

Loway

A thick red horizontal line that tapers slightly from left to right, ending in a small white crossbar.

QueueMetrics
call center suite

Setting up QueueMetrics Live with MS Teams

Loway SA

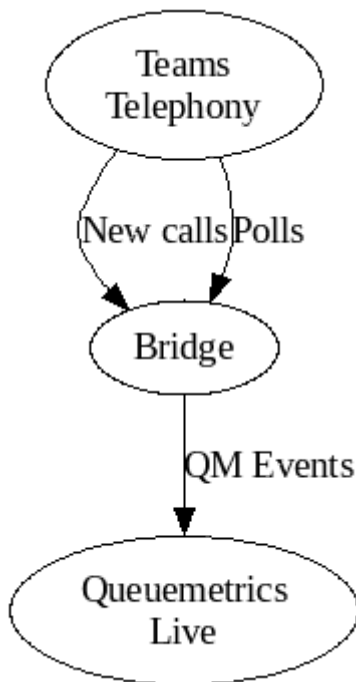
Version 22.04, 2022/04/29: covers QueueMetrics 22.02

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What to expect

We built an integration bridge that reads data out of Teams using its Graph API, rewrites it a format that is compatible with QueueMetrics and sends it to our QueueMetrics Live service.



As we use data that is made available through the Teams API, we are limited by the data that is actually available; in particular data comes with a **variable delay**, usually from 15 minutes to 1+ hour, so the "real-time" pages won't be meaningful. Data is considered "settled" only after a few hours, and may change retrospectively even a few days after it was emitted.

On the other hand, you get:

- accurate daily statistics of **taken and lost calls** for queues, autoattendants, voicemail and direct calls (most reports will be meaningful)
- **caller and DNIS** information
- tracking of agent's **music on hold** during calls
- **wallboards** with daily counters

See chapter [Your first run](#) below for more details of what is included.

We appreciate your help in reporting any anomalies you will find.

As new APIs are deployed and the information offered through the MS Graph API improves, we'll improve the bridge so that new features are transparently turned on.

General notes

This document details the integration of QueueMetrics Live with an existing Teams tenant.

Document history

Date	Editor	Changes
2022-08-12	LE	Permission configuration, typos
2022-04-23	LE	General Availability
2021-11-29	LE	Typos and page breaks
2021-11-26	LE	Added separate queues for Lost
2021-11-16	LE	First run
2021-07-12	LE	First draft

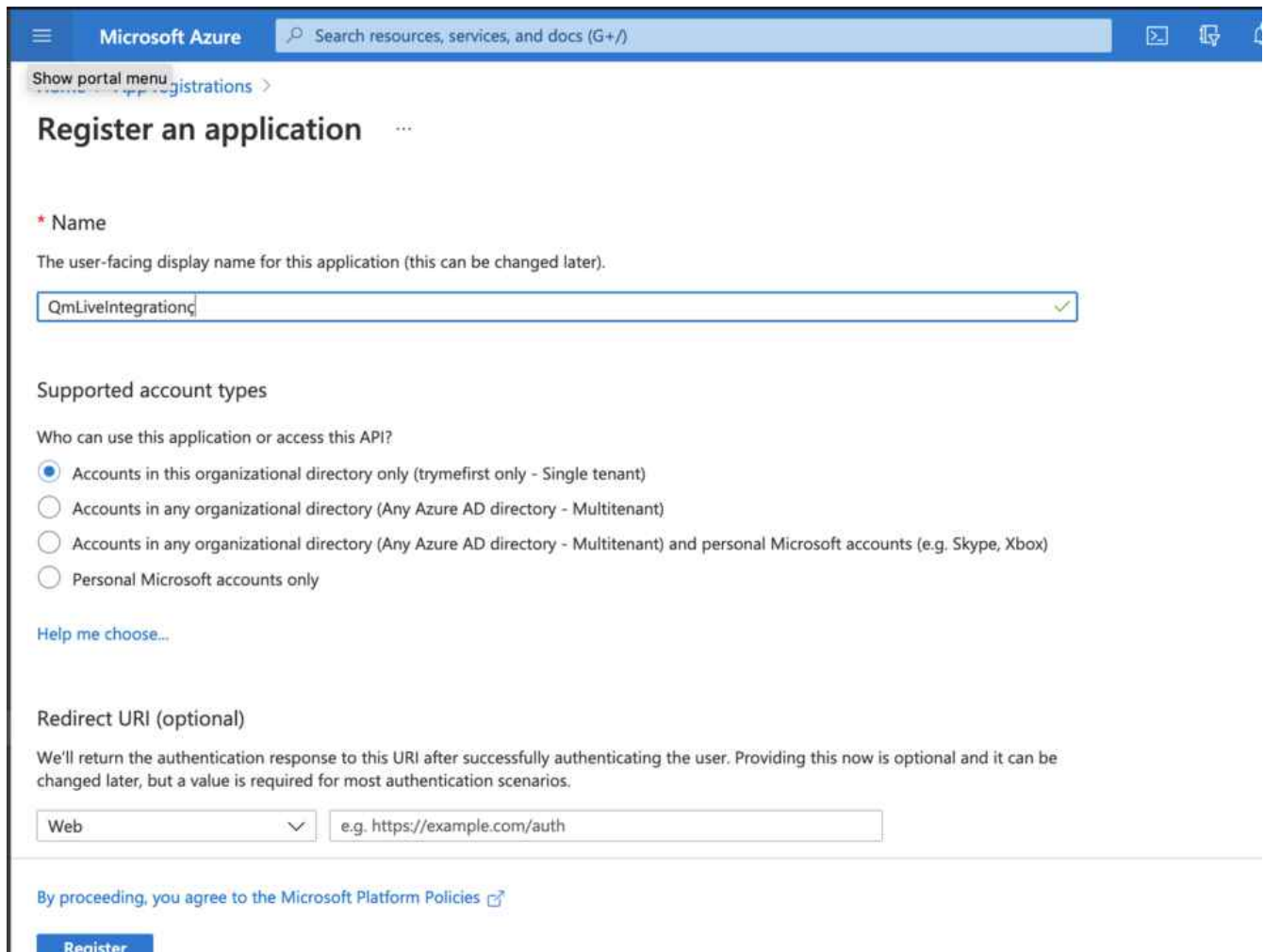
Setting up

To set up a trial, you need to create an application on the Teams tenant and send us its credentials.

Creating a new app in Ms Teams

By using your tenant's administrator's account, go to <https://portal.azure.com/> and search for "App registrations" in the top search bar.

Click on (+) New registration



The screenshot shows the 'Register an application' page in the Microsoft Azure portal. The page has a blue header with the 'Microsoft Azure' logo and a search bar. Below the header, there's a navigation menu with 'App registrations' selected. The main content area is titled 'Register an application'. It includes a 'Name' field with the value 'QmLiveIntegration', a 'Supported account types' section with radio buttons for different account types, and a 'Redirect URI (optional)' field with a dropdown set to 'Web' and a text input containing 'e.g. https://example.com/auth'. At the bottom, there's a 'Register' button and a link to 'Microsoft Platform Policies'.

- Set name: **QmLiveIntegration** (or whatever you want)
- Select "Accounts in this organizational directory only (This account only - Single tenant)"
- Click "Register"

Once registered, you should see the app's page that displays the app's IDs (make a note of where they are displayed - we'll need them later):

Search (Cmd+/)

Delete Endpoints Preview features

- Overview
- Quickstart
- Integration assistant
- Manage
 - Branding
 - Authentication
 - Certificates & secrets
 - Token configuration
 - API permissions
 - Expose an API
 - App roles
 - Owners
 - Roles and administrators | Preview
 - Manifest
- Support + Troubleshooting

Essentials

Display name : QmLiveIntegration

Application (client) ID : 1b4d1c02-...-2951d6c9f364

Object ID : 9e5d90fc-ff...-2d-1bb8be1cd458

Directory (tenant) ID : ad561041-G...-513ac4bab3ce

Supported account types : My organization only

Client credentials : Add a certificate or secret

Redirect URIs : Add a Redirect URI

Application ID URI : Add an Application ID URI

Managed application in L... : QmLiveIntegration

Welcome to the new and improved App registrations. Looking to learn how it's changed from App registrations (Legacy)? [Learn more](#)

Starting June 30th, 2020 we will no longer add any new features to Azure Active Directory Authentication Library (ADAL) and Azure AD Graph. We will continue to provide technical support and security updates but we will no longer provide feature updates. Applications will need to be upgraded to Microsoft Authentication Library (MSAL) and Microsoft Graph. [Learn more](#)

Get Started Documentation

Build your application with the Microsoft identity platform

The Microsoft identity platform is an authentication service, open-source libraries, and application management tools. You can create modern, standards-based authentication solutions, secure and protect APIs, and add sign-in for your users.

Now let's add a password; click on "Add certificate or secret" -> "Client secret" -> "Add new client secret"

When done, copy the value item and store it somewhere; that's our password.

Client secrets

A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.

+ New client secret

Description	Expires	Value	Secret ID
SomeSecret	7/9/2023	P18CSak_...-P-6e	0f272030-...-1a9e9735



The secret's value can only be copied when it's freshly generated; if you exit the page, when you go back in you cannot copy the secret any more. In this happens, simply throw it away and generate a new one.

Now go back to the app's main page and click on "API Permissions". Then select "Microsoft Graph".

The screenshot shows the 'Request API permissions' page in the Azure portal. The left sidebar contains a navigation menu with 'API permissions' selected. The main content area is titled 'Request API permissions' and shows a list of commonly used Microsoft APIs. The 'Microsoft Graph' API is highlighted, and its details are shown below. The details include a description: 'Take advantage of the tremendous amount of data in Office 365, Enterprise Mobility + Security, and Windows 10. Access Azure AD, Excel, Intune, Outlook/Exchange, OneDrive, OneNote, SharePoint, Planner, and more through a single endpoint.' Below this, there is a grid of other API cards, including 'Azure Rights Management Services', 'Azure Service Management', 'Azure Storage', 'Data Export Service for Microsoft Dynamics 365', 'Dynamics 365 Business Central', 'Dynamics CRM', 'Flow Service', 'Intune', and 'Office 365 Management APIs'.

Now click on "Application Permissions"; then, search the permission you need and add it - a list of grants is below.

Request API permissions



[← All APIs](#)



Microsoft Graph

<https://graph.microsoft.com/> [Docs](#)

What type of permissions does your application require?

Delegated permissions

Your application needs to access the API as the signed-in user.

Application permissions

Your application runs as a background service or daemon without a signed-in user.

Select permissions

[expand all](#)

Permission

Admin consent required

CallRecord-PstnCalls (1)



CallRecord-PstnCalls.Read.All ⓘ

Read PSTN and direct routing call log data

Yes

Add permissions

Discard

You need to repeat the process so that all the following permissions are present:

- `CallRecord-PstnCalls.Read.All`
- `CallRecords.Read.All`
- `User.Read.All`
- `Directory.Read.All`

When done, click on "Grant admin consent" so that the status of all permissions is "Granted", as in the picture below.

Configured permissions

Applications are authorized to call APIs when they are granted permissions by users/admins as part of the consent process. The list of configured permissions should include all the permissions the application needs. [Learn more about permissions and consent](#)

+ Add a permission ✓ Grant admin consent for trymefirst

API / Permissions name	Type	Description	Admin consent requ...	Status
▼ Microsoft Graph (5) ...				
CallRecord-PstnCalls.Read.All	Application	Read PSTN and direct routing call log data	Yes	✓ Granted for trymefirst ...
CallRecords.Read.All	Application	Read all call records	Yes	✓ Granted for trymefirst ...
Directory.Read.All	Application	Read directory data	Yes	✓ Granted for trymefirst ...
User.Read	Delegated	Sign in and read user profile	No	✓ Granted for trymefirst ...
User.Read.All	Application	Read all users' full profiles	Yes	✓ Granted for trymefirst ...



Make sure that all permissions appear with their type set to "Application" as in the picture above; if they appear as "Delegated" they won't work correctly.

Gathering information

Now send us:

- The **Application (client) ID**
- The **Directory (tenant) ID**
- A copy of the secret

And also:

- A reference name for the tenant
- Approximately how many agents they have
- Their time-zone

So we can open an account and a receiving instance of QueueMetrics Live.

Removing the integration

You can remove the integration at any time by cancelling the app under "App registration".

If you do, please notify us so we can switch everything off on our end as well.

Your first run

The first time you log-in, you should have the system run automatic configuration. Most of the things that are currently active come from the green box named "Reports". There you can find some pre-configured reports, namely:

- **Direct calls:** calls that went to a Teams user, without going through a queue
- **Outbound:** Outbound calls made by Teams users
- **Conferences:** group calls for last week, including outbound PSTN calls by invitees to group calls.
- **Voicemails left**

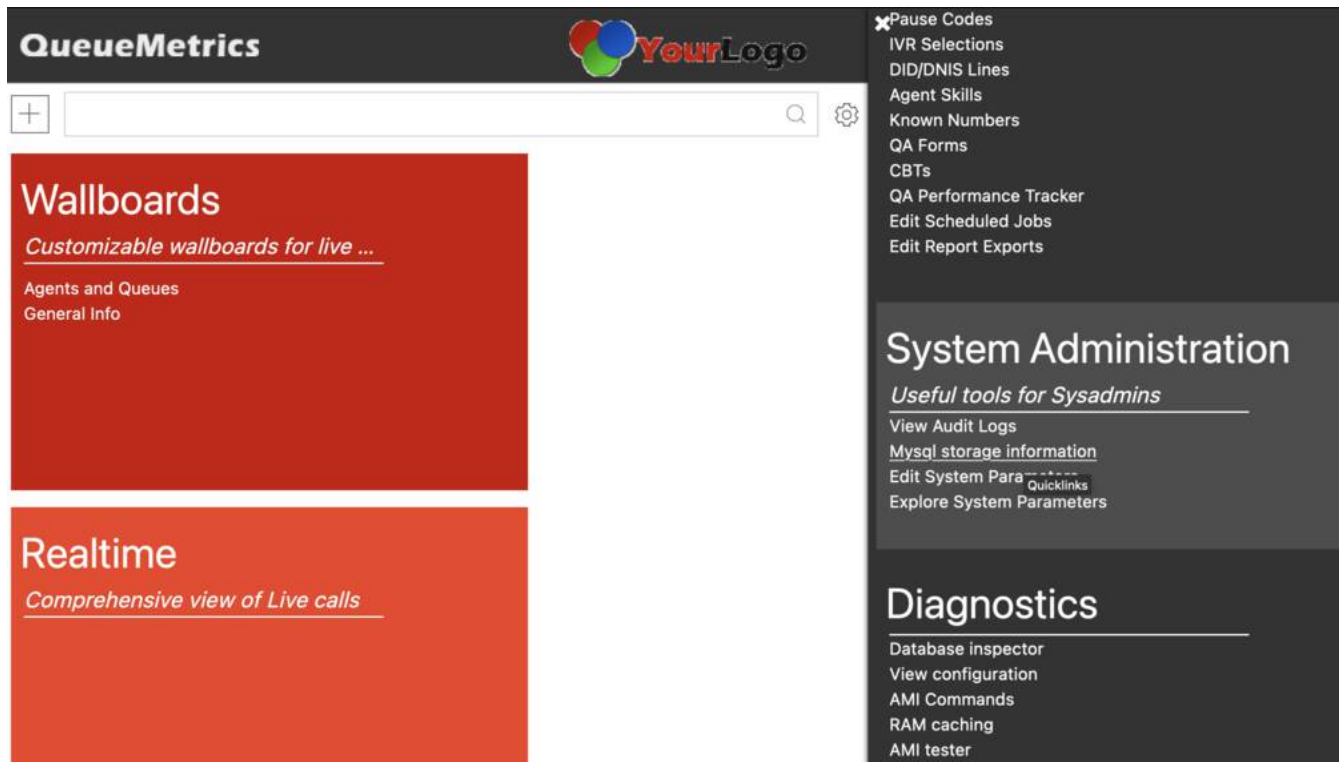
The screenshot shows the QueueMetrics dashboard with a dark header containing the 'QueueMetrics' logo and 'YourLogo' placeholder. Below the header is a search bar with a plus icon. The dashboard is divided into four main sections: 'Wallboards' (red background) with sub-sections 'Agents and Queues' and 'General Info'; 'Realtime' (orange background) with a sub-section 'Comprehensive view of Live calls'; 'Reports' (green background) with sub-sections 'Queues', 'Quick Weekly FCR Report', 'Conferences', 'Direct Calls', 'Outbound', and 'Voicemails left'; and 'News' (dark red background) with a sub-section 'QueueMetrics Latest News' listing articles like 'Integrating QueueMetrics in an ActiveDirectory Domain' and 'Should we worry about Let's Encrypt certificate expiry?'.

There are also a couple of examples for queues, one that contains most relevant data blocks and called **Queues** and a shorter one meant to show a streamlined view, but in order to make them work you have to configure queues first.

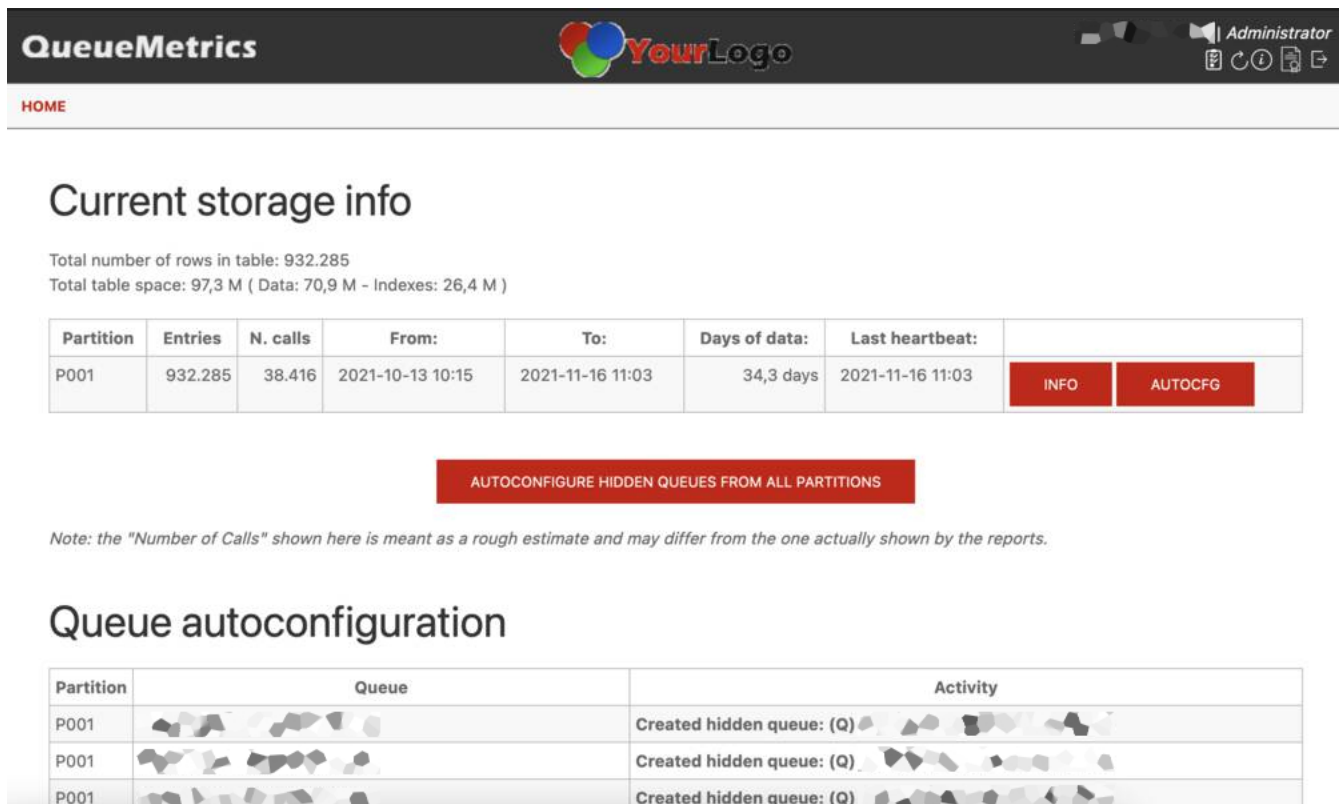
Configuring queues

The basic unit of reporting in QueueMetrics is the queue. For security reasons, we ask that a queue be explicitly configured before someone can run a report on it. This can be done automatically, and can be repeated when you create a new queue, as soon as data from that queue is loaded.

So, click on the "Cog" to the right; the configuration menu appears.



Under System Administration, select "MySQL storage information". This will show you the data set that is currently loaded in your QM Live instance.



Now click on "Autocfg" and all the queues that are not configured will be created. They are created as "hidden" queues, so they can be seen and reported upon but you cannot select them from a drop-down menu. Maybe you don't want to have all queues searchable, but you can "turn on" the ones you want by going back to the "Cog" and clicking on "Queues" under "Edit QueueMetrics".

configuration".

Queues Configuration

SEARCH [input type="text"]

CREATE NEW DELETE SELECTED

Items found 536 <<< >>> Page 1 of 18

	Alias ↑	Queue(s)	Key	F.P.	Agents
<input type="checkbox"/>	(Q)			●	
<input type="checkbox"/>	(Q)			●	
<input type="checkbox"/>	(Q)			●	
<input type="checkbox"/>	(Q)			●	

You will see that any queues that were created appear with a gray dot under "F.P.", that stands for Front Page. If you click on the pencil icon, you can set "Shown on front page" to Yes. While you are at it, you can change the Alias to something that is easier for you to remember.

Some queues in QueueMetrics directly map one Teams entity, but you can create what we call "Aggregate queues", that is a queue that is actually a set of other queues. This is very handy for reporting, for example to see all the queues that a teams cares about, or just all the queues in the system - in fact this is so common that there is already an aggregate queue called **00 All** that expands to all the queues in your system.

To create an aggregate queue, you can enter a number of queue identifiers separated by the pipe symbol, and/or you can use wildcards to match multiple queues.

Queue Detail

Queue alias:

Queue(s):
Separate with '|'

Visibility key:

Call flow:

Shown on front page:

Chat group:

For example, in the picture above all queues starting with **X_** will be matched.

Running reports

The pre-defined reports all run on data for the last week. In order to access them, you just click on one of the links from the "Reports" block. If you click on the title, the system will start with an empty report, but it's generally easier to get started with an existing report and change it as needed.

HOME

Queues

Last 7 Days (Since Current Time)

Total calls processed: 839 (659 ans / 180 unans)
Ratio: 78.5% ans / 21.5% unans
Queues: 00 All

Owned by: demoadmin

ANSWERED ANS.DT. UNANS. UNANS.DT. IVR AREA ATT. DAY HR. DOW FCR +

The easiest thing, at least for me, is to open the default report, click on the **Clone** icon and create a new one. You can have as many reports as you want. Then you can change the reporting period, the queues, and add filters as you need them. New data blocks are available from the last icon on the right, and are shown as a preview with actual live data.

The default reports "Queues" contains a number of statistics divided into 11 pages:

- **Answered**: statistics on answered calls
- **Ans.Dt.**: quick access to the list of answered calls
- **Unanswered**: details of lost calls
- **Unans.Dt.**: quick access to the list of all lost calls
- **IVR**: IVR traversal (not always present, depends on Teams)
- **Area**: area code analysis - where are people calling from
- **Att.**: Attempts, that is, a queue trying to reach an agent. At the moment data is not yet fully loaded from Teams.
- **Day, Hr, and DOW**: usage details by day, hour and day of the week. The "hour" can be easily customized to your unit of tracking, e.g. by default it is 15 minutes but you can change it by clicking on the "cog" icon in the report and looking for the **Hourly slot** parameter.
- **FCR**: tracks First Call resolutions, so people who called multiple times

Everything is very well documented in the QueueMetrics user manual - https://www.queuemetrics.com/manual_list.jsp - but this should be enough to get started.



At the moment, we do not have agent presence information, so reports that appear in the manual that require agent presence - e.g. how long an agent was logged in, or the pauses they took - will appear empty.

Taken and Lost queues

For calls that do not really go through a queue (e.g. conferences and direct calls), we assign them to a separate "lost" queue when they fail without connecting. This way you can still see who the caller and destination were.

The pre-set reports for Direct Calls and Conferences already include all the separate queues for both successful and unsuccessful calls - this means that even calls that were not connected, will appear as if they were connected but on a virtual queue named e.g. "Direct Lost" for "Direct" calls.