

# Microsoft Teams Integration with Mist

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# Microsoft Teams Integration Overview

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Microsoft Teams (Teams) integration with Mist enables Mist to gather information about Teams calls from the Microsoft Azure cloud. This information gathered includes packet loss, latency, and jitter data for a client. Using this information, Mist identifies Teams calls during which problems—such as dropped calls and bad audio or video—occur, resulting in a bad user experience.

Mist correlates the information that it obtains from the Azure cloud with the wired, wireless, and WAN network insights to determine the root cause for the Teams call issues. Marvis leverages the correlated data to help you find the root cause.

## Subscription Requirements for Teams Integration

To integrate Teams with Mist, you'll need a Marvis for Wireless subscription.

## Mist Data Collection from Teams

Mist uses the OAuth 2.0 protocol to link a Mist organization with a Teams user account.

Mist fetches the following data from Teams:

- Administrator information
  - Name and the e-mail ID of the administrator who linked the account
- Meeting information
  - Meeting details—Meeting ID and meeting host information

- Meeting participants—Participant information such as the display name, public and private IP address, MAC address, and hostname
- User's quality-of-service (QoS) information—Latency, jitter, loss, bit rate, resolution, client battery, and so on
- User feedback—Rating provided by the user at the end of the call

Mist correlates the meeting data with the network data from the wired, wireless, and WAN devices to:

- Provide insights
- Help perform a root cause analysis on the health of the collaboration applications
- Get to a faster resolution of the issue causing a poor experience

## Personally Identifiable Information (PII) Data Security

Mist Teams integration is an **Opt-in** service. In addition to the data specified in the *AI-Driven Enterprise Privacy Regime* section of [Mist AI Cloud Service Description](#), Mist collects the e-mail IDs of the Teams meeting participants, and the CPU and battery information about their devices. Mist uses this information to measure and describe the user experience. If your organization is subject to the Health Insurance Accountability and Portability Act ([HIPAA](#)), check with your legal team before opting for this service.

# Integrate Your Microsoft Teams Account with Mist

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- [Link Your Teams Account to a Mist Organization | 3](#)

To enable Mist to collect data from the Microsoft Teams application, you must link your Teams account to your Mist organization.

## About the Linking Workflow

The [Application Experience with Mist](#) application is listed in Microsoft Entra Gallery (formerly Microsoft Active Directory). The workflow for linking creates a Microsoft Entra service principal in your Entra tenant. For more details about how the linking works, see:

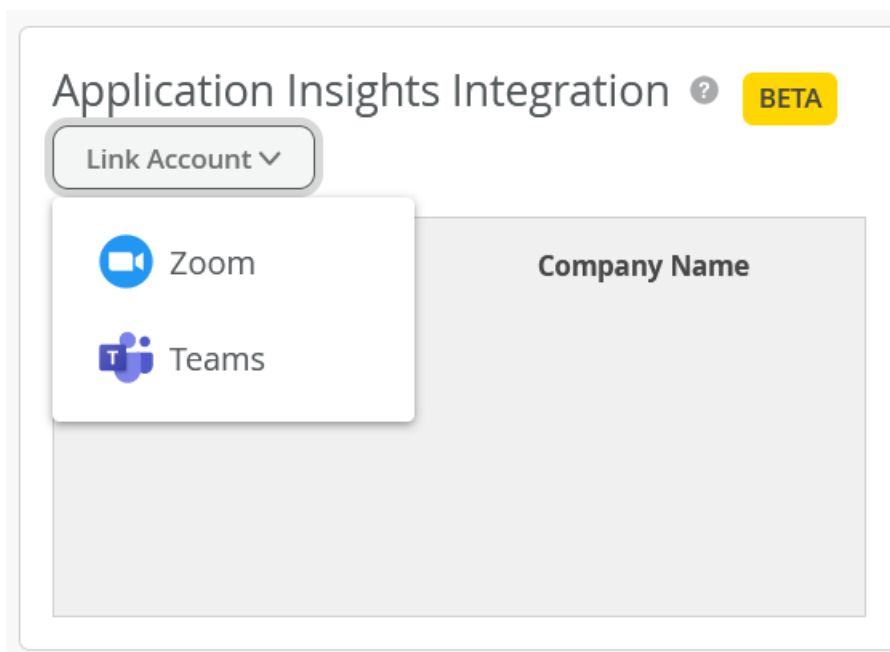
- [How are Application Objects and Service Principals related to each other](#)
- [Why do applications integrate with Azure AD](#)
- [What happens when you register an application](#)
- [Service Principal Example](#)

## Link Your Teams Account to a Mist Organization

You can add one Teams account to multiple Mist organizations. One Mist organization supports multiple Teams accounts. Only users with the Global Administrator role or Privileged Role Administrator can link a Teams account to an organization.

To link your Teams account to an organization on the Mist portal:

1. On the Mist portal, select **Organization** > **Settings**.
2. Under Application Insights Integration, select **Teams** from the **Link Account** drop-down list.



3. Click **Yes** in the Confirm Redirect dialog box.

You are redirected to the Microsoft Teams SSO page.

4. Enter your Teams credentials and click **Sign In**.

**NOTE:** Use a global administrator account or service account. If you're using a service account, ensure to assign the **Privileged Role Administrator** or Global Administrator role to the account before proceeding to link the account. The following screenshot shows the permissions required for a service account:

The screenshot shows the 'Administrative roles' page in the Azure AD portal. At the top, there are navigation options: '+ Add assignments', 'X Remove assignments', 'Refresh', and 'Got feedback?'. Below this, the text reads: 'Administrative roles can be used to grant access to Azure AD and other Microsoft services. [Learn more](#)'. There is a search bar 'Search by name or description' and an 'Add filters' button. A table lists administrative roles with columns for Role, Description, Resource Name, Resource Type, Assignment Path, and Type. The 'Privileged Role Administrator' role is highlighted, with a description: 'Can manage role assignments in Azure AD, and all aspects of Privileged Identity Management.' Its Resource Name is 'Directory', Resource Type is 'Organization', Assignment Path is 'Direct', and Type is 'Built-in'.

Role	Description	Resource Name	Resource Type	Assignment Path	Type
<input type="checkbox"/> Privileged Role Administrator	Can manage role assignments in Azure AD, and all aspects of Privileged Identity Management.	Directory	Organization	Direct	Built-in

If two-factor authentication is enabled for your account, you are prompted for additional authentication.

You will see a permissions page.

The screenshot shows a 'Permissions requested' dialog box from Microsoft. At the top, it says 'Microsoft' and '@mistai.onmicrosoft.com'. The title is 'Permissions requested' and the subtitle is 'Review for your organization'. The application being reviewed is 'Application Experience with Mist' by Juniper Networks, Inc. The dialog lists three permissions requested by the app: 'Sign in and read user profile', 'Read online meeting details', and 'Read all call records'. Each permission includes a brief description and a note that it is a permission requested to access data in MistAI. At the bottom, there is a warning: 'If you accept, this app will get access to the specified resources for all users in your organization. No one else will be prompted to review these permissions.' Below this, it states: 'Accepting these permissions means that you allow this app to use your data as specified in their [terms of service and privacy statement](#). You can change these permissions at <https://myapps.microsoft.com>. [Show details](#)'. There is also a link: 'Does this app look suspicious? [Report it here](#)'. At the bottom, there are 'Cancel' and 'Accept' buttons.

**NOTE:** The Application Experience with Mist application requires the following permissions from Microsoft Graph:

- User.Read—To store user data such as account ID/number of the account, along with the administrator name or e-mail address.
- CallRecords.Read.All—To correlate the QoS data of the meeting participant with the data from the Mist network devices.
- OnlineMeetings.Read.All—To correlate the QoS data of the meeting participant with the data from the Mist network devices.

Here's an example screenshot that shows the permissions:

**Application Experience with Mist | Permissions**

Below is the list of permissions that have been granted for your organization. As an administrator, you can grant permissions to this app on behalf of all users (delegated permissions). You can also grant permissions directly to this app (app permissions). [Learn more.](#)

You can review, revoke, and restore permissions. [Learn more.](#)

[Grant admin consent for MistAI](#)

**Admin consent** | **User consent**

Search permissions

API Name	Claim value	Permission	Type	Granted through	Granted by	
<b>Microsoft Graph</b>						
Microsoft Graph	User.Read	Sign in and read user profile	Delegated	Admin consent	An administrator	...
Microsoft Graph	OnlineMeetings.Read.All	Read online meeting details	Application	Admin consent	An administrator	...
Microsoft Graph	CallRecords.Read.All	Read all call records	Application	Admin consent	An administrator	...

## 5. Click **Accept**.

You are redirected to the Mist portal. You can now see the Teams application listed in the Application Insights Integration section.

**Application Insights Integration** BETA

Link Account ▾

Status	Application	Company Name
●	Teams	--

## 6. Click the row to view more information.

You can see the relevant account details on the Teams Account Information page.

### Teams Account Information ✕

<b>Last Sync:</b>	Oct 16, 2023 17:00
<b>Last Status:</b>	Success
<b>Account Id:</b>	[REDACTED]
<b>Linked By:</b>	--
<b>Company Name:</b>	--
<b>Linked Timestamp:</b>	Jun 2, 2023 11:10
<b>Application:</b>	Teams

[Unlink Account](#) [Done](#)

## Unlink a Teams Account from Mist

To unlink a Teams account from a Mist organization:

1. In the Mist portal, select **Organization** > **Settings**.
2. Under Application Insights Integration, click the account that you want to unlink.
3. Click **Unlink Account**.

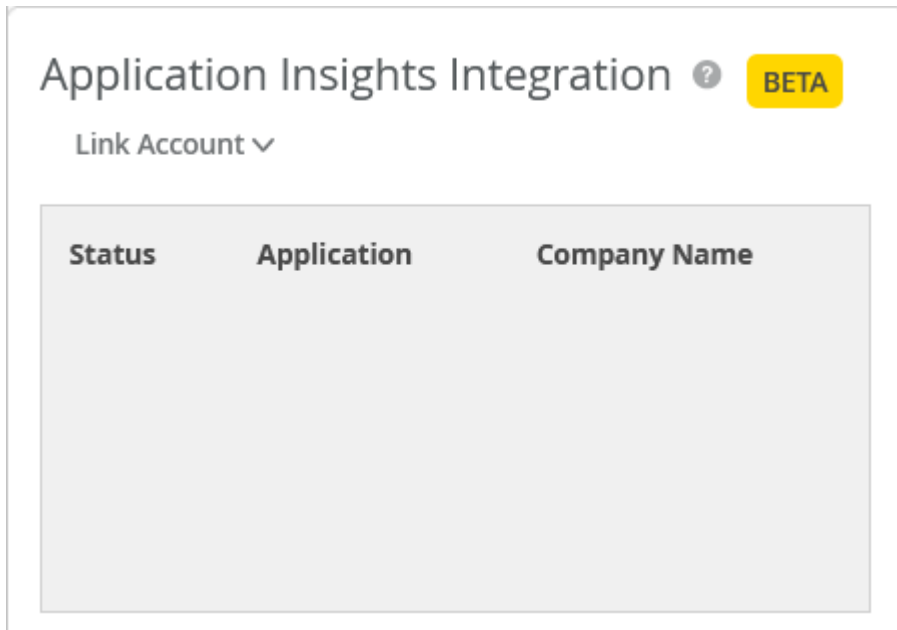
### Teams Account Information ✕

<b>Last Sync:</b>	Oct 16, 2023 17:00
<b>Last Status:</b>	Success
<b>Account Id:</b>	[REDACTED]
<b>Linked By:</b>	--
<b>Company Name:</b>	--
<b>Linked Timestamp:</b>	Jun 2, 2023 11:10
<b>Application:</b>	Teams

[Unlink Account](#) [Done](#)



You can see that the Application Insights Integration section no longer lists the account.



## View Teams Meeting Insights

### IN THIS SECTION

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- [View Client List for a Site | 11](#)
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Mist collects Teams meeting data and displays the insights only if a client joins a Teams call when connected to a Mist access point (AP). Mist does not display insights for calls that you make outside of the Mist network. You can view the meeting insights both at the site level and the client level.

## View Site-Level Teams Meeting Insights

To view site-level meeting insights:

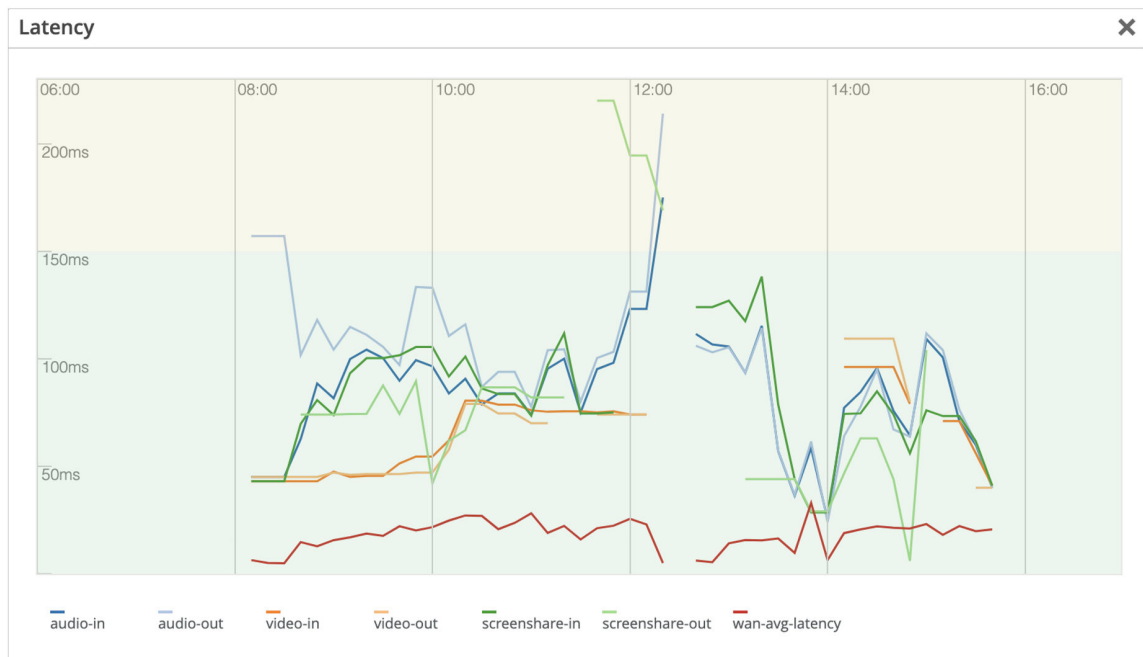
1. In the Mist portal, select **Monitor** > **Service Levels**.
2. Select **Insights**, the site, and time range.
3. Scroll down to the Meeting Insights section. You can see a graphical representation of the data that Mist aggregates for all the clients in the site for the selected duration.

The aggregation interval is:

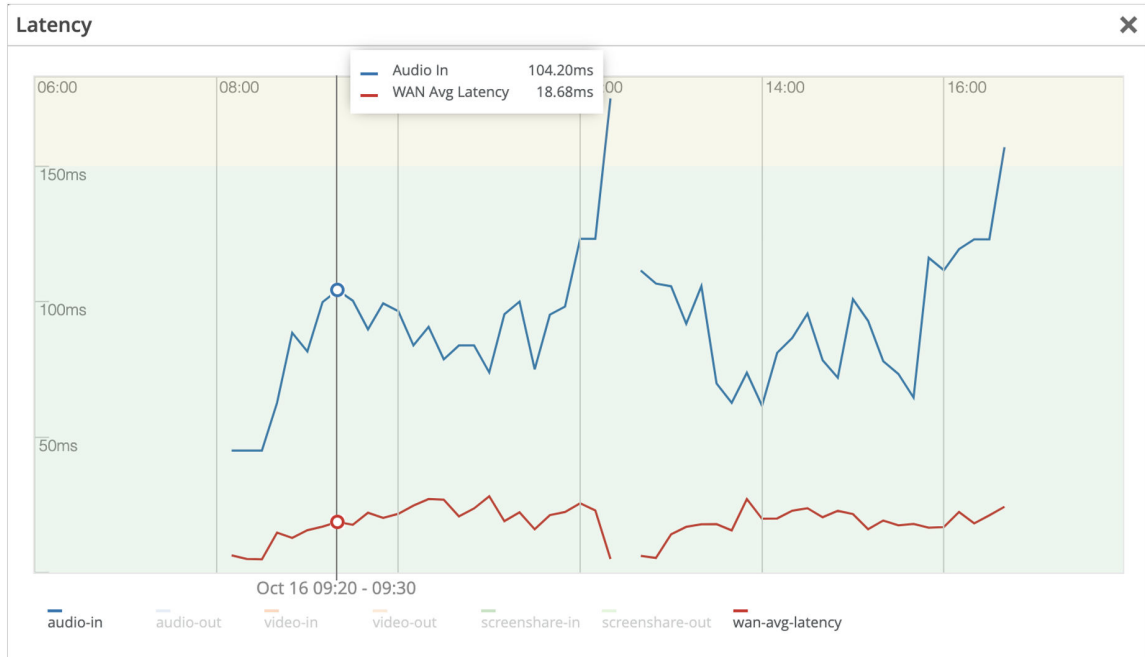
- 10 minutes for a duration that is less than 24 hours
- 1 hour for a duration that is greater than 24 hours

Mist provides the following time series graphs. You can click the legends in each of the graphs to filter the data.

- **Latency:** Provides client-to-cloud input and output latencies for audio, video, and screen sharing.

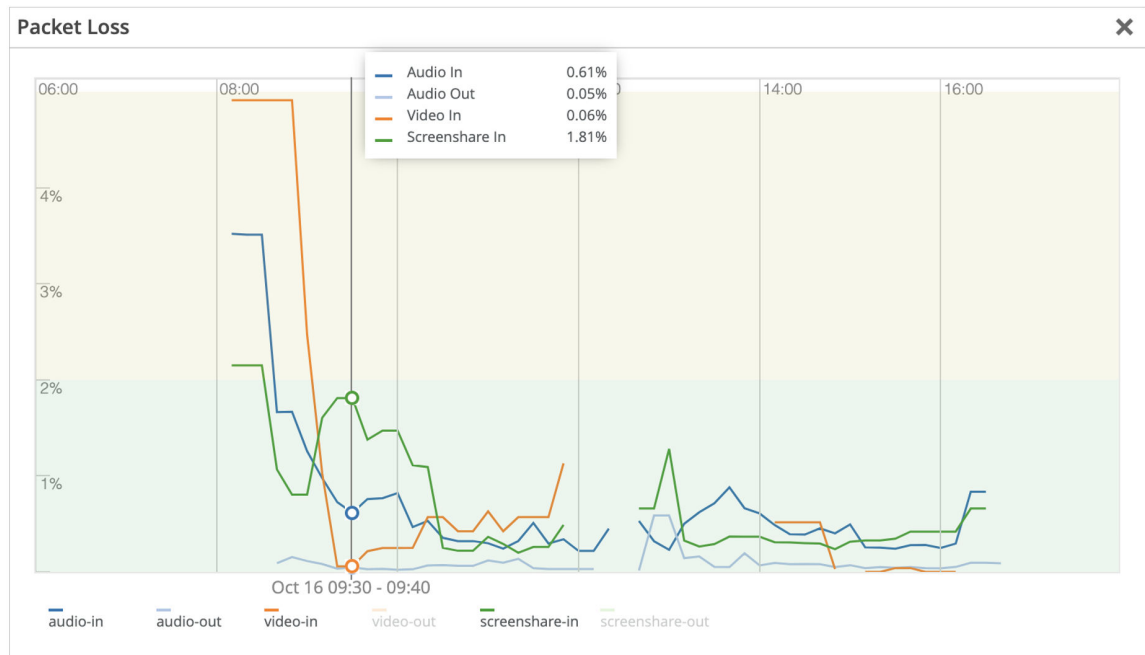


You can compare the latency that Teams observes with the average WAN latency, represented by **wan-avg-latency** for the site. You can also compare the latency for a specific parameter with the **wan-avg-latency** value. For example, the following screenshot provides a comparison between the **audio-in** parameter and **wan-avg-latency**.

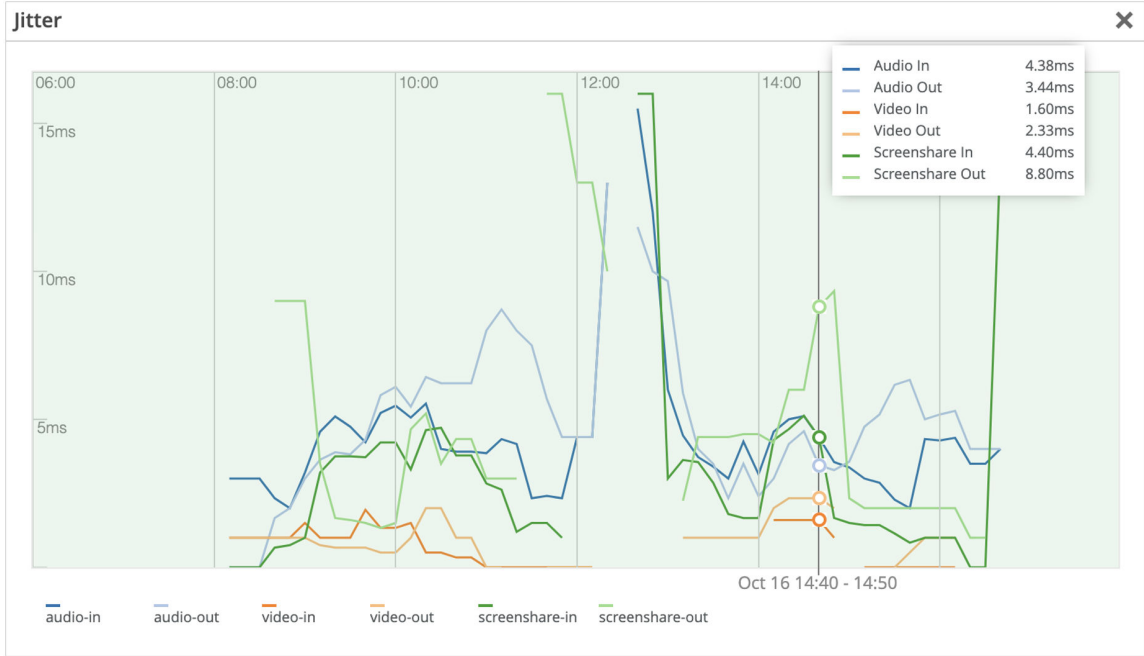


**NOTE:** All the parameters are enabled by default in the graph. To select a parameter, click all the other parameter labels to disable the parameters and hide their data in the graph. You can click the labels again to enable the parameters and see the data in the graph.

- **Packet Loss:** Provides client-to-cloud input and output packet loss for audio, video, and screen sharing.



- **Jitter:** Provides client-to-cloud input and output jitter for audio, video, and screen sharing.



- **Call Metrics:** Provides metrics such as number of calls and users at a specific time.



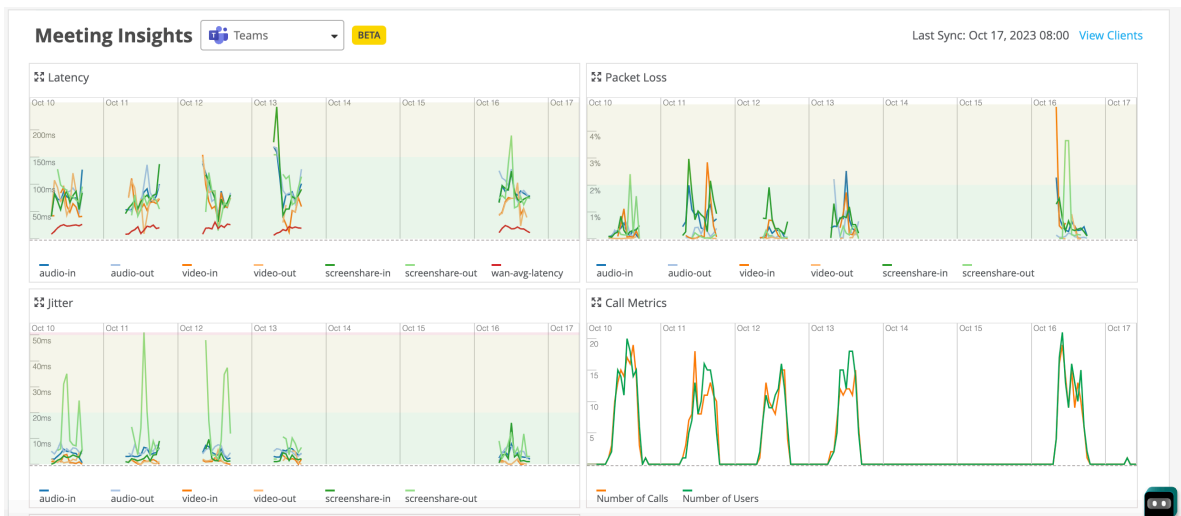
- **Feedback:** Provides a histogram of user feedback. The Y-axis indicates the number of users who have given feedback. The color of each bar indicates whether the feedback is poor, average, or good.



## View Client List for a Site

To view the client list for a site:

1. In the Mist portal, select **Monitor > Service Levels**.
2. Select **Insights**, the site, and time range.
3. Scroll down to the Meeting Insights section.
4. Click **View Clients**.



Mist lists the clients that are connected to Teams meetings. You can click a MAC address (in blue) to go to the Client Insights page for that client.

Client calls for app "teams"

Filter

< 1-5 of 5 >

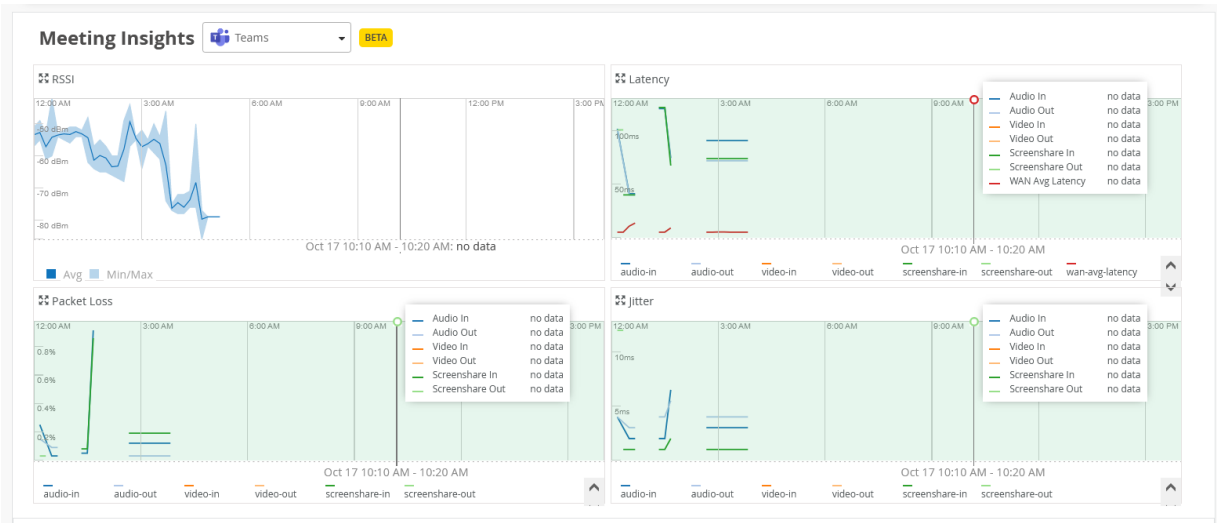
Client MAC Address	Hostname	IP	Min. Rating	User
88: [redacted] 1f [redacted]-mbp	[redacted]-mbp	10.100.0.63, 10.100.0.66, 10...	--	--
bc: [redacted] 54 [redacted] mbpm1	[redacted] mbpm1	10.100.0.49, 10.100.0.34, 10...	--	--
f0: [redacted] cd [redacted] mbp	[redacted] mbp	10.100.0.50, 10.100.0.38, 10...	--	--
f8: [redacted] e9 [redacted]-mbp	[redacted]-mbp	10.100.0.93, 10.100.0.163, 10...	--	--
f8: [redacted] :b6 [redacted]-mbp	[redacted]-mbp	10.100.0.87, 10.100.1.11, 10...	--	--

OK

## View Client Insights

The Client Insights page provides insights for a specific client. "View Client List for a Site" on page 11 describes how you can go to the Client Insights page.

Scroll down to the Meeting Insights section in the Client Insights page. You can see the time series graphs for latency, packet loss, jitter, and call metrics for a specific client.



For an individual client, you can compare the received signal strength indicator (RSSI) value with the latency, packet loss, and jitter data.

The Meeting Details section provides details of the meetings that the client joined.

Meeting Details		All Meetings	BETA	Search					< 1-7 of 7 >
Application	Meeting ID	Join Time	Leave Time	Duration	Audio Quality	Video Quality	Screen Share Quality	User Feedback	
Teams	3a9d62b4-5f2a-4ae8-aecc-f44a...	Oct 23, 2023 12:31	Oct 23, 2023 13:00	29m	Good (Mos:4-5)	Good (Mos:4-5)	Good (Mos:4-5)	--	
Teams	c1bbe007-c458-4136-bf80-c7b0...	Oct 19, 2023 14:47	Oct 19, 2023 15:05	18m	Good (Mos:4-5)	Unknown (Data not collected)	Good (Mos:4-5)	--	
Teams	d5e1b3d6-f4ad-465d-9bf7-9dd...	Oct 19, 2023 12:11	Oct 19, 2023 14:45	2h 34m	Poor (Mos:2-3)	Good (Mos:4-5)	Fair (Mos:3-4)	--	
Teams	0a60d9c0-64cd-48d7-a2e0-cf87...	Oct 18, 2023 16:39	Oct 18, 2023 17:32	53m	Good (Mos:4-5)	Unknown (Data not collected)	Good (Mos:4-5)	--	
Teams	760e7668-a7ce-468b-831d-08e...	Oct 18, 2023 15:31	Oct 18, 2023 16:33	1h 2m	Poor (Mos:2-3)	Unknown (Data not collected)	Good (Mos:4-5)	--	
Teams	7a46c3c9-479f-4237-ac0b-0aba...	Oct 18, 2023 10:01	Oct 18, 2023 11:06	1h 5m	Poor (Mos:2-3)	Fair (Mos:3-4)	Bad (Mos:1-2)	--	
Teams	6cd1db85-f6cd-4e2e-8982-6f72...	Oct 16, 2023 16:02	Oct 16, 2023 16:56	55m	Good (Mos:4-5)	Unknown (Data not collected)	Good (Mos:4-5)	--	

## View Client Events

On the Client Insights page, Mist displays events such as a client joining the call and a client leaving the call. These events are interleaved with the existing wireless client events. ["View Client List for a Site" on page 11](#) describes how you can go to the Client Insights page. You can click each event to view the details.

Client Events			435 Total	302 Good	97 Neutral	36 Bad
Client Left Call (Teams)	LD_MCB_AP	17:32:26.001 Oct 18, 2023	AP	LD_MCB_AP	App	teams
Client Joined Call (Teams)	LD_MCB_AP	16:39:05.001 Oct 18, 2023	Audio Quality	poor	Meeting ID	
Client Left Call (Teams)	LD_MCB_AP	16:33:28.001 Oct 18, 2023				
DNS Success	LD_MCB_AP	16:05:52.576 Oct 18, 2023				
DNS Failure	LD_MCB_AP	16:05:04.630 Oct 18, 2023				
Client Joined Call (Teams)	LD_MCB_AP	15:31:24.001 Oct 18, 2023				
DHCP Success	LD_MCB_AP	14:56:09.404 Oct 18, 2023				

# Troubleshoot Teams Sessions Using the Marvis Conversational Assistant

## IN THIS SECTION

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- [Troubleshoot Teams Sessions Using the Marvis Conversational Assistant | 15](#)

You can use the Marvis conversational assistant to list and to troubleshoot Teams sessions. Network administrators can use the conversational assistant to quickly identify sites that experience issues with Teams sessions.

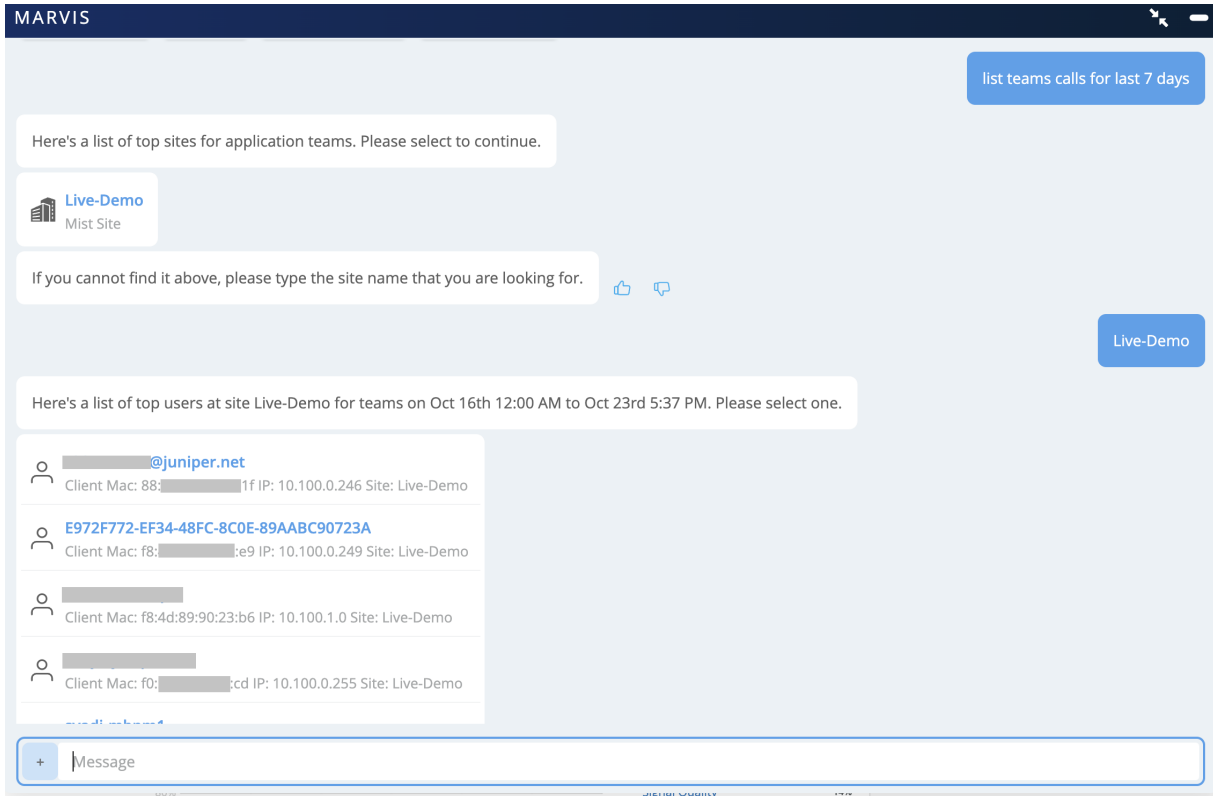
## List Teams Sessions Using the Marvis Conversational Assistant

To list Teams calls using the conversational assistant, you can use the following phrases:

- list teams calls for last 7 days
- list bad teams calls in last 7 days

Here is an example that shows the details that Marvis displays for "list teams calls for last 7 days":





## Troubleshoot Teams Sessions Using the Marvis Conversational Assistant

You can troubleshoot Teams session issues using the conversational assistant. Marvis helps you to identify the root cause for the issue. To troubleshoot a Teams session:

1. In the Marvis conversational assistant window, enter the details of the client that you want to troubleshoot. In the following example, we use the phrase "troubleshoot application Teams for LAPTOP-Q3HRNHI3 on Jul 28 between 10:00 AM to 10:28 AM".

Marvis displays all the Teams sessions that the client joined on the specified date.

MARVIS

mbpm1  
Client Mac: [redacted] IP: 10.100.0.244 Site: Live-Demo

1-5 of 7

If you cannot find the client above, please type the client name or mac.

Troubleshoot application teams for E972F772-EF34-48FC-8C0E-89AABC90723A on Oct 16th 12:00 AM to Oct 23rd 5:37 PM.

I found the following teams sessions for E972F772-EF34-48FC-8C0E-89AABC90723A on Oct 16th 12:00 AM to Oct 23rd 5:37 PM. Please select one.

- 12:31 PM to 1:00 PM, Oct 23rd  
Usage: 8.6 MB
- 2:47 PM to 3:05 PM, Oct 19th  
Usage: 2.5 MB
- 12:11 PM to 2:45 PM, Oct 19th  
Usage: 36.7 MB
- 4:39 PM to 5:32 PM, Oct 18th  
Usage: 3.5 MB
- 3:31 PM to 4:33 PM, Oct 18th  
Usage: 5.2 MB

1-5 of 6

Message

2. Click a session to view more details.

In this example, Marvis reports that the user experience was bad.

MARVIS

- 12:11 PM to 2:45 PM, Oct 19th  
Usage: 36.7 MB
- 4:39 PM to 5:32 PM, Oct 18th  
Usage: 3.5 MB
- 3:31 PM to 4:33 PM, Oct 18th  
Usage: 5.2 MB

1-5 of 6

Troubleshoot application teams for E972F772-EF34-48FC-8C0E-89AABC90723A on Oct 19th between 12:11 PM to 2:45 PM.

Overall BETA

E972F772-EF34... Wireless 2 Wired 3 TEAMS WAN

Message

You can troubleshoot further by checking the client's overall experience in the network. In this example, you can see that the client experienced a high latency while roaming.

The screenshot shows the MARVIS interface. At the top, a network diagram displays a client (E972F772-EF34...) connected to a Wireless network (2) and a Wired network (3). The client is also connected to TEAMS and WAN. Below the diagram, a chat window titled "Troubleshoot for E972F772-EF34-48FC-8C0E-89AABC90723A on Oct 19th between 12:11 PM to 2:45 PM" contains the following messages:

- Checking Client E972F772-EF34-48FC-8C0E-89AABC90723A at site Live-Demo.
- Here is what I found on Oct 19th between 12:11 PM to 2:45 PM:
- Slow Roam** (with a right arrow): The client experienced high latency in standard roaming.
- Low Power** (with a right arrow): The AP had low power of 30.0 W when connected to Id-cup-idf-c on port mge-0/0/0. The AP is currently online.

At the bottom, there is a "Message" input field.

You can click the issue, which is **Slow Roam** in this case, to view more details.

This screenshot shows the detailed view of the "Slow Roam" issue. The top section contains the following information:

- Client experienced poor roaming 100% of the time.
- Additional information listed below:
- Buttons for "Failure Timeline", "Client Insights", and "Scope of Impact".

The chat window below, titled "Troubleshoot for E972F772-EF34-48FC-8C0E-89AABC90723A on Oct 19th between 12:11 PM to 2:45 PM", contains the same messages as the previous screenshot, but with the "Slow Roam" message highlighted in a darker background.

# Troubleshoot Teams Account Integration Issues

The Insights page on the Juniper Mist portal provides site-level and client-level insights for Teams meetings. If you do not see the information on the Insights page:

- Ensure that the client is connected to a Juniper access point (AP) installed at the site.
- Verify that the meeting host is a member of the account that is linked to the Mist organization.
- Ensure that the user logs in to the Teams application before joining the meeting.
- Verify that you have selected the correct site (that is, the site to which the user connected to join the meeting).

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