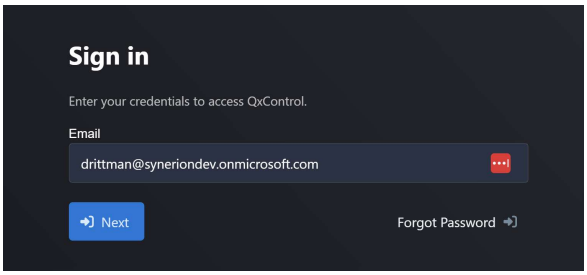
QxControl Setup Guide

Enterprise user management with Microsoft Entra

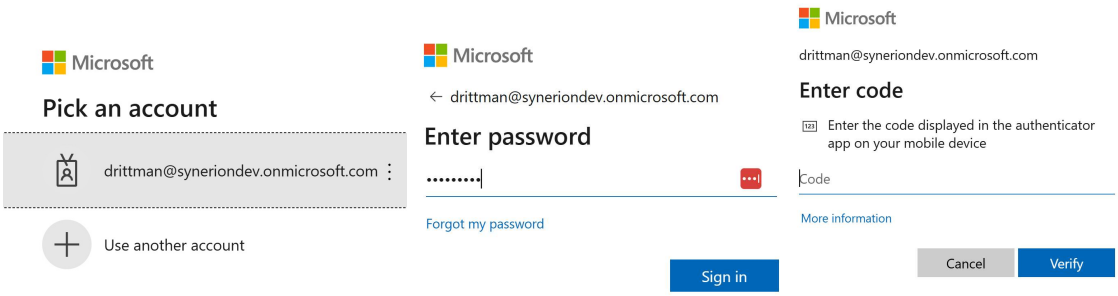
Integration with Microsoft Entra allows your organization to manage its application users and cardholders in QxControl via Entra. Users and Groups created and managed in Entra can be synchronized to QxControl, and identity management is governed by Entra, so the password management and authentication schemes used by other facets of your organization apply to QxControl as well.

Once configured following the steps in this document, your organization's QxControl users will follow a simple login flow:

1. Enter their Entra user principal name at the QxControl prompt

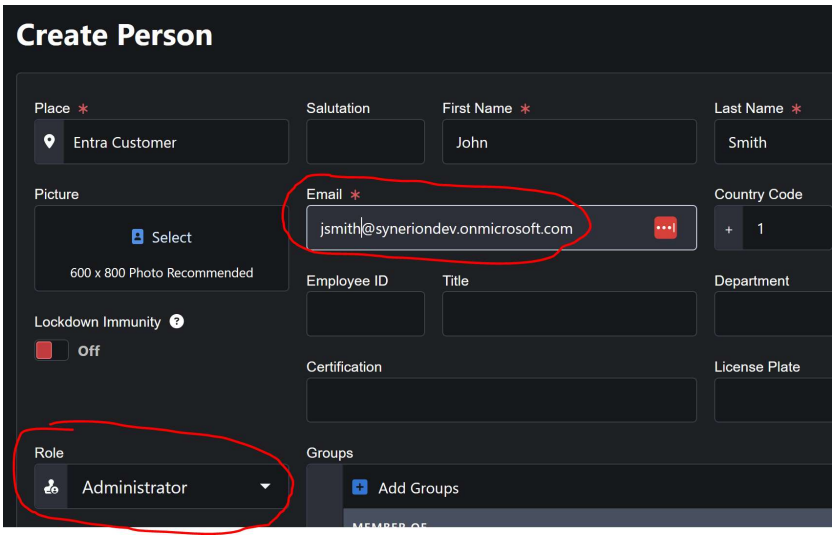


2. If they are already logged in to Entra, they will immediately enter QxControl; otherwise, they will follow the normal Entra login sequence, including 2FA if your organization requires it.

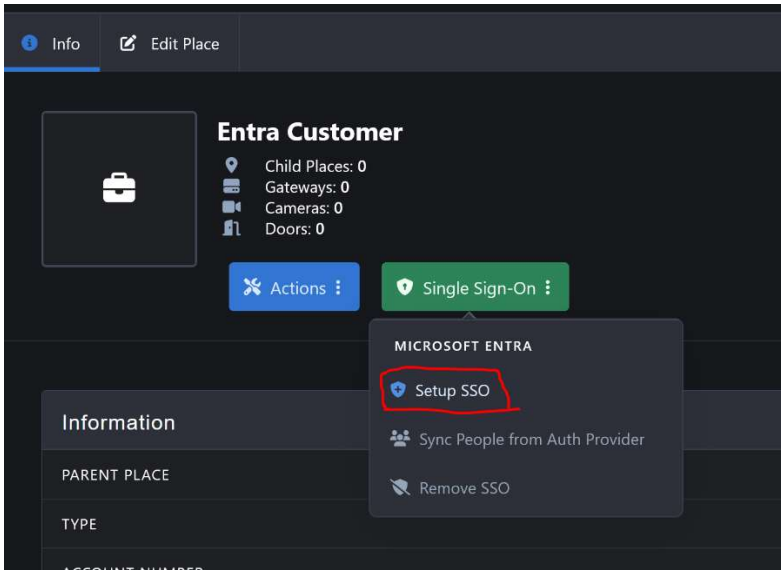


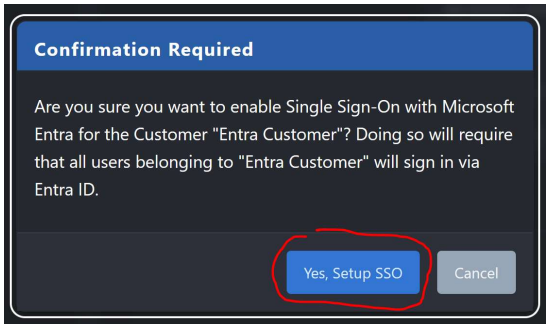
Integrator Steps

1. Have your integrator create a user at your customer place
    - Set Role to Adminstrator
    - Set Email to your Microsoft Entra User Principal Name



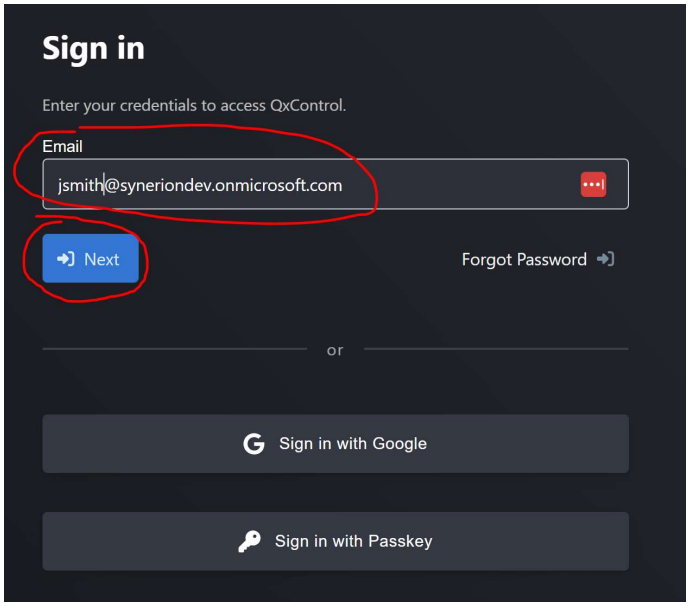
2. Have your integrator select “Setup SSO” on the Single Sign On menu at your customer place and accept the confirmation



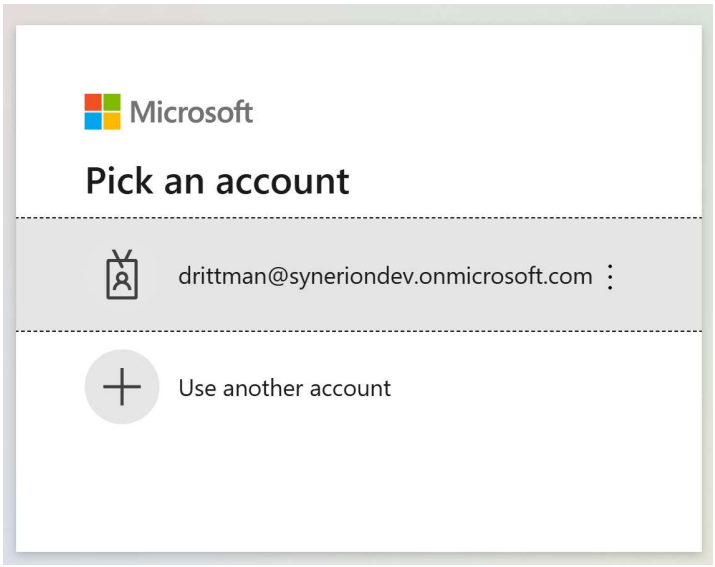


Customer Steps

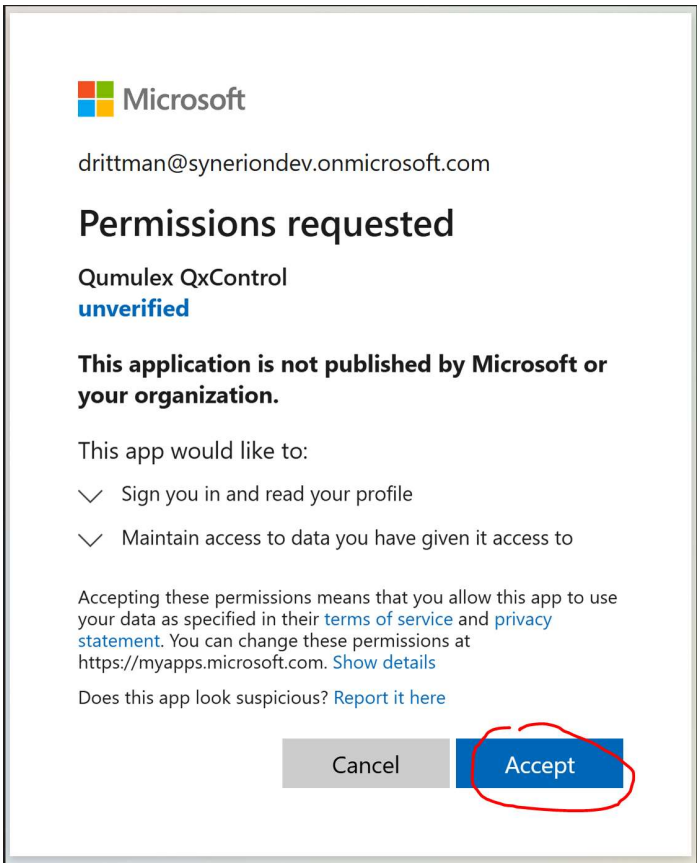
1. Browse to https://app.qumulex.io
2. Enter your Entra User Principal Name in the email field
3. Press “Next”



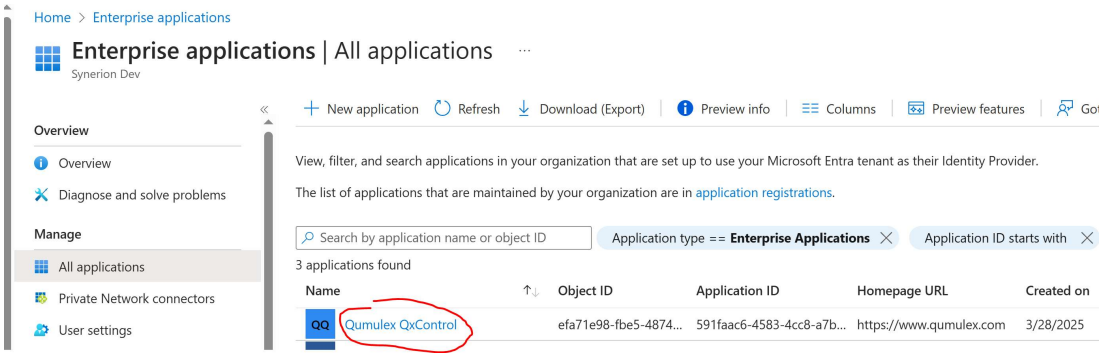
4. If you are not logged in to Microsoft Entra, you’ll be taken to the Entra login page



5. You will have to grant permission to **Qumulex QxControl** to access fields in your Entra tenant

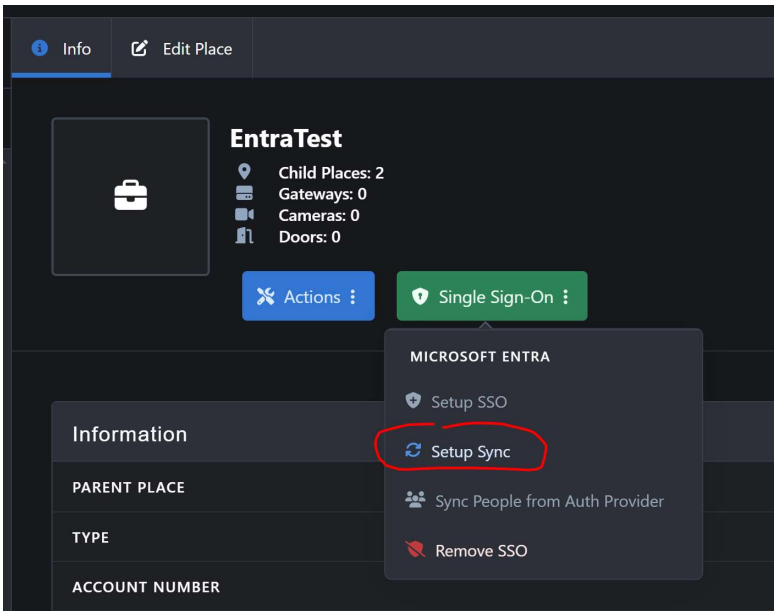


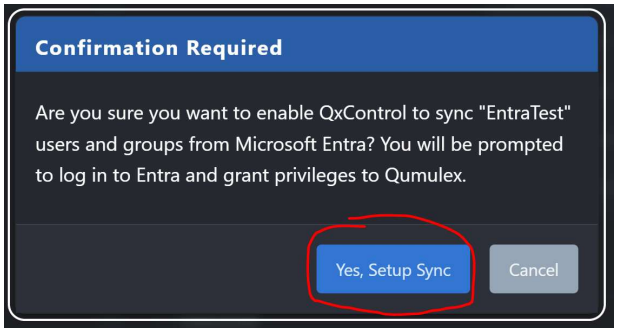
6. Once complete, you will see **Qumulex QxControl** as an Enterprise Application within your Entra tenant



   - At this point, you will be logged in to QxControl.
   - You, and each new application user who signs in, will have to accept the End User Terms Agreement within QxControl.
7. If you want to synchronize the Users and Groups within your Entra tenant into QxControl, navigate to the top of your Place hierarchy

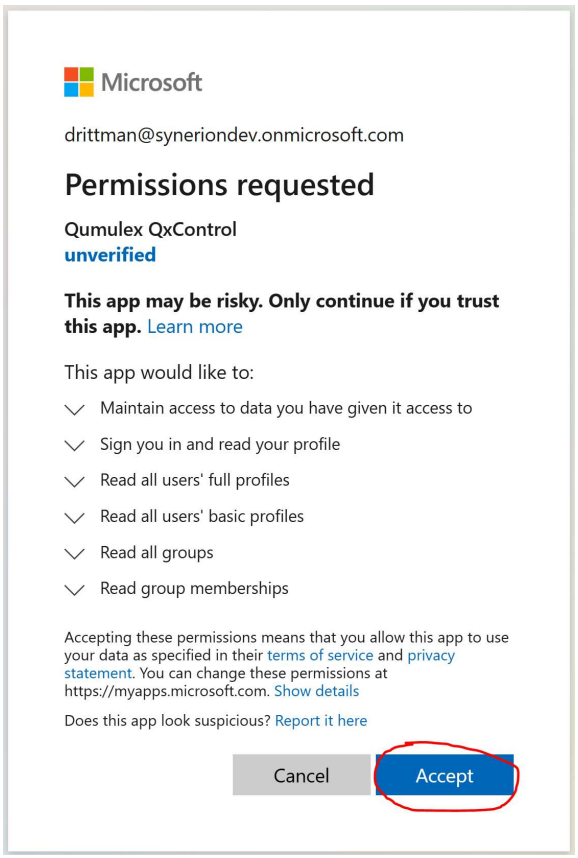
8. Select “Setup Sync” from the Single Sign On menu and accept the confirmation



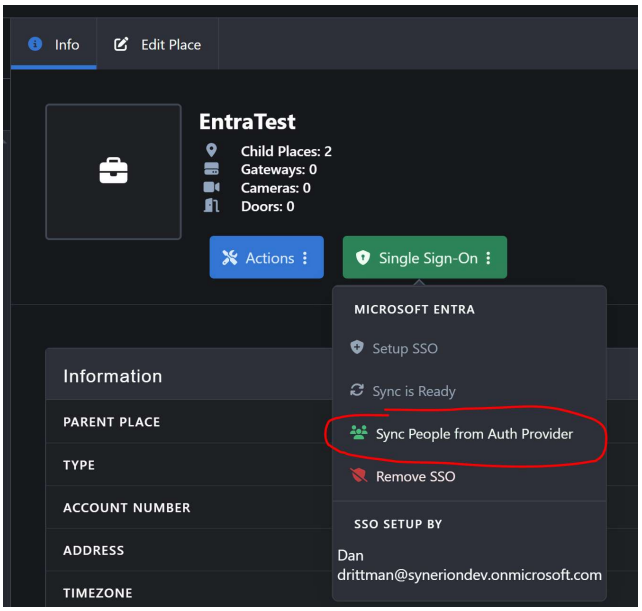


9. Again, if you are not logged in to Entra, you will be taken to the login page

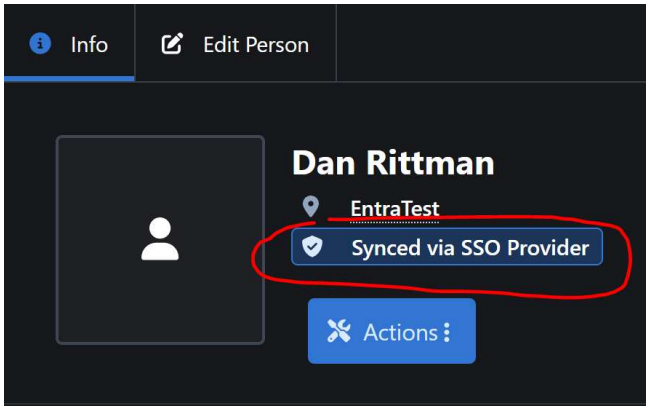
10. Once logged in to Entra, you will have to grant additional permissions to **Qumulex QxControl** within your Entra tenant allowing it access to your users and groups.



11. After granting those permissions, you are able to sync QxControl with Entra by selecting the “Sync People and Groups” menu from the top of your Place hierarchy.



12. All of the users and groups within your Microsoft Entra tenant will be created within QxControl
    - Users and Groups will be created at the top Place in your QxControl hierarchy with an indication that they were created via the sync



    - As you build out a hierarchy within QxControl, you may move the People and Groups to Places lower in your hierarchy
    - The sync process creates People with no Role (meaning they cannot log in to the QxControl application) and no credentials (meaning they cannot access any doors).
    - You may edit People within QxControl to give them a Role and/or Credentials
    - If a user is ***deleted in Entra***, the Person with the matching User Principal Name will not be deleted, but their Role will be set to "None" and all their credentials will be set to "Expired" so they can neither log in to QxControl nor access any doors with their credentials.
    - If a group is ***deleted in Entra***, that Group will be deleted from QxControl. This may affect doors which People in that Group were able to access.

Entra Custom Security Attributes (Role & Credential sync)

The Entra sync brings users and group membership into qx automatically. It can **also** sync a person's **role** and **credentials** (e.g. card numbers) when those values are provided as Entra custom security attributes.

This doc covers the one-time Entra setup an administrator does to enable that.

What the sync reads

The sync looks for a single attribute set named **Qumulex** with these attributes:

Attribute	Type	Maps to in qx
roleID	String (single value)	The person's role — a **role id** (built-in or custom, see below), matched exactly. The role must be a built-in (qx root) role or one at/under the customer's place. An unmatched id is ignored.
credentials	String (**multiple values**)	One or more access cards for the person. A value formatted siteCode-cardNumber is split into site code + card number; a value with no - is treated as just the card number.
excludeFromSync	Boolean (single value)	When true, the person is soft-deleted in qx (deletedAt is set) — they act as deleted while their record is kept for history — **and all of their synced credentials are deleted while any manual credentials are disabled**. Set back to false (or unset) to restore them (synced credentials re-sync on the next run; disabled manual credentials are not automatically restored).

roleID accepts a role id — matched exactly:

- A built-in role id:
    - administrator
    - poweruser
    - manage_people
    - live
    - live_and_search
    - live_and_search_no_people
- **or** a custom role id — the last segment of the role's URL in the app, e.g. https://app.qumulex.io/qx/roles/1SoAExCV0M7 → 1SoAExCV0M7.

Notes:

- The set and attribute names are **case-sensitive** and must be exactly Qumulex, roleID, credentials, and excludeFromSync.
- credentials is **multi-valued**, so a person can carry more than one card.
- **Card format:** values are stored exactly as entered. A siteCode-cardNumber value (e.g. 100-1234) is split into site code + card number; a value with no - (e.g. 1234) is just the card number, with no site code.
- Both attributes are optional per user.
    - Leave roleID unset to leave the person's qx role untouched (a role the sync previously set is cleared from QxControl when roleID is removed in Entra).
    - Credentials created by Entra sync are issued valid for 50 years. A card removed from credentials set to expired (reason: "disabled from entra sync") and kept in history; manually issued credentials are never touched by the sync.

Step 1 — Ensure the person setting up Entra has the correct role

By default **Global Administrator and Privileged Role Administrator cannot read or create custom security attributes.** Custom security attributes use their own dedicated directory roles, which must be assigned explicitly:

Role	Needed to…
Attribute Definition Administrator	Create the attribute set and attributes (Steps 2–3).
Attribute Assignment Administrator	Assign roleID / credentials values to users (Step 4).
Attribute Assignment Reader	Read the values. Assign to the **user who connects the qx sync** (Step 5).

Assign these under Entra → Roles & administrators. Search for "Attribute" to find them. You can assign a role to yourself if you are a Global Administrator.

If the Custom security attributes blade shows **"Add attribute set" greyed out**, you are missing the **Attribute Definition Administrator** role — that is the cause, not a licensing issue.

Assigning the role to yourself

You must be a **Global Administrator** (or Privileged Role Administrator) to assign directory roles. To unblock the greyed-out **Add attribute set** button, assign yourself **Attribute Definition Administrator**:

1. Go to Entra → Roles & administrators.
2. In the search box, type **Attribute**.
3. Click **Attribute Definition Administrator**.
4. Click **+ Add assignments**.
5. **Select members** → pick your own user → **Select**.
6. Leave it **Active** (not Eligible) so it applies immediately, set the assignment type/duration as your org requires, then **Assign**.
7. **Sign out and back in** (or refresh) — directory role changes only apply to a new token. The **Add attribute set** button will then be active.

Repeat the same steps for **Attribute Assignment Administrator** (so you can set values on users in Step 4) and **Attribute Assignment Reader** for the user who connects the qx sync (Step 5).

PIM tenants: if your tenant uses Privileged Identity Management and you only see an **Eligible** option, you must also **activate** the role from **My roles** after assigning it before it takes effect.

Step 2 — Create the attribute set

1. Go to Entra → Custom security attributes.
2. Click **+ Add attribute set**.
3. **Attribute set name:** Qumulex
4. Set a max number of attributes (e.g. 25) and **Add**.

Step 3 — Add the attributes

Open the Qumulex set and add three attributes:

1. **+ Add attribute**
    - **Attribute name:** roleID
    - **Data type:** String
    - **Allow multiple values assigned:** No

- **Only allow predefined values:** No (or Yes if you want to restrict to a fixed list of role ids)

2. **+ Add attribute**
    - **Attribute name:** credentials
    - **Data type:** String
    - **Allow multiple values assigned: Yes** (a person can have more than one card)
3. **+ Add attribute**
    - **Attribute name:** excludeFromSync
    - **Data type:** Boolean
    - **Allow multiple values assigned:** No

Step 4 — Assign values to users

For each user that should sync a role, credentials, and/or excludeFromSync state:

1. Go to Entra → Users, open the user.
2. Open **Custom security attributes** → **Add assignment**.
3. Select the Qumulex set, choose the attribute(s), and enter the value(s).
    - roleID → a role id, matched exactly: a built-in role id (e.g. administrator, manage_people) or a custom role id (e.g. 1SoAExCV0M7). See the list above.
    - credentials → one or more card values. Use siteCode-cardNumber (e.g. 100-1234) to set a site code; a value without a - (e.g. 1234) is stored as just the card number.
    - excludeFromSync → true to soft-delete the person in qx and remove their synced credentials (manual credentials are disabled), false (or unset) to keep them active.
4. Save.

Step 5 — Let the sync read them

The QxControl Entra app requests the CustomSecAttributeAssignment.Read.All Microsoft Graph permission as part of the sync consent. The sync reads attributes **as the user who connected it** (a delegated flow), so:

1. Grant admin consent for that permission when prompted during the Entra sync setup
2. If you have previously configured Entra sync in QxControl, you will have to re-sync to consent to the new permission being requested. You can do that from the Single Sign On menu on the Places page. Note: This can not be done by the integrator. It must be done by a user from the customer.

3. Assign the **Attribute Assignment Reader** role (from Step 1) to the user whose account connects the QxControl sync, so Entra will return the attribute values.

Without the Attribute Assignment Reader role on that user, Entra silently omits customSecurityAttributes and roles/credentials will not sync (users and groups still sync normally).