What is this Modern Authentication everyone is talking about, and why you should phase out Legacy authentication?

By Erik Loef & Kenneth van Surksum

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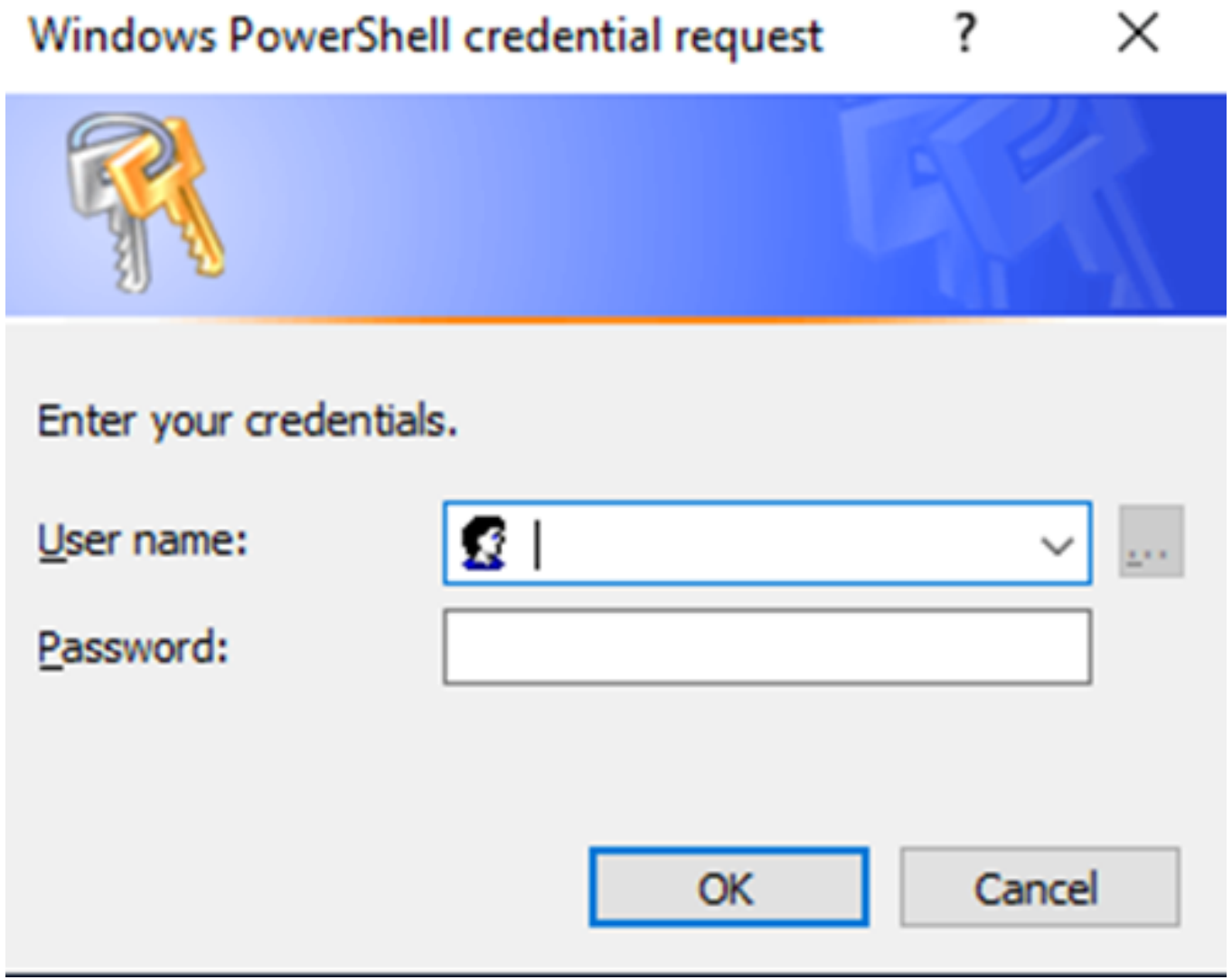
Agenda

1. What is legacy authentication?
2. What is modern authentication?
3. How to detect legacy authentication?
4. Steps to migrate from legacy to modern authentication?
5. Application consent
6. Call 2 Action

What is legacy authentication?

When using Basic/Legacy Authentication application sends a username and password with every request to f.e. Exchange Online which either forwards the credentials towards Azure AD or a federated authentication provider like Active Directory Federation Services (ADFS).



What is the issue with legacy authentication?

The problem with Basic/Legacy authentication is that it is vulnerable to brute force or password spray attacks.

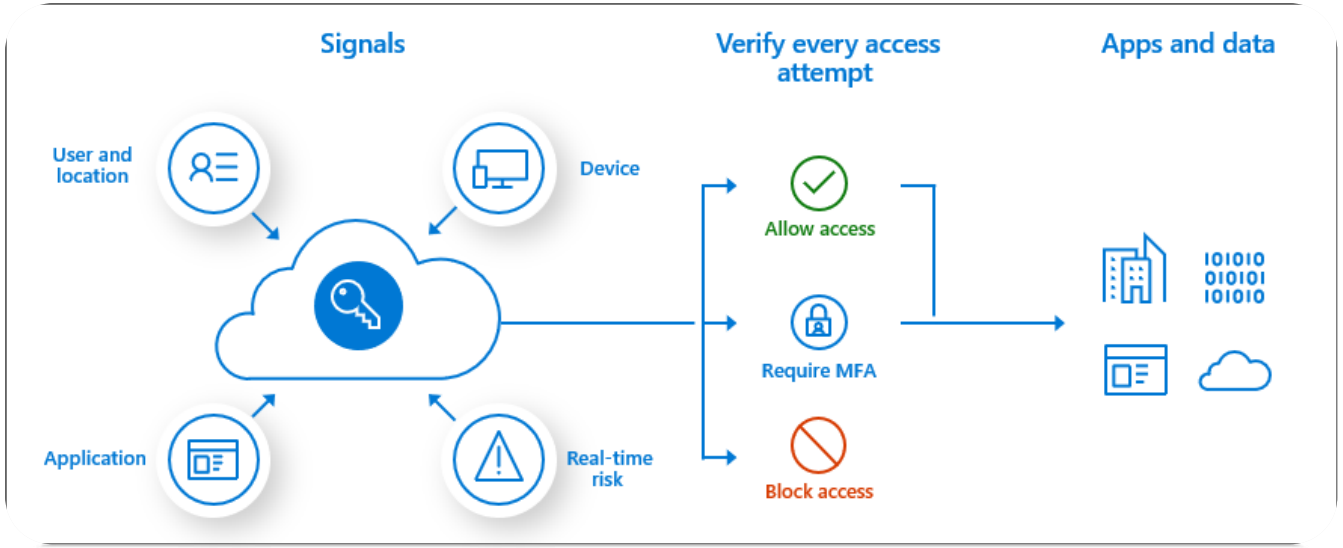
And therefore:

~~Microsoft announced that it will disable legacy authentication in the second half of 2021*~~

*Initially they announced it to be disabled on October 13, 2020 but due to the COVID-19 crisis Microsoft decided to postpone until further notice

Some additional reasons

- In order to fully implement Conditional Access we must make sure that the services that we want to protect using Conditional Access make use of Modern Authentication
- If we want to move towards Passwordless we must stop using Legacy Authentication



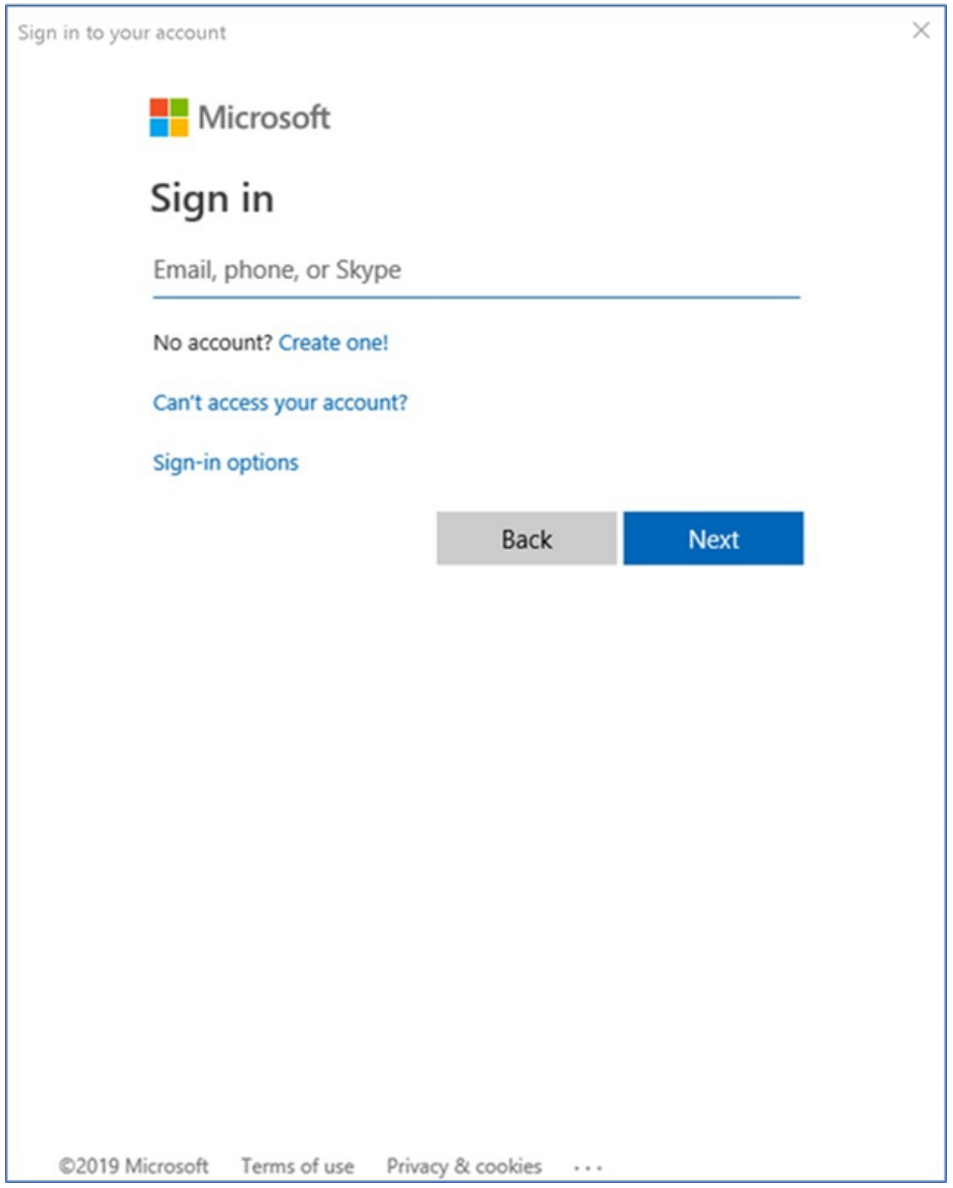
Bypassing MFA through CA by using Legacy authentication

So, what is Modern authentication

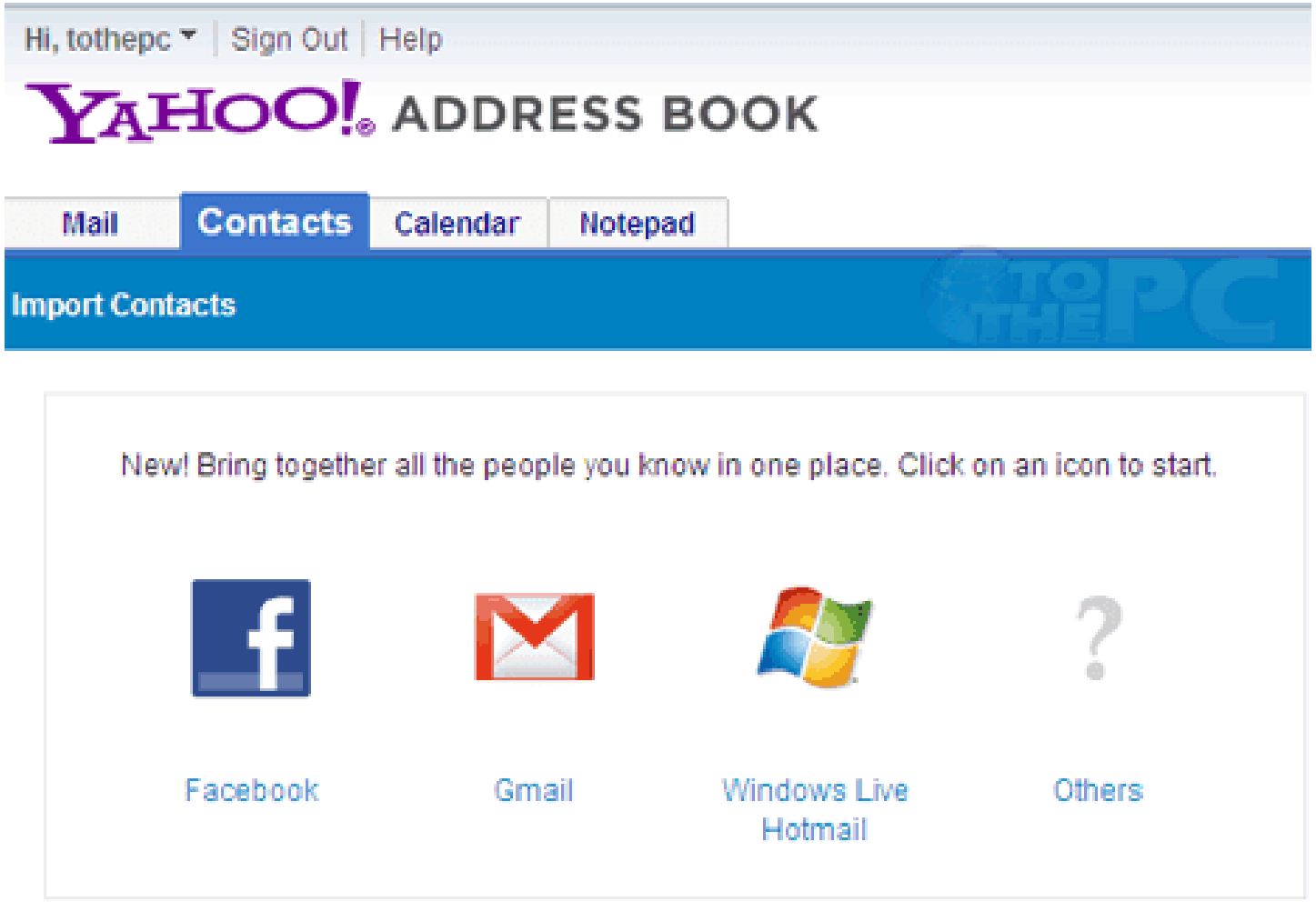
Modern Authentication is based on OAuth 2.0 and the Active Directory Authentication Library (ADAL) providing **token-based authentication**. OAuth 2.0 in this case is the protocol being used, and ADAL is used to authenticate against Azure AD.

Token based authentication, as described by the World Wide Web Consortium (W3C):

“The general concept behind a token-based authentication system is simple. Allow users to enter their username and password in order to obtain a token which allows them to fetch a specific resource – without using their username and password. Once their token has been obtained, the user can offer the token – which offers access to a specific resource for a time period – to the remote site. Using some form of authentication: a header, GET or POST request, or a cookie of some kind, the site can then determine what level of access the request in question should be afforded. “



Before … OAUTH2.0



www.yahoo.com

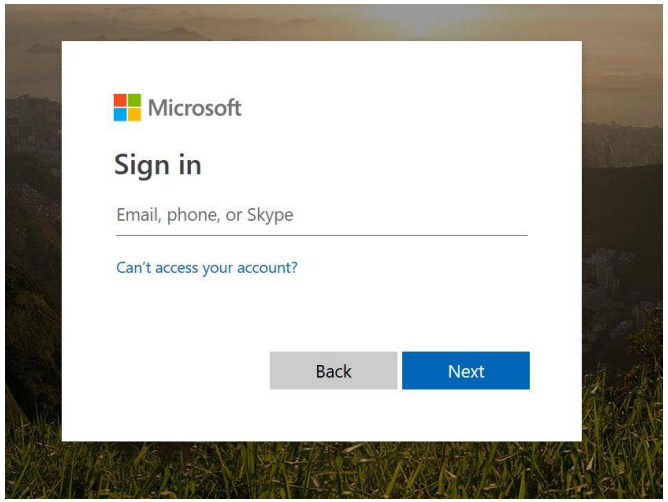
get contacts from microsoft

Resource owner

Go to authorisation server

Redirect URI
www.yahoo.com/callback
Response: code

login.microsoft.com



Get access token for auth. code

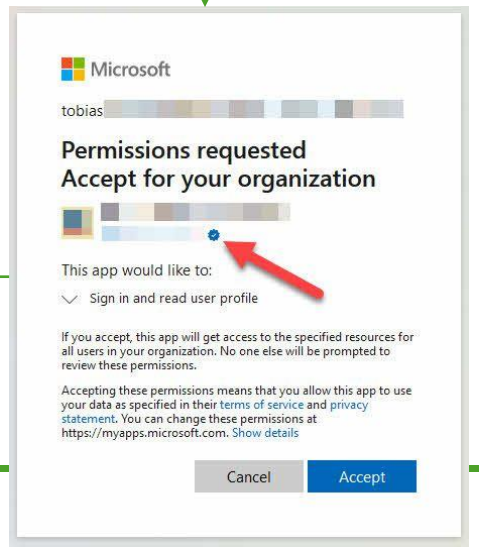
Microsoft | Microsoft Graph

Access token

www.yahoo.com/callback

Redirect URI
www.yahoo.com/callback

With authorisation code



OPENID CONNECT

- OAUTH = authorization
- OPENID CONNECT = authentication

- Adds an ID Token
- UserInfo Endpoint
- Standard scopes

www.yahoo.com

Get contacts from Microsoft

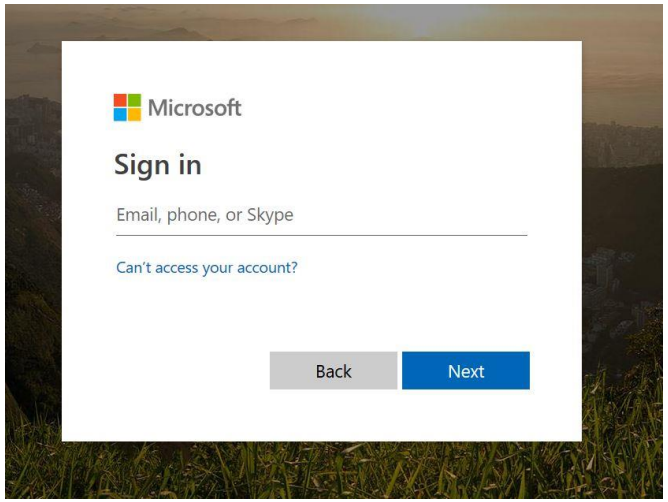
Resource owner

Connect

Go to authorisation server

Redirect URI
www.yahoo.com/callback
Response: code
Scope: openid

login.microsoft.com



Get access token for auth. code

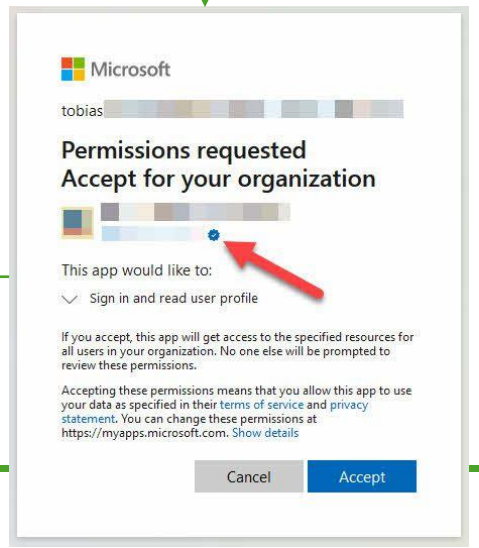
Microsoft | Microsoft Graph

Access token

www.yahoo.com/callback

Redirect URI
www.yahoo.com/callback

With authorisation code
userID token



package.json

```
{
  "name": "myapplication",
  "description": "some description here",
  "version": "0.0.1",
  "private": true,
  "scripts": {
    "start": "node ./bin/www"
  },
  "dependencies": {
    "express": "~4.12.2",
    "jade": "~1.9.2"
  }
}
```

Modern Authentication

Why Modern Authentication?

*Microsoft wants you to move towards Modern Authentication since it's a **more secure** solution. Another big advantage of using Modern Authentication is that it can leverage Azure AD Conditional Access, giving you the option to force MFA for users among other options.*

Determine whether legacy authentication is used by examining the Azure AD sign-in Logging and Workbooks

From Legacy -> Modern (1)

- 1. Enable Modern Authentication in Exchange Online and SharePoint Online
- 2. Create Conditional Access policy to block legacy authentication
- 3. Finished

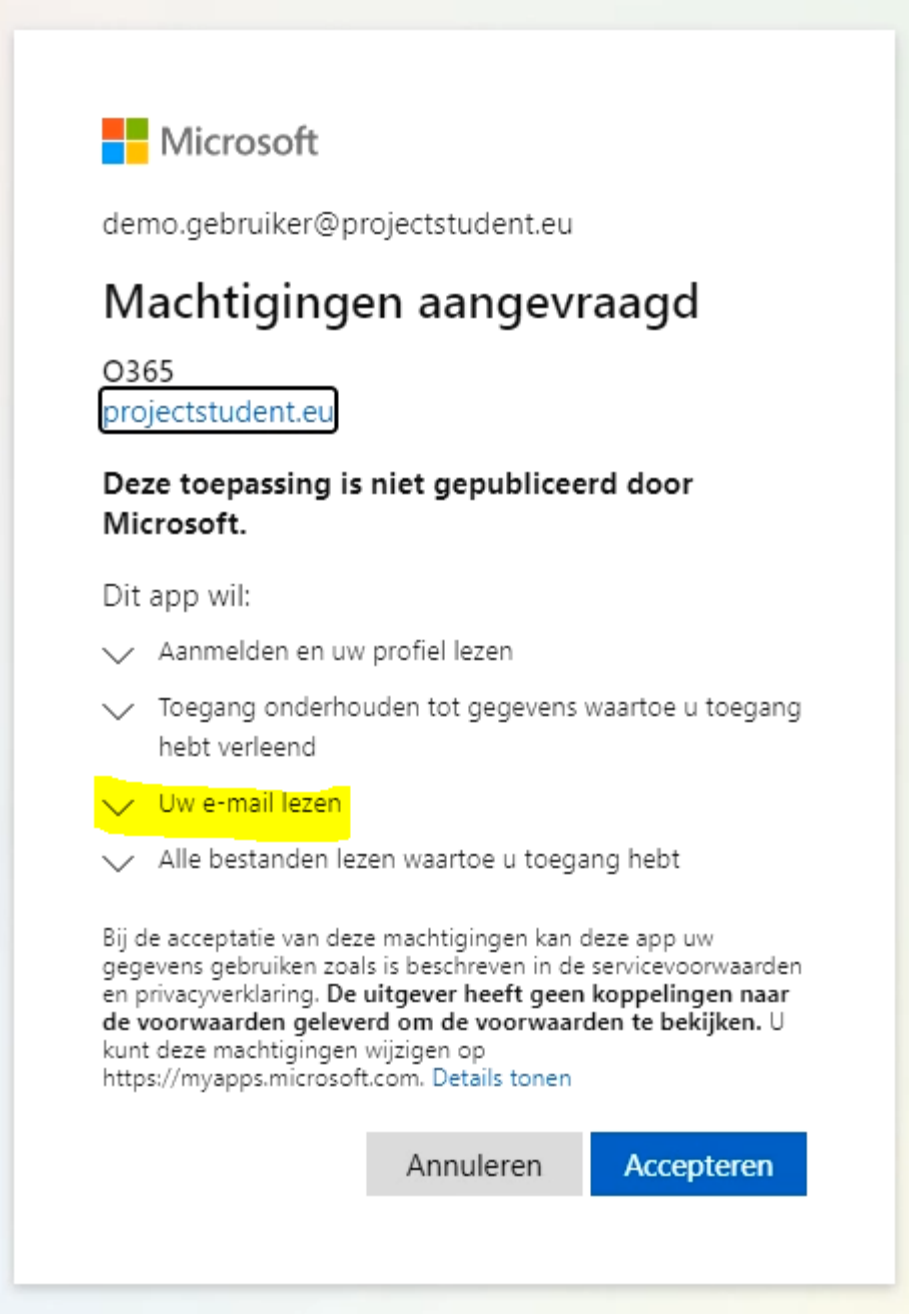
From Legacy -> Modern (2)

- 1. Enable Modern Authentication
- 2. Disable mailbox protocols which you do not want to be used
- 3. Create authentication policies disabling legacy authentication for the protocols you want to allow
- 4. Create supporting Conditional Access policies
- 5. Migrate your users one by one
  - From built in mail apps to Modern authentication apps

  or
  - To Outlook (allowing you to also apply MAM)

Transition to Modern Authentication

Consent Risks



Consent Risks

PwnAuth

office365 | messages | Demo Gebruiker (demo.gebruiker@projectstudent.eu) | list

search

next

Go!


```
{
  "@odata.context": "https://graph.microsoft.com/v1.0/$metadata#users('7814d42d-43f5-49e3-b3fa-0584d45570
  "@odata.nextLink": "https://graph.microsoft.com/v1.0/me/messages?$format=json&$expand=attachments(%24se
  "value": [
    {
      "@odata.etag": "W/\"CQAAABYAAAByZTdTYAvqRZeVF/apvXs/AAAlO/sq\"",
      "id": "AAMkAGU5ZDAxNzRmLWFlYWQtNDczMy1iOGJiLWIxYmMzOGRhNzdkMwBGAAAAAACweEAaoIFNSbUynC5uJHYkBwByZTdT
      "createdDateTime": "2020-06-03T13:02:38Z",
      "lastModifiedDateTime": "2020-06-03T13:05:21Z",
      "changeKey": "CQAAABYAAAByZTdTYAvqRZeVF/apvXs/AAAlO/sq",
      "categories": [],
      "receivedDateTime": "2020-06-03T13:02:39Z",
      "sentDateTime": "2020-06-03T13:02:34Z",
      "hasAttachments": false,
      "internetMessageId": "<VI1PR0102MB340663764E94E54396183D58AD880@VI1PR0102MB3406.eurprd01.prod.excha
      "subject": "Document",
      "bodyPreview": "Goedemiddag,\r\n\r\nZou je mijn document willen lezen en waar nodig aanpassen?\r\n\
      "importance": "normal",
      "parentFolderId": "AAMkAGU5ZDAxNzRmLWFlYWQtNDczMy1iOGJiLWIxYmMzOGRhNzdkMwAuAAAAAACweEAaoIFNSbUynC5u
      "conversationId": "AAQkAGU5ZDAxNzRmLWFlYWQtNDczMy1iOGJiLWIxYmMzOGRhNzdkMwAQAEqRdF1MD0w7maAea_a6RkE=
      "conversationIndex": "AdY5pJPQSpF0XUwPTDuZoB5r5rpGQQ==",
      "isDeliveryReceiptRequested": null,
      "isReadReceiptRequested": false,
      "isRead": false,
      "isDraft": false,
      "webLink": "https://outlook.office365.com/owa/?ItemID=AAMkAGU5ZDAxNzRmLWFlYWQtNDczMy1iOGJiLWIxYmMzC
```

Consent Risks

How to prevent ?

Enterprise applications | User settings

Stichting Timon - Azure Active Directory

Overview
- Overview
- Diagnose and solve problems

Manage
- All applications
- Application proxy
- User settings
- Collections

Security
- Conditional Access
- Consent and permissions

Activity
- Sign-ins
- Usage & insights
- Audit logs
- Provisioning logs (Preview)
- Access reviews
- Admin consent requests (Preview)

Troubleshooting + Support
- Virtual assistant (Preview)
- New support request

Save | Discard | Got feedback?

Note: When set to "No", users may still be able to connect their work or school accounts with LinkedIn. You can manage LinkedIn account connections in User Settings.

Users can consent to apps accessing company data for the groups they own: Yes | No | Limited

Users can add gallery apps to their Access Panel: Yes | No

Admin consent requests (Preview)

Users can request admin consent to apps they are unable to consent to: Yes | No

Select users to review admin consent requests *: 5 admins selected

Selected users will receive email notifications for requests: Yes | No

Selected users will receive request expiration reminders: Yes | No

Consent request expires after (days): 60

Office 365 Settings

Users can only see Office 365 apps in the Office 365 portal: Yes | No

Set up to three default applications for your end users so they can access third party resources on their first day of work.

Consent and permissions | User consent settings

Manage

User consent settings

Permission classifications

Save Discard

When a user grants consent to an application, the user can sign in and the application may be granted access to the organization's data.
Learn more about consent and permissions

User consent for applications
Configure whether users are allowed to consent for applications to access your organization's data. Learn more

- (●) Do not allow user consent
  An administrator will be required for all apps.
- ( ) Allow user consent for apps from verified publishers, for selected permissions (Recommended)
  All users can consent for permissions classified as "low impact", for apps from verified publishers or apps registered in this organization.
- ( ) Allow user consent for apps
  All users can consent for any app to access the organization's data.

Group owner consent for apps accessing data
Configure whether group owners are allowed to consent for applications to access your organization's data for the groups they own. Learn more

- (●) Do not allow group owner consent
  Group owners cannot allow applications to access data for the groups they own.
- ( ) Allow group owner consent for selected group owners
  Only selected group owners can allow applications to access data for the groups they own.
- ( ) Allow group owner consent for all group owners
  All group owners can allow applications to access data for the groups they own.

Get started by adding the most used permissions.

The following permissions are the most requested application permissions with low-risk access. Get started managing consent and permissions for all users by adding these delegated permissions with only one click. Learn more

- [ ] User.Read - sign in and read user profile
- [ ] offline_access - maintain access to data that users have given it access to
- [ ] openid - sign users in
- [ ] profile - view user's basic profile
- [ ] email - view user's email address

Yes, add selected permissions | No, I'll add permissions

TAKEAWAY

Make yourself ready for the next security steps

- Disable Basic Authentication
- Enforce MFA
- Govern your Consent

Call 2 action

- Block Legacy Authentication
- If not possible
  - analyze basic authentication logons
  - make exceptions for only those logons
- Understand OAUTH2.0
  it is the new NTLM / Kerberos!
- Enable MFA
- Federate applications to Azure AD
- Govern the consents of Applications in your organization