptions may need to be made and network ports may need to be open to allow certain Solstice capabilities to function.

Firewall Exceptions

You may also need to make firewall or proxy bypass exceptions for the following sites:

- Required for software updates, Solstice Cloud, default RSS feed, default digital signage feed:
  - mersive.com
  - *.mersive.com

  Specific sites required for Solstice Cloud Management (formerly known as Kepler):
  - Kepler.mersive.com
  - Kepler-backend.mersive.com
  - Kepler-auth.mersive.com
  - Kepler-auth-svc.mersive.com
  - Kepler-onboarding.mersive.com
- Required for pod activation, licensing, and subscription updates:
  - manager.flexnetoperations.com
- To detect captive portals, Solstice may periodically attempt a connection to:
  - clients3.google.com/generate_204

Captive portal checks can be turned off as of Solstice version 5.3.

If you utilize a tool that limits program access, such as an anti-virus program, device management services, or a local firewall such as the Windows Firewall Defender, you may need to whitelist or allow the following programs:

- SolsticeClient.exe
- SolsticeConference.exe
- SolsticeVirtualDisplay.exe
- rsusbipclient.exe

If the programs are not listed, you can add the programs manually using the installation path of the Solstice client. Example installation paths are as follows:

- QuickConnect Client (downloaded from the Pod): C:\Users\%username%\AppData\Local\Mersive\SolsticeClient
- MSI & SCCM Installers: C:\Program Files\Mersive Technologies, Inc\Solstice\Client

Open Network Ports

Depending on which features your end-users will utilize, certain network ports/routes must be open for Solstice and those features to work correctly.

TCP

- **7**: Used for gateway check (feature deprecated on Pods in Solstice version 5.3.2 and later).
- **80 and 443**: Used if the Solstice host is allowed to connect to the internet for license activation and software upgrades. When pushing a local update file to the Pod, these ports need to be open between the Pod and the Dashboard. These ports are also used by the OpenControl API to interface with 3rd party systems. When network encryption is enabled, the Solstice Dashboard will send SLR updates via port 443.

  If you are using a Solstice Pod or Solstice Dashboard on 4.1 or higher, communication to Mersive's license server will only occur over https/port 443.

- **6443**: Used for browser-based sharing connections.
- **7236**: Miracast WiFi Direct control port used to establish and manage sessions between the source device and the Pod.
- **7250**: Port on which the Pod listens for Miracast packets when Over Existing Network mode is enabled.
- **6000-7000, 7100, 47000, and 47010**: Should allow inbound AirPlay® traffic to the Solstice host.
- **53100, 53101, and 53102**: Used by default for basic communications between the Solstice host and both end user devices and the Solstice Dashboard. The base port (53100 by default) may be changed on a per-Pod basis through the Pod's configuration panel or the Solstice Dashboard. **Important note:** Changing Solstice's base port will also change the sequential streaming port (Solstice base port +1) and notification port (Solstice base port +2) used by Solstice. You must ensure that all three ports are opened on your network.
- **53103-53119**: Used by Solstice Conference in addition to the default base ports 53100-53102. As a note, UDP traffic will need to be enabled for TCP ports 53107-53117 as Solstice

will pass UDP packets through these ports. **Important note:** Changing Solstice's base port will also sequentially change the ports used by Solstice Conference by +100 ports. For example, if you change the configured Solstice base port to 53101, the ports used by Solstice Conference will change to 53204-53220.

  - Ports used for Windows devices: 53103, 53104, 53110-53119.
  - Ports used for MacOS devices: 53105-53108.

- **53200, 53201, and 53202**: Used by the Solstice host and end user devices to communicate the Solstice Discovery Service (SDS) host if SDS discovery mode is enabled.

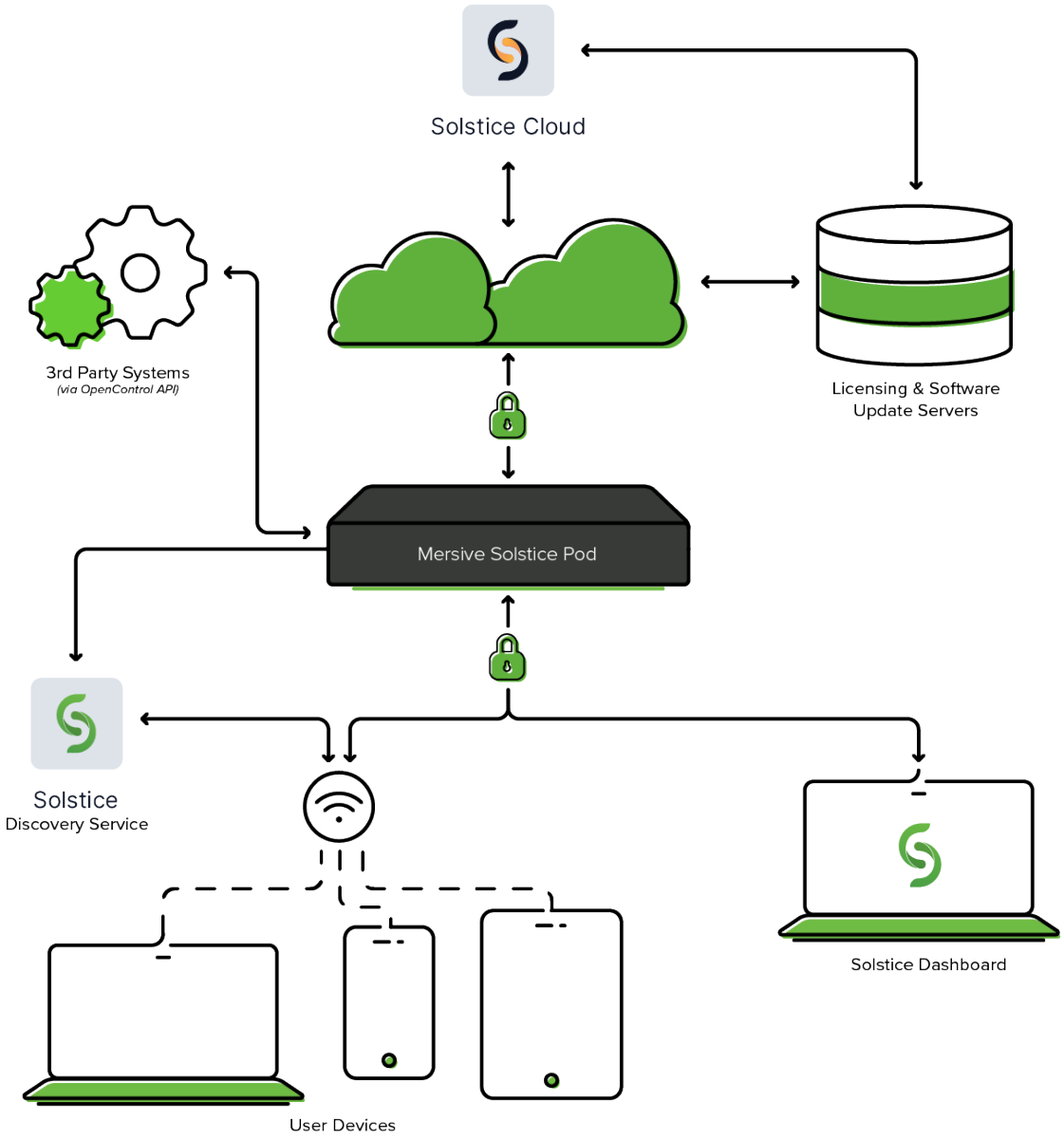
The browser-based sharing capability can utilize any non-privileged TCP port from 1024 to 65535.

UDP

- **123**: Used to communicate with an NTP server.
- **5353**: Required for iOS mirroring via the Bonjour protocol. It is not required when using the Solstice Bonjour Proxy. Also, if Miracast Over Existing Network mode is enabled, this port is used for multicast DNS (mDNS). mDNS is broadcasted to the local subnet of each network interface the Pod is connected to. If the computer that is attempting to make an infrastructure connection is on a different subnet, this broadcast will fail. If this happens, a workaround is to create a DNS entry to the Pod's hostname.
- **6000-7000, and 7011**: Should allow inbound AirPlay® traffic to the Solstice host.
- **55001**: Used for display discovery if broadcast discovery mode is enabled.

Both the Miracast and browser-based sharing capabilities can utilize any non-privileged UDP port from 1024 to 65535.

Network Diagram



Step 1: Import Pods into Solstice Cloud

Solstice Cloud is a secure cloud-based management and analytics portal that allows administrators to easily configure, monitor, and update their Solstice deployment. Once your Solstice Pods have been imported into Solstice Cloud, you will be able to create unlimited configuration templates for network settings, security settings, appearance settings, and more to apply across your Solstice deployment.

Before beginning the process outlined below, connect all your Solstice Pods to your network via an Ethernet connection.

Step 1: Install the Import Application

1. Visit www.mersive.com/download-admin/ and click on **Deployment Management**.
2. Under Solstice Dashboard, click the **Download Solstice Dashboard** link.
3. Fill out the download form then click **Submit**.
4. Run the **SolsticeDashboardSetup.exe** installer and step through the InstallShield wizard until Dashboard is installed. As a note, only select to install the additional Demo feature if you wish to be able to demo Dashboard using a virtual Solstice deployment.

Step 2: Add Pods to the Import Application

Ensure that Solstice Dashboard is installed on a Windows machine connected to the same network as your Solstice Pods.

1. In Solstice Dashboard, find the Import Displays section in the left sidebar and click the **Discover** button. A list of discovered Solstice Pod displays will appear.

If Pods do not appear in the list, they may be on a network that does not support UDP/Broadcast traffic. If this is the case, skip to step 4 to use the **Manual** import option.

2. Select the Pod displays you wish to import. You can Shift+click or Ctrl+click to select multiple displays.
3. Click the **Import** button. The selected displays will be added to your list of Your Solstice Instances.
4. To use the manual import option instead, click the **Manual** button. The Add Display pop-up will appear.

5. Enter in the **Display Name** and **IP Address** for the Pod display instance you are adding. You can also change the default port if desired (optional). If you do not know the IP address for a Pod, you can find it on the Pod display's main welcome screen.
6. Click **Add**. The Solstice Pod display will be added to your list of instances.

Step 3: Create Your Solstice Cloud Account and Add Your Pods to Solstice Cloud

Once your Pods have been added to Solstice Dashboard, you can simultaneously create your Solstice Cloud account and import your Solstice Pods displays into Solstice Cloud to manage and configure your deployment.

1. In Solstice Dashboard, select all the Pod displays in your list of Solstice instances.
2. Go to the **Solstice Cloud** tab, then click **Connect**. A list of your selected Pod displays will appear.
3. If needed, you may select additional Pod displays or remove displays. When all the Pod display instances you wish to import into Solstice Cloud appear, click **Next**.
4. Enter the login credentials for your Solstice Cloud account. If you don't already have a Solstice Cloud account, follow the steps to create a Solstice Cloud account for your organization.
5. Once the Pod displays have been imported, you will see a notification that your displays have been added to Solstice Cloud. Click **OK**.
6. Click **Go To My Account** to be directed to the Solstice Cloud login page via a web browser.

Step 2: About Configuration Templates

Solstice Cloud allows administrators to create unlimited configuration templates to apply across their Solstice deployment. This step will acquaint you with the options for creating configuration templates, which can then be used to quickly and easily apply a common set of options to multiple Solstice Pods in your deployment. The following deployment steps will then guide you through using templates to set the recommended base configurations for quickly deploying Solstice for your organization. For a full list of templates options, see Solstice Cloud: Configuration Templates.

Use any or all of the following methods to configure templates for a wide variety of configuration options that can be applied to Solstice Pods across your deployment:

- **Define the Default template** - Mersive recommends this option if all the Solstice Pods in your organization use the same settings within a configuration category.
- **Create a new template** - If groups of Pods within your deployment need different settings based on location, purpose, or other criteria, create a new template for each configuration needed with a descriptive name based on its purpose (for example, "London Office" for time/locale settings).
- **Duplicate a template** - If only minor changes are needed between sets of configuration options, you can duplicate the most similar existing template and quickly update only those settings that need to be changed.

See the step-by-step directions below for each of these options.

Define the Default Template

Each required Solstice Cloud configuration category contains one ***Default*** template. Mersive recommends configuring this template with the most common set of configuration options for the Solstice Pods in your organization's deployment. Then use the Duplicate a Template option to create variations of the template for groups of Pods that use different configuration options. For example, use the default Time/Locale template to configure the time zone for Pods in the main office, then duplicate the template and modify the duplicates for Pods located in other time zones.

1. In the left sidebar menu of Solstice Cloud, click **Manage** > **Templates**.
2. From the list of configuration categories that appears below Templates, select the category you wish to configure.
3. Click the first template in the list, named ***Default***, to see the available configuration options.
4. Configure the default settings as appropriate for the majority of Solstice Pods in your deployment.
5. Click **Save**. A green box confirming that the template was updated will briefly appear.

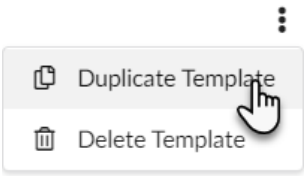
Create a New Template

1. In the left sidebar menu of Solstice Cloud, click **Manage** > **Templates**. A list of available configuration templates will appear in the sidebar.
2. From the list of configuration categories that appears below Templates, select the category you wish to configure.
3. Click **Create New Template**.
4. Enter a descriptive **Template Name**. For example, you could name the template by location (London Office) or appearance (Mountain Theme), as appropriate for its purpose.
5. Configure the settings you wish to be applied to the Solstice Pods using this template.
6. Click **Save**.

> Most settings can be configured collectively in templates, but you may occasionally see settings or values labeled "Unique to Pod" that will need to be set for each Pod individually. See Apply Settings to Individual Pods for details.

Duplicate a Template

1. In the left sidebar menu of Solstice Cloud, click **Manage** > **Templates**.
2. From the list of configuration categories that appears below Templates, select the category you wish to configure.
3. For the template you wish to duplicate, click the vertical ellipsis ⋮ icon, then select **Duplicate Template**.



4. Give the duplicated template a descriptive **Template Name**, ideally related to its purpose, and change the configuration settings as needed.
5. Click **Save**.

Step 3: Rename a Pod and Customize the Appearance

This and the following setup steps guide you through setting the recommended base configuration templates in Solstice Cloud to quickly deploy Solstice based on your organization's needs and IT security policies. For the network settings appropriate to your organization's deployment, consult with your IT or network team. For a full list of templates and configuration options, see Solstice Cloud: Configuration Templates.

Rename a Solstice Pod for Its Location

Mersive recommends assigning Pods names that correspond with the location or room the Pod is in, such as North Conference Room, to help meeting participants easily identify the appropriate Solstice Pod display for their location.

1. To change the name of a Pod in Solstice Cloud, use the left sidebar menu to navigate to either **Manage > Pods** or **Manage > Location**.
2. In the Pods table that appears, find the Pod you want to rename and click the link in the Name column. The Pod's Configuration Settings page will open.

   If you manage a large number of Pods, you can reduce the number of Pods displayed in the table by entering all or part of the Pod's name in the search box, or by setting a filter.

3. In the box that shows the Pod's identifying details, enter a **Pod Name** in the text box that corresponds with the location or room the Pod is in.
4. Click **Save**.

Appearance Settings in Welcome Screen Template

To make it easy for users to discover and connect to the right Solstice display, Mersive recommends renaming the Pod to correspond to the meeting room or space it will be installed in. You can also change the appearance of the Solstice display's welcome screen to match your organization's branding by updating the display's background images, adding customized connection instructions, changing the text color, and more. For more Welcome Screen settings, see Solstice Cloud: Welcome Screen Template.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Welcome Screen**.

2. Either open the ***Default*** template, or click **Create New Welcome Screen Template** and enter a descriptive **Template Name**.
3. To change background images, click on the upload icon for that background image. Then browse to the image file and select.
4. To disable background images from the rotating display, uncheck the box in the lower right-hand corner of the background image preview.
5. To customize the connection instructions that display on the welcome screen, go to the **Instructions** drop-down and select how you would like the connection instructions to display on the Welcome Screen for end-users.
    - **Default:** This setting uses Solstice's default connection instructions.
    - **Show custom instructions:** Allows you to create custom instructions for meeting attendees to see on the Welcome Screen.
6. If you selected the **Show custom instructions** option, a rich text field appears below, allowing you to enter and format custom connection instructions.

    You can include responsive variables, which will be automatically replaced with Pod-specific information, in your custom instructions. Available variables are [RoomName], [ScreenKey], [WifiNetworkName], [WifiIP], [EthNetworkName], and [EthIP]. Note that variables are case sensitive.
7. If you are not enabling sharing Apple device screens via AirPlay, hide the AirPlay instructions by unchecking **Show AirPlay instruction line**.
8. If you are not enabling sharing Windows device screens via Miracast, hide the Miracast instructions by unchecking **Show Miracast instruction line**.
9. Click **Save**.

System Settings in Time/Locale Template

The Time/Locale template allows you to set various system preferences that affect the appearance of your Solstice Pod displays, including timezone and language settings.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Time/Locale.**
2. Either open the ***Default*** template, or click **Create New Time/Locale Template** and enter a descriptive **Template Name**.
3. To set the date and time using a time server, check **Set date/time automatically** and enter the time server URL in the corresponding field (the default timeserver URL is pool.ntp.org).

4. If you want the time to display in 24 hour format (4:00 pm displays as 16:00), select **24 hour format**.
5. From the **Timezone** drop-down, select the timezone the Pod is in (for example, Eastern Time).
6. From the **Language** drop-down, select the language you would like to display on the Pod.
7. Click **Save**.

Step 4: Network and Base Security Settings

Mersive recommends setting up templates with the following network and security configurations for your Solstice Pod displays. These settings will allow users to quickly connect and share content to the displays in Pod-enabled rooms while still maintaining network security standards for larger, centrally-managed Pod deployments. Small deployments, collaboration hotspots, and open-to-public use of Solstice Pods are also perfectly valid.

IT administration and Network Security should be involved in designing an appropriate deployment, and deployments can differ based on network configuration specifics and policies. Ensure you have reviewed the Network Requirements. For additional security configurations, see Solstice Cloud: Security Template.

Base Network and Security Settings in Ethernet Template

Solstice is designed to leverage existing Ethernet networks to support collaboration in meeting rooms and learning spaces. Mersive recommends connecting your Pod to Ethernet for best performance.

These steps outline how to configure basic Ethernet network settings to apply across your deployment. For more about advanced Ethernet settings, see Solstice Cloud: Ethernet Template.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Ethernet**.
2. Either open the ***Default*** template, or click **Create New Ethernet Template** and enter a descriptive **Template Name**.
3. To activate the options, select the **Enable Ethernet** checkbox.
4. Change the **Network Name** to the one that users will see in the list of available networks on their device so that it is easily recognizable.
5. If you wish to allow admin access to make configuration changes on this network, select the **Allow administrative configuration access** checkbox.
6. Select either **DHCP** for the Pod to be dynamically assigned an IP address, or select **Static IP** to enter your network configuration manually.
7. If you selected Static IP, enter the **Gateway**, **Network Prefix Length**, and **DNS 1** fields. Because it is unique to each Pod, you will enter the IP Address after this template is applied to a Pod.

   > Note that the IP Address is unique to each Pod and needs to be configured for every Pod. Once this template is applied to your Pods, you be will prompted to enter this information for each Pod the template is applied to. Also see Step 8: Apply Unique-to-Pod Settings.

8. Click **Save**.

Base Network and Security Settings in WiFi Template

Solstice is designed to securely leverage a wireless network connection that can be applied as Solstice's only network connection, or in dual-network mode alongside a wired Ethernet connection.

These steps outline how to configure basic WiFi network settings to apply across your deployment. There are two options outlined below:

1. Attaching the Pod to a wireless network
2. Disabling WAP mode

If you are not attaching the Pod to a wireless network, Mersive strongly recommends following the steps for Option 2 below to disable WAP mode. For more about advanced WiFi settings, see Solstice Cloud: WiFi Template.

Option 1. Attach the Pod to a Wireless Network

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **WiFi**.
2. Either open the ***Default*** template, or click **Create New WiFi Template** and enter a descriptive **Template Name**.
3. Select the **Enable WiFi** checkbox.
4. If you wish to allow admin access to make configuration changes on this network, select the **Allow admin configuration access** checkbox.
5. Select **Existing Network**. This option connects the Pod to an existing network wirelessly.
6. Enter the network name in the **SSID** field.
7. In the **Security Type** drop-down, choose the appropriate option: **Open**, **WEP**, **WPA/WPA2**, or **802.1x EAP**.

   If you chose **802.1x EAP**, see Solstice Cloud: WiFi Template for more information on this configuration.

8. If prompted, enter the **Password** for this network.
9. Select either **DHCP** for the Pod to be dynamically assigned an IP address, or select **Static IP** to enter your network configuration manually.
10. If you selected Static IP, enter the **Gateway**, **Network Prefix Length** and **DNS 1** fields.

> Note that the IP Address and DNS Hostname are unique to each Pod and need to be configured for every Pod. Once this template is applied to your Pods, you be will prompted to enter this information for each Pod the template is applied to. Also see Step 8: Apply Unique-to-Pod Settings.

11. Click **Save**.

Option 2. Disable WAP (Wireless Access Point) Mode

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **WiFi**.
2. Either open the ***Default*** template, or click **Create New WiFi Template** and enter a descriptive **Template Name**.
3. Uncheck the **Enable WiFi** checkbox.
4. Click **Save**.

Base Security Settings in Security Template

Before deploying your Solstice Pods, certain security baselines should be configured to harden the security of your deployment. The following are the base security settings that Mersive recommends. For more about advanced Security settings, see Solstice Cloud: Security Template.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Security**.
2. Either open the ***Default*** template, or click **Create New Security Template** and enter a descriptive **Template Name**.
3. If you wish to set an admin password to protect your Solstice Pod configurations, enter the password you wish to require for Pod configuration in **Set Admin Password**. To set the same administrator password for all of your Pods (recommended), apply this Security template to all your organization's Pods in Manage > Pods.
4. If you wish to enforce password validation rules (8-character minimum, one uppercase and one lowercase character, one number or special character), select **Enforce password validation rules**.
5. If you do not wish to allow access to a Pod's configuration settings by physically connecting a keyboard and mouse to it, uncheck **Allow local configuration**. Note that the admin password set above is required for this configuration method.
6. Ensure **Enable encryption for Solstice traffic** is selected.
7. If you wish to upload a custom TLS certificate to be used instead of the Pod's default self-signed

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certificate, click the **Upload Certificate** button, then browse to and select the certificate file.

8. Click **Save**.

Base Security Settings in Features Template

This template contains the option to require meeting participants to enter screen key when connecting to Solstice collaboration sessions for added security. You will also use this template for additional configuration in Step 7: Set Content Sharing Options. For more about advanced Features settings, see Solstice Cloud: Features Template.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Features**.
2. Either open the ***Default*** template, or click **Create New Features Template** and enter a descriptive **Template Name**.
3. Under the Solstice Feature Options section, select **Enable screen key**. This is an important security setting that requires end-users to enter the 4-digit screen key visible on the display to connect and share to Solstice.
4. Click **Save**.

Step 5: Add a Room Calendar

Solstice offers the option to display the schedule and calendar information for the room on a Solstice display when there is no other content being shared. Participants can see if the space is currently scheduled or available, as well as the next three upcoming meetings in the space.

Use the following options to integrate room calendars with your Solstice displays. For more details about room calendar integration settings for each calendar type, see Solstice Cloud: Calendar Template.

Room Calendar Settings in Calendar Template

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Calendar**.
2. Click **Create New Calendar Template**.
3. Enter a descriptive **Template Name**.
4. Select the **Enable Calendar Feature** checkbox.
5. From the **Calendar Type** drop-down, select the type of calendar you are integrating for the room. You will need to provide the following information for each option:
    - **Microsoft Exchange** - Enter the Microsoft Exchange **Server URL** for the room calendar account, select whether your Exchange server uses Basic or NTLM as an **Authentication Type**, and enter the information needed for that authentication type as prompted. If the account uses either an **Impersonation** or **Delegation** mailbox, select the appropriate option.
    - **Office 365 Online** - Select the **Authentication Type** for the room calendar's O365 account and enter the information needed for that authentication type as prompted. If the account uses either an **Impersonation** or **Delegation** mailbox, select the appropriate option.
    - **Google Calendar** - **Upload service account credentials**, such as a JSON key, for the Google Workspace service account associated with the Pod's room calendar.
    - **3rd Party Only** - Only select this option if you are using Solstice's OpenControl API to integrate a third-party calendar. See Calendar API for configuration options.

    

    Authentication information for room calendar accounts, such as **Username**, **Password**, or **Room Email**, will need to be entered individually for each Pod. Steps for doing so are covered in Step 8: Apply Templates and Unique-to-Pod Settings.

6. To hide meeting titles or meeting organizers from being visible on the room display, uncheck **Show meeting titles** and/or **Show meeting organizers**.

7. Select the desired **Update Interval** frequency to set how often Pods will update the calendar meeting information visible on the display.
8. Click **Save**.

For Solstice Conference to auto-launch a scheduled web conference from the link in the body of the meeting invitation, the Microsoft Exchange server setting `DeleteComments` must be changed to `$false` for the room's Exchange or O365 mailbox account. When set to `$true` (default), the body of incoming meeting requests is removed, and the web conference cannot be auto-launched. For details, see the Microsoft documentation.

Step 6: Set Up Display Discovery

Display discovery refers to the ability for a user to "discover" what Solstice Pod displays are available to connect to without knowing the Pod's IP address. By default, Solstice utilizes UDP broadcast packets to enable discovery. Broadcast discovery is recommended only for single network configurations that do not use a switch and that allow UDP broadcast traffic. Mersive strongly recommends utilizing Solstice Discovery Service (SDS), especially if broadcast discovery needs to be disabled.

SDS is a lightweight network application for display discovery and only requires a simple, one-time setup. SDS populates a user's Solstice app with a list of Pod displays available on the network, allowing them to simply click to connect. Network administrators can also configure DNS resolution on their networks to work with SDS, allowing users to enter a Pod's domain name rather than its IP address to connect. For more information on how to implement and configure SDS, see Solstice Discovery Service (SDS).

SDS Requirements

- Solstice Disovery Service must be installed on a Windows machine with a static IP address running Windows 8 or 10, or a Windows Server running 2012 R2 or later, and a quad core processor with a minimum of 12GB RAM. A Windows 2016 Server may be used if desktop experience is enabled.

1- Download and Install SDS

1. Visit mersive.com/download/get-sds.
2. Under **Newest Version (recommended)**, click the link for the latest version of SDS. The installer will be downloaded.
3. Run the SolsticeDiscoveryServiceSetup_[version_number].exe installer on the Windows host machine or Windows server and step through the InstallShield wizard until SDS is installed.

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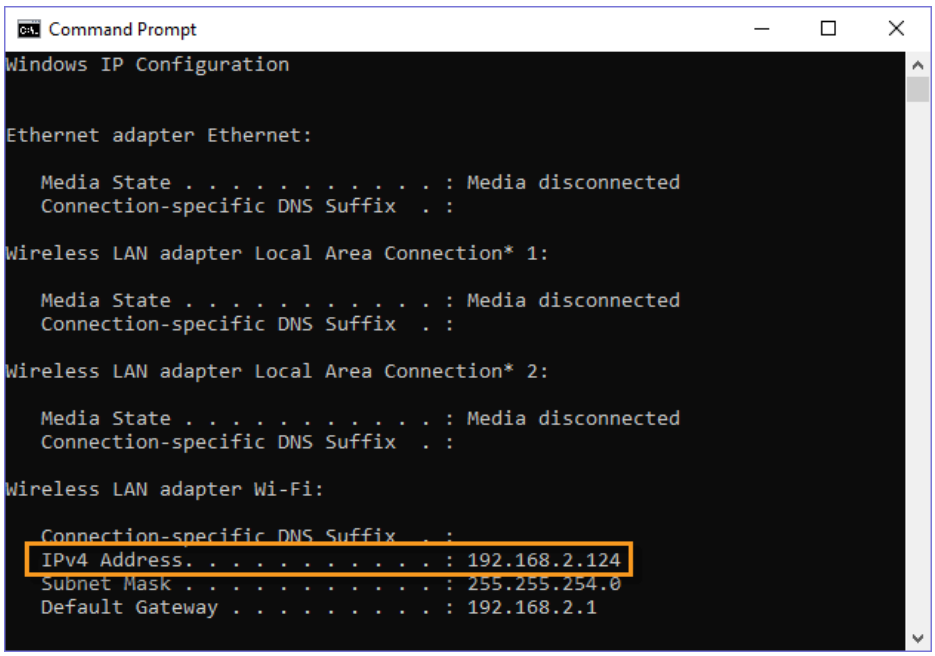
2 - Find the IP Address of the SDS Host

If you already know the static IP address of the Windows machine with SDS installed, move on to step 3 below.

To find your IP address, open a Command Prompt window, type **ipconfig**, and hit Enter. The IP address is listed in the results that appear.



3 - Create a Discovery Template in Solstice Cloud

Creating a Discovery template allows you to easily configure SDS for all of your Solstice Pods managed in Solstice Cloud.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Discovery**.
2. Either open the ***Default*** template, or click **Create New Discovery Template** and enter a descriptive **Template Name**.
3. Uncheck **Broadcast display name on network** and ensure that **List display to SDS** is checked.
4. In the **SDS Host 1** field, enter the SDS host machine's IP address.

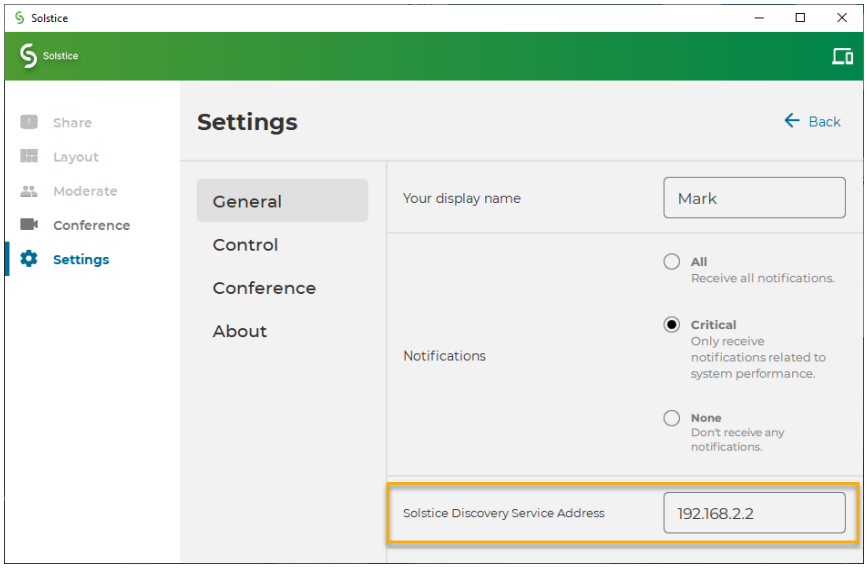
> A second SDS host can be listed for Solstice displays that are attached to two networks using Solstice's dual-network capability. Displays attached to two networks will require an SDS host machine on each network in order to utilize SDS (order does not matter).

5. Click **Save**.

4 - Set SDS Host in Solstice User Apps

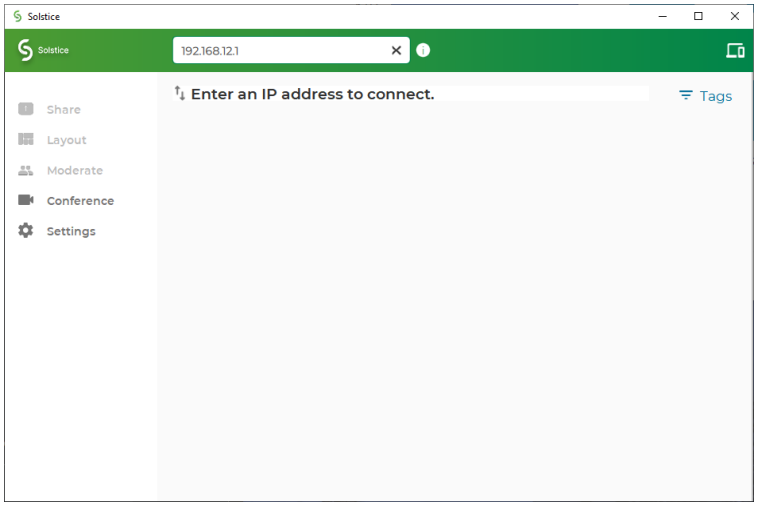
For users to see Solstice displays listed in the SDS directory, each user will need to do a one-time configuration to enter the SDS host IP address in their Solstice app's Settings. After entering the SDS

host, the user will be able to see Solstice displays available for connection every time they open the app.



If centrally deploying the app to end-users using MSI or SCCM, SDS information can be pre-configured during the installation process. For more information on MSI and SCCM installations, see Deploy Solstice with MSI or SCCM.

Alternatively, if you have already applied SDS information to your Solstice Pods and displays, as described in step 3 above, SDS will be automatically configured in a user's app when they connect to one of these displays by entering the display's URL in the app's search bar.



Step 7: Set Content Sharing Options

Meeting participants connected to a Solstice display with a laptop computer can share three basic kinds of content through the Solstice app: their whole desktop, a specific application window, or media files such as still images and videos. Screen mirroring for mobile devices is available via AirPlay and Android mirroring support through the Solstice mobile app. Miracast and AirPlay support also provide the ability mirror the screens of Windows or macOS/iOS devices without the Solstice app. For more information on how to configure Solstice to support sharing with AirPlay and Miracast, see Enable Sharing with AirPlay and Enable Sharing with Miracast.

Solstice Conference can also be enabled, allowing meeting hosts to share the shared Solstice display workspace as well as room audio and video resources with meeting participants connected via a web conference application (Zoom, Teams, GoToMeeting, etc.) on the meeting host's laptop.

Content Sharing Settings in Features Template

These settings determine which sharing options users will be able to use to share content to the Solstice display. For details about using this template to enable the screen key option for added security in Solstice collaboration sessions, see Step 4: Network and Base Security Settings.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Features**.
2. Click either the ***Default*** template or the template you created in Step 3: Set the Base Security Settings to enable the screen key.
3. Under the Solstice Feature Options section, enable or disable the various sharing options based on your organization's needs and policies.
    - **Miracast Infrastructure:** Allows users to mirror their Windows device screen to the Solstice display without the Solstice app; streams over the existing network.
    - **Miracast WiFi Direct:** Allows users to mirror their Windows device screen to the Solstice display without the Solstice app; streams P2P from the Windows device to the Pod.
    - **Android mirroring:** Allows users to mirror their Android device screen in the Solstice app.

      The Solstice app for Android versions 5.4 and higher support audio capture with screen mirroring on Android devices running Android 10 and up. Other apps may block audio capture, preventing the Solstice app from streaming their audio.

    - **iOS mirroring (AirPlay):** Allows users to mirror their iOS and macOS device screens with or without the Solstice app.

    - **AirPlay discovery proxy:** Enable this option if your network does not allow use of Apple's Bonjour.
    - **Bluetooth discovery for AirPlay**: Provides another alternative for discovery for environments that do not allow UDP broadcast traffic or Apple's Bonjour protocol by allowing AirPlay users to discover the Pod using Bluetooth. Users will still have to connect to the same network as the Pod in order to stream content via AirPlay.
- **Clientless sharing via browser**: Allows users to connect and share content via a web browser without the Solstice app.

4. Click **Save**.

Enable Solstice Conference in Room Intelligence Template

Enabling Solstice Conference in this template makes the Solstice shared display and audio/video resources connected to the Solstice Pod available to web conferencing applications via the meeting host's laptop computer. See the Solstice Conference Admin Guide for more information.

For more about the options to detect useful information about a conference room available in this template, see Solstice Cloud: Room Intelligence Template.

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Templates** > **Room Intelligence**.
2. Either open the ***Default*** template, or click **Create New Room Intelligence Template** and enter a descriptive **Template Name**.
3. Select **Enable Solstice Conference** if you wish to enable the Solstice Conference capability.
4. Click **Save**.

Enable Sharing with AirPlay

Screen mirroring for Mac and iOS devices is available through Solstice's support for AirPlay® mirroring. This allows users to wirelessly stream their screen to the Solstice display in real-time without having to install an app. If your network does not allow UDP broadcast traffic or Apple's Bonjour protocol, Solstice provides an AirPlay discovery proxy alternative that can be utilized instead.

Network Routing Requirements

The following network ports/routes are required to support AirPlay streaming to Solstice Pods.

- **TCP ports 6000-7000, 7100, 47000, and 47010**: Allow inbound AirPlay traffic to the Solstice host.
- **UDP port 5353**: Required for iOS mirroring via the Bonjour protocol. It is not required when

using the Solstice Bonjour Proxy.

- **UDP ports 6000-7000, and 7011**: Allow inbound AirPlay traffic to the Solstice host.

For more information on all of the network ports that Solstice utilizes, see Open Network Ports.

How To Enable Sharing with AirPlay in Solstice Cloud

1. Log in to Solstice Cloud. In the left sidebar navigation, expand the **Manage** category and select **Pods**.
2. From the table, click the name of the Pod to be set up for Miracast. Scroll down to the **Template Configuration** section and click the ⌄ icon to the right of **Features**. If the Pod was previously assigned to a Features template, click **Edit** to change its Features settings individually.
3. To allow users to mirror their iOS device screen to the Pod, check **Enable iOS mirroring (AirPlay)** in the left column.
4. If your network does not allow UDP broadcast traffic, check one of the following options:
    - **Enable AirPlay discovery proxy**- Utilizes an alternative discovery proxy if the network does not allow the use of Apple's Bonjour. Note: This option may not support video sharing.
    - **Enable Bluetooth discovery for AirPlay** - Allows Bluetooth-enabled Apple devices to discover and connect to the Pod using Bluetooth. The Solstice display will appear in their device's list of available Bluetooth devices. However, users will have to connect to the same network as the Pod in order to stream content via AirPlay.
5. Save the AirPlay settings changes with the option that best fits your situation:
    - Click **Save as Unassigned** to save the Pod's settings uniquely (not assigned to a template).
    - Click **Save as New Template** to create a Miracast-enabled template that other Pods can be assigned to in the Pods table.

Enable Sharing with Miracast

Screen mirroring for Windows devices is available through Solstice's support for Miracast streaming. This allows users to wirelessly mirror or extend their screen to the Solstice display in real-time without having to install an app.

Solstice's support for Miracast works in two stages. In the discovery stage, a Miracast-enabled device searches for active Miracast receivers nearby for the user to connect and stream to. This requires the

Solstice Pod's wireless network interface card to be enabled and not acting as a wireless access point. In the second stage, the device streams content to the Miracast receiver using either an existing network (Miracast over Existing Network) or a peer-to-peer wireless connection (WiFi Direct).

Solstice's Miracast support has three modes:

- **Over Existing Network/Infrastructure and WiFi Direct (recommended).** Allows Pods to dynamically select best video streaming mode. Most robust device connection and setup configuration. Windows 8, Windows 10, and Android devices supported.
- **Over Existing Network/Infrustructure.** Leverages existing network to support larger number of simultaneous Miracast users. All Miracast traffic is subjected to network security and monitoring. Windows 10 devices only supported.
- **WiFi Direct.** Good for use cases where one Miracast device will be used at a time. Windows 8, Windows 10, Android devices supported.

Network Routing Requirements

The following network ports/routes are required to support Miracast streaming to Solstice Pods.

- **TCP port 7236**: WiFi Direct control port used to establish and manage sessions between the source device and the Pod.
- **TCP port 7250**: Port on which the Pod listens for Miracast packets when Over Existing Network mode is enabled.
- **UDP port 5353**: If Miracast Over Existing Network mode is enabled, this port is used for multicast DNS (mDNS). mDNS is broadcast to the local subnet of each network interface the Pod is connected to. If the computer that is attempting to make an infrastructure connection is on a different subnet, this broadcast will fail. If this happens, a workaround is to create a DNS entry to the Pod's hostname.
- For for Gen2i Pods, confirm that port **32768:60999** is also open.
- Ensure that the IP address space for WiFi Direct (**192.168.49.***) is not behind a firewall.

Miracast may utilize any non-privileged UDP port from 1024 to 65535 for video streaming.

Important Considerations

- Miracast requires that the Pod be located in close proximity to the display. Miracast discovery operates over a range of approximately 150–200 feet. Only Pods within this range will be displayed in the Miracast source list on the client device.

- There are many factors that can affect the performance of Miracast streaming. For more information on Miracast performance by configuration and use case, view the Miracast Performance Tech Note.

How To Enable Sharing with Miracast in Solstice Cloud

1. Log in to Solstice Cloud. In the left sidebar navigation, expand the **Manage** category and select **Pods**.
2. From the table, click the name of the Pod to be set up for Miracast. Scroll down to **Template Configuration** section and apply the following settings, according to your network configuration based on the table below.

Pod's Network Configuration	Pod Configuration for Miracast in Solstice Cloud
Ethernet Only (recommended)	a. Expand the WiFi settings. Select **Enable WiFi**, choose **Existing Network**, and set Security Type to **Open**. This enables the wireless antenna for Miracast discovery. Do not enter an SSID to attach the WiFi interface to an existing network. This interface will remain idle and will only be used for the Miracast discovery stage. Use one of the Save options (see step 3 for details) to update the Pod. b. Expand the **Features** settings and select **Enable Miracast Infrastructure** and **Enable Miracast WiFi Direct**. ⚠ Turning Miracast WiFi Direct off and back on in quick succession for a Solstice Pod may result in it temporarily appearing multiple times in the Windows Connect and Wi-Fi connection panels. To resolve this issue, refresh the list of available Miracast WFD devices by turning Wi-Fi off on and back on for affected Windows devices.
Wirelessly Attached to Existing Network Only	a. Select **Enable Miracast Infrastructure**.
Ethernet + Wirelessly Attached to Existing Network	a. Select **Enable Miracast Infrastructure**.

Ethernet + Wireless Access Point	Miracast not supported. When the Pod is acting as an access point, Miracast discovery cannot operate. Contact Mersive to discuss other options like attaching your Pod to an existing network.
Wireless Access Point Only	

3. Save the Miracast settings changes with the option that best fits your situation:
    - Click **Save as Unassigned** to save the Pod's Features settings uniquely (not assigned to a template).
    - Click **Save as New Template** to create a Miracast-enabled Features template that other Pods can be assigned to in the Pods table.

Step 8: Apply Configuration Templates and Unique-to-Pod Settings

In the step, you will apply the configuration templates you created across your deployment. Repeat the process of assigning a template to a Pod for all of the configuration templates you created, and applying them to all of the Pods across your deployment.

> To make the process of applying templates across your deployment more efficient, you can use categories to apply configuration templates to Pods by location, campus, or any other categories you choose to define. See Create Categories to learn more about how to create and use categories, as well as best practices.

You will also find below information on how to apply settings that are unique to a Solstice Pod, such as room calendar authentication details, after assigning a Pod to a pre-configured template. For how to change the settings of an individual Pod not assigned to a template, see Managing Your Solstice Pod Settings.

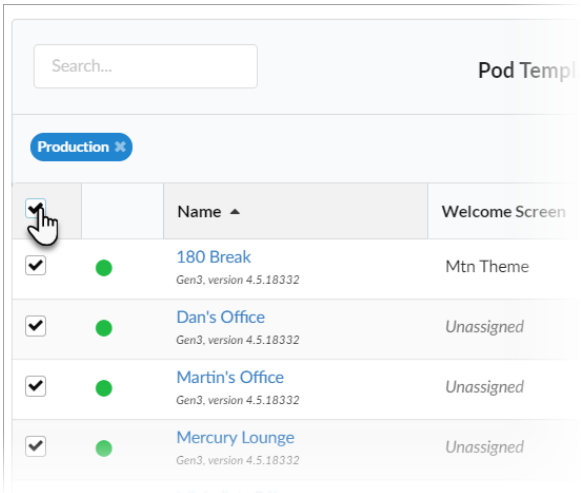
How to Apply Configuration Templates to Solstice Pods

1. In the left sidebar menu of Solstice Cloud, click **Manage** > **Pods**.

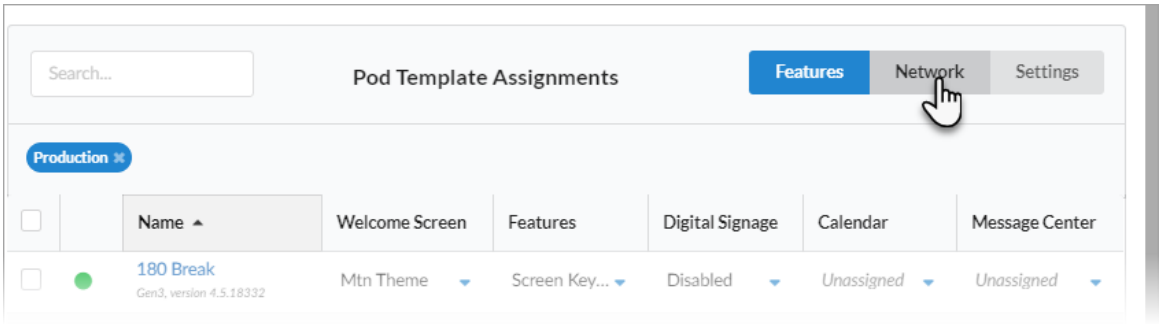
   The Pod Template Assignments table displays. This table is used to apply templates across your deployment. You can apply a template to multiple Pods at once.

   > You can use the filters from the categories you have created to sort Pods in your deployment and make applying templates across your deployment easier. Filters allow you to apply templates by criteria such as location or campus, depending on the categories you have created and assigned to Pods.

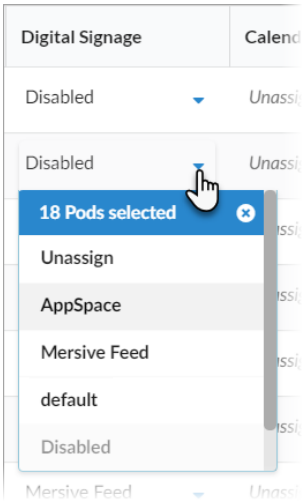
2. Select the checkboxes of the Pods you want to apply the template to. You can select each Pod's checkbox individually, or select the checkbox in the header row of the table to select all Pods you have access to in the table.



3. For each template you want to apply, go to the corresponding template type column (e.g., Welcome Screen). You can view a different group of template columns by selecting the group name in the upper right-hand corner of the table.



4. Click the corresponding drop-down for one of the checked Pods in the table, then select the name of the created template. This will apply the template to all of the checked Pods.

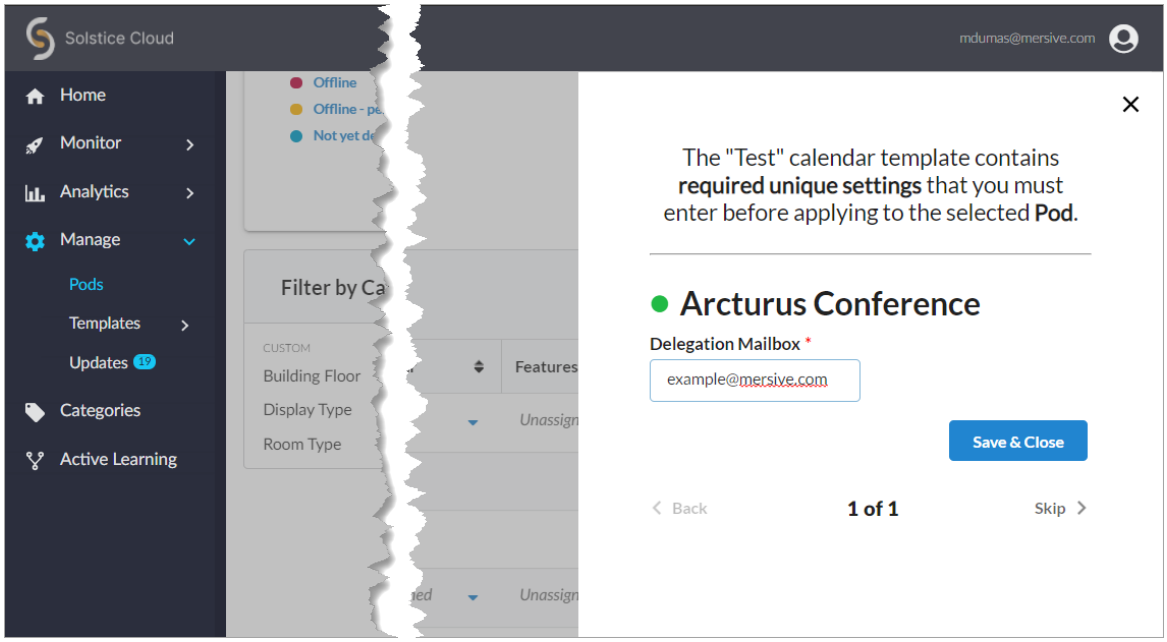


5. A pop-up will ask you to confirm the changes. Click **Confirm**. A green notification that the template was applied then displays.

6. As changes are being applied, a loading icon will appear next to the Pod, and the pending changes icon will appear next to the template(s) being applied. Once the changes are applied, the Pod's normal status will resume.

> If a Pod is offline, any changes made will be applied when the Pod is back online.

7. If a template you applied has any unique settings that need to be applied each Pod individually, a sliding pop-up will appear prompting you to enter the needed information. Once you are done with all of the settings screens, click **Save & Close**.



How to Apply Settings Unique to Pods

1. In the left sidebar navigation panel of Solstice Cloud, click **Manage** > **Pods**.
2. In the Pod Template Assignments table, click the name of the Pod you want to configure individually.
3. In the Template Configuration section click the icon to expand the options available for a particular settings category, such as Calendar.
4. If the selected Pod has previously been assigned to a template, you may need to click **Edit** to be able to interact with the configuration options.
5. After entering settings that are unique to an individual Pod, such as Username, Password, and Room Email in the Calendar settings, click the **Save** button that appear near the edited settings, not Save as Unassigned or Save as New Template at the top of the settings section.

6. A message will appear confirming the Pod configuration has been updated. Until the configuration has been successfully applied to the Pod, an option is available to Cancel Pending Changes.

Step 9: Validate Your Solstice Cloud Deployment

After configuring your Solstice deployment using Solstice Cloud, you can validate the functionality of your deployment with the following steps.

- [ ] **Step 1: Connect devices to network.** Connect a user device such as a Windows or Mac laptop or an Apple or Android mobile device to a network also connected to the Solstice display.

- [ ] **Step 2: Download the Solstice app.** Open a web browser and enter the IP address shown on the welcome screen of the Solstice display. Follow the link to get the Solstice app.

- [ ] **Step 3: Verify available devices are showing.** Launch the Solstice app. A list of discovered Solstice displays available for connection should appear. If no displays appear, you may still need to configure SDS.

- [ ] **Step 4: Connect to the Solstice Pod display.** Click or tap the name of the desired Solstice display to connect the user's device to that display.

- [ ] **Step 5: Test sharing options.** While connected to the Solstice display, test the following sharing options with your Solstice app. If playing a video, you should see about 22-30 fps from a 1080p resolution device, depending on its specs. Audio should be synchronized.

    - Share desktop, or mirror mobile device screen (AirPlay or Android screen mirroring)
    - Share application window (such as PowerPoint or a PDF)
    - Share media files (video files and images)

Other Considerations

Below are some best practices that should be taken into account or performed after deploying Solstice.

- If you want to learn more about how to enable and use Solstice Conference, see our Solstice Conference Admin Guide and Solstice Conference User Guide.
- If you want to learn more about how to enable and use Solstice Active Learning, see our Solstice Active Learning Guide.
- Depending on your network security policy, you may need to export a list of the Solstice displays' MAC addresses and provide it to your network team so they can whitelist them on the network. You can export the list from the Solstice Dashboard.
- If you centrally manage PC-based client applications, Mersive provides MSI and SCCM installers for the Solstice app. For more information, see Deploy Solstice with MSI or SCCM.