



TEAMS BOTS

IceBreaker

<https://github.com/OfficeDev/microsoft-teams-list-search-app>

Thomas Poett
Office Apps and Services





Teams BOTs – Whats this ..?

Last session from Bochum

IceBreaker – a Search List App



Microsoft Teams interface showing a team named 'Contoso IT' with a 'General' channel. A message from 'Icebreaker' is visible, stating: 'Hi there! If you're reading this, it's most likely because Michal Lesiczka added me to the Contoso IT Team. I get to help you meet more people around your organization by randomly pairing you with someone new every week. You get to make more friends and learn about the people you work with. It's a win-win-win situation.' Below the message is a 'Take a tour' button. The left sidebar shows various team channels like 'Deployment', 'Management and Governance', 'Service Strategy', 'Support', 'X1050 Launch Team', 'Mark 8 Project Team', 'Research and Development', 'Commercial Lending', and 'Legal'.

Microsoft Teams interface showing the 'Icebreaker' app. The 'Recent' list shows 'Icebreaker Sent a card' on 5/29. The 'Suggested' list includes names like Adele Vance, Allan Deyoung, Christie Cline, Debra Berger, Diego Siciliani, Emily Braun, Enrico Cattaneo, Grady Archie, Isaiah Langer, Johanna Lorenz, Joni Sherman, Jordan Miller, Miriam Graham, and Patti Fernandez. The main content area shows a message from 'Icebreaker' dated 5/13 10:00 AM: 'It's time for a match! You've been matched with Megan Bowen. Hi there again, I'm Icebreaker in Contoso Channel Marketing. A bot that pairs you with a new coworker to meet each week. This week your match is Megan Bowen. If you've got the inclination, set something up. See, meeting people is easy!' Below the message are buttons for 'Chat with Megan', 'Propose meetup', and 'Pause all matches'. A second message from 'Icebreaker' dated 5/17 8:30 PM shows a match with Allan Deyoung and similar buttons.



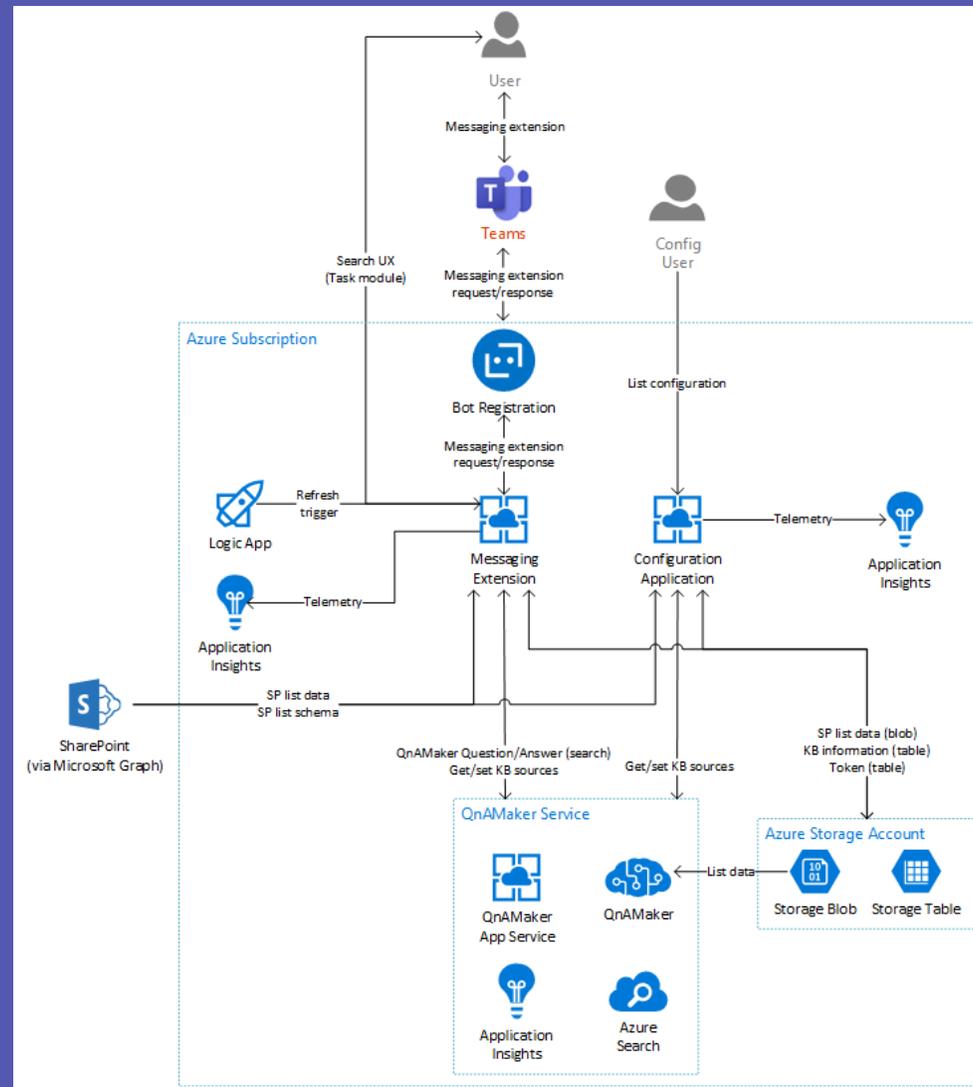
Integration of IB

The **List Search** application has main components:

QnAMaker: A set of resources that comprise the QnAMaker service that indexes the SharePoint list and returns results.

Messaging Extension: An Azure App Service web app that implements the following functionality:

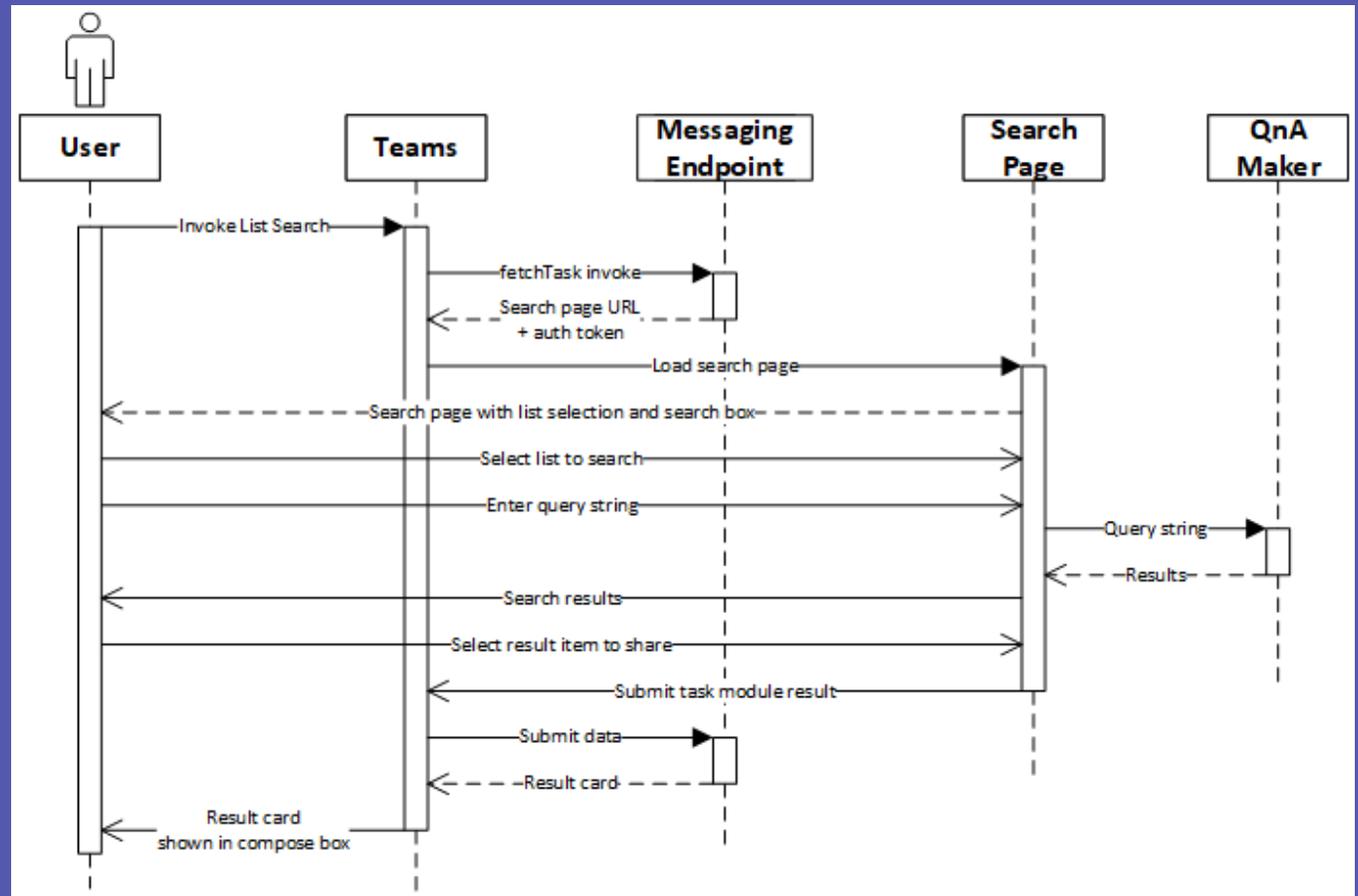
Configuration Application: An Azure App Service that lets app admins configure the SharePoint lists that can be searched with the messaging extension.





Messaging Extension

The app implements an action-based command to launch the search experience in a task module. The task module is an embedded page in which the user selects the list to search, then searches the list by entering a query string. The page sends the query string to a search endpoint on the app and then displays the current set of results. When the user has picked an item to share, the page completes the messaging extension flow by dropping a result card into the compose box.



AZURE STORAGE Used



- Azure Storage Account
 - [Blob] Temporary storage for list data
 - [Table] List information
 - [Table] Graph token for refreshing list data
- Azure Search service list item index, created and maintained by the QnAMaker cognitive service.
- Application Insights



Installing - IceBreaker

Prerequisites



- An Azure subscription where you can create the following kinds of resources:
 - Azure Logic App
 - App service
 - App service plan
 - Bot channels registration
 - Azure storage account
 - Azure search
 - QnAMaker cognitive service
 - Application Insights
- A copy of the List Search app GitHub repo
- A service account user that List Search will use to access SharePoint
 - We strongly recommend creating a new user specifically for List Search, and grant that user access to **only** those lists that you want to be searchable with this app.



STEP 1 - IceBreaker

Register List Search Microsoft Azure AD



create an Azure AD application

Name: The name of your Teams app. For example, "List Search"

Supported account types: Select "Account in this organizational directory only"

Leave the "Redirect URI" field blank for now.

Register

Home > acco365 - App registrations > Register an application

Register an application

*** Name**
The user-facing display name for this application (this can be changed later).

.listsearchapp ✓

Supported account types
Who can use this application or access this API?

Accounts in this organizational directory only (acco365) ←

Accounts in any organizational directory

Accounts in any organizational directory and personal Microsoft accounts (e.g. Skype, Xbox, Outlook.com)

[Help me choose...](#)

Redirect URI (optional)
We'll return the authentication response to this URI after successfully authenticating the user. Providing this now is optional and it can be changed later, but a value is required for most authentication scenarios.

Web e.g. https://myapp.com/auth

[By proceeding, you agree to the Microsoft Platform Policies](#)

Register



List Search

Copy the **Application (client) ID** and the **Directory (tenant) ID**; we will need them later.

The screenshot shows the Microsoft Entra ID portal for an application named 'listsearchapp'. The left-hand navigation pane includes sections for 'Overview', 'Quickstart', 'Manage' (with sub-items: Branding, Authentication, Certificates & secrets, API permissions, Expose an API, Owners, Manifest), and 'Support + Troubleshooting' (with sub-items: Troubleshooting, New support request). The main content area displays the application's details:

- Display name: listsearchapp
- Application (client) ID: a2c3cf46-1149-46e5-a00b-f81a95fa2bb3 (highlighted with a green arrow)
- Directory (tenant) ID: 1a3c7e7f-2d1f-4bbb-8c8c-98261d7e2638 (highlighted with a green arrow)
- Object ID: 643e68c7-797a-4b3a-b490-2118fe1cbaa6

Additional details include 'Supported account types: My organization only', 'Redirect URIs: Add a Redirect URI', and 'Managed application in local directory: listsearchapp'. Below the details are sections for 'Call APIs' (with icons for various Microsoft services) and 'Documentation' (with links to Microsoft identity platform, authentication scenarios, authentication libraries, code samples, Microsoft Graph, glossary, and help and support).



Certificate & Secrets

Go to the "Certificates & secrets" section. In the Client secrets section, click on "+ New client secret"

Upon creation: copy its **Value**

navigate to the "API permissions"

The screenshot shows the Azure portal interface for managing application registrations. The breadcrumb path is 'Home > acco365 - App registrations > listsearchapp - Certificates & secrets'. The page title is 'listsearchapp - Certificates & secrets'. On the left, a navigation pane lists various management options, with 'Certificates & secrets' selected. The main content area is titled 'Add a client secret' and contains a 'Description' field with the value 'app secret'. Under the 'Expires' section, three radio buttons are present: 'In 1 year', 'In 2 years', and 'Never', with the 'Never' option selected and highlighted by a green arrow. Below this are 'Add' and 'Cancel' buttons. A section titled 'Client secrets' provides a definition: 'A secret string that the application uses to prove its identity when requesting a token. Also can be referred to as application password.' Below the definition is a '+ New client secret' button, also highlighted by a green arrow. A table with columns 'DESCRIPTION', 'EXPIRES', and 'VALUE' is shown below, but it is empty, with a message stating 'No client secrets have been created for this application.'



API Permission

1. Click on the "+ Add a permission" button.
2. Select "Microsoft Graph".
3. Select "Delegated permissions".
4. Select the following permissions:
 - offline_access
 - Sites.Read.All (in the "Sites" section)

Go back to "App registrations", then repeat steps 2-4 to create another Azure AD application for the configuration app. We advise appending "Configuration" to the name of this app; for example, "List Search Configuration".

The screenshot shows the 'API permissions' page in the Azure AD portal for an application named 'listsearchapp'. The left-hand navigation pane is open, with 'API permissions' selected. The main content area displays a table of permissions granted to the application.

API permissions

Applications are authorized to use APIs by requesting permissions. These permissions show up during the consent process where users are given the opportunity to grant/deny access.

[+ Add a permission](#)

API / PERMISSIONS NAME	TYPE	DESCRIPTION	ADMIN CONSENT REQUIRED
▼ Microsoft Graph (3)			
Sites.Read.All	Delegated	Read items in all site colle...	-
User.Read	Delegated	Sign in and read user profile	-
offline_access	Delegated	Maintain access to data yo...	-

These are the permissions that this application requests statically. You may also request user consent-able permissions dynamically through code. [See best practices for requesting permissions](#)

Grant consent

As an administrator, you can grant consent on behalf of all users in this directory. Granting admin consent for all users means that end users will not be shown a consent screen when using the application.

[Grant admin consent for Contoso](#)



STEP 2 - IceBreaker

Deploy to your Azure subscription



Custom Deployment

Deploy to Azure" button

create a "Custom deployment" based on the ARM template

Select a subscription and resource group.

- Application Insights
- Logic Apps
- QnA Maker
- Azure Search

Enter a "Base Resource Name

Fill in the various IDs:

- Messaging Extension Client Id:
- Messaging Extension Client Secret:
- Config App Client Id:
- Tenant Id:

Config Admin UPN List

Agree to the Azure terms and conditions

Click on "Purchase"

The screenshot shows the 'Custom deployment' page in the Azure portal. It is titled 'Custom deployment' and includes a 'Purchase' button at the bottom. The page is divided into 'BASICS' and 'SETTINGS' sections.

BASICS

- Subscription:** [Redacted]
- Resource group:** (New) contoso-listsearch (with a 'Create new' link)
- Location:** (US) West US

SETTINGS

- Base Resource Name:** contoso-listsearch
- Messaging Extension Client Id:** 5b7047e0-031d-434f-b8f0-b8fe7f35b976
- Messaging Extension Client Secret:** ubp:wMI*HsVem*F0HJUIM1FWFdv_j23
- Config App Client Id:** 522cac91-b400-45d0-b552-6bfdaec9c804
- Config Admin UPN List:** adelev@contoso.com;isaiah@contoso.com
- Tenant Id:** [subscription().tenantId]
- Refresh Endpoint Key:** [newGuid()]
- Token Encryption Key:** [concat(uniqueString(newGuid()), uniqueString(newGuid()))]
- Skus:** Standard
- Plan Size:** 1
- Location:** [resourceGroup().location]
- Qna Maker Sku:** S0 (\$10 per month for unlimited documents, 3 transactions per second, 100 transa...)

At the bottom of the form is a blue 'Purchase' button.



STEP 3 - IceBreaker

Finish setting up the configuration app



1. Note the location of the configuration app that you deployed, which is [https://\[BaseResourceName\]-config.azurewebsites.net](https://[BaseResourceName]-config.azurewebsites.net).

For example, if you chose “contosolistsearch” as the base name, the configuration app will be at <https://contosolistsearch-config.azurewebsites.net>.

2. Go back to the “App registrations” page at https://portal.azure.com/#blade/Microsoft_AAD_IAM/ActiveDirectoryMenuBlade/RegisteredAppsPreview.

Repeat the steps below for each of the two apps that you created.

3. Click on the application in the application list. Under “Manage”, click on “Authentication” to bring up authentication settings.



Redirect URIs

Type: Web

Redirect URI: Location (URL) of your configuration app. This is the URL from Step 3.1.

Home > acco365 - App registrations > listsearchapp - Authentication

listsearchapp - Authentication

Save Discard Try out the new experience Got feedback?

Search (Ctrl+/) <<

Overview
Quickstart
Manage
Branding
Authentication
Certificates & secrets
API permissions
Expose an API
Owners
Manifest
Support + Troubleshooting
Troubleshooting
New support request

Redirect URIs

The URIs that we will accept as destinations when returning authentication responses (tokens) after successfully authenticating users. Also referred to as reply URLs.
[Learn more about adding support for web, mobile and desktop clients](#)

TYPE	REDIRECT URI
Web	https://konaylistsearch-config.azurewebsites.net
Web	

Suggested Redirect URIs for public clients (mobile and desktop) (ADAL) to build applications for desktop or mobile devices, you may select from the suggested Redirect URIs below or enter a custom redirect URI above. For more information, refer to the library documentation.

- msala2c3cf46-1149-46e5-a00b-f81a95fa2bb3://auth (MSAL only)
- https://login.microsoftonline.com/common/oauth2/nativeclient
- https://login.live.com/oauth20_desktop.srf (LiveSDK)



ID tokens

Under "Implicit grant", check "ID tokens".

Click "Save" to commit your changes.

Home > acco365 - App registrations > listsearchapp - Authentication

listsearchapp - Authentication

Save Discard Try out the new experience Got feedback?

Search (Ctrl+/) <<

- Overview
- Quickstart
- Manage
 - Branding
 - Authentication**
 - Certificates & secrets
 - API permissions
 - Expose an API
 - Owners
 - Manifest
- Support + Troubleshooting
 - Troubleshooting
 - New support request

Advanced settings

Logout URL

Implicit grant

Allows an application to request a token directly from the authorization endpoint. Recommended only if the application has a single page architecture (SPA), has no backend components, or invokes a Web API via JavaScript.

To enable the implicit grant flow, select the tokens you would like to be issued by the authorization endpoint:

- Access tokens
- ID tokens

Default client type

Treat application as a public client.
Required for the use of the following flows where a redirect URI is not used:

- Resource owner password credential (ROPC) [Learn more](#)
- Device code flow [Learn more](#)
- Integrated Windows Authentication (IWA) [Learn more](#)



STEP 4 - IceBreaker

Add your SharePoint lists



1. Go to the configuration app, which is at [https://\[BaseResourceName\]-config.azurewebsites.net](https://[BaseResourceName]-config.azurewebsites.net). For example, if you chose “contosolistsearch” as the base name, the configuration app will be at <https://contosolistsearch-config.azurewebsites.net>.
2. When prompted, log in as one of the users that you specified in “Config Admin UPN List”.
3. The List Search app is initially not able to access SharePoint, until it gets an access token. To begin setting the user, click on the "Set SharePoint user" button.

Add a new SharePoint list

Enter the URL of the SharePoint list that you want to index,

Configure the list by selecting:

- Display name for the list
- The column that should be searchable
- Up to 4 additional columns that will be included in the result
- How often the list data should be refreshed

Click on "Submit"

When it's done indexing the list, the app will navigate back to the home page. You can repeat the process and configure up to 4 other SharePoint lists to search.

The screenshot shows the 'Configuration App' interface. At the top, there are navigation links for 'Home' and 'Sign out', and the user's email 'TestSharepoint@acco365.onmicrosoft.com'. The main form contains the following fields and options:

- URL field:** A text input containing 'https://acco365.sharepoint.com/sites/test/Lists/TestListSearch/AllItems.aspx' with an 'Enter' button to its right.
- List name field:** A text input containing 'TestListSearch'.
- Searchable column dropdown:** A dropdown menu with 'Customer name' selected.
- Display columns:** A row of four dropdown menus. The first contains 'Customer PM', the second contains 'Title', and the other two contain '-'. A note above them says: 'What columns do you want to display results from? Please pick up to 4. They will be displayed in the results in the order you pick them:'.
- Refresh frequency:** Three radio buttons labeled '6 hours', '12 hours', and '24 hours'. The '6 hours' option is selected.
- Buttons:** 'Cancel' and 'Submit' buttons at the bottom right. A green arrow points to the 'Submit' button.



STEP 5 - IceBreaker

Create the Teams app package



1. Open the `Manifest\manifest.json` file in a text editor.

2. Change the placeholder fields in the manifest to values appropriate for your organization.

- `developer.name` ([What's this?](#))
- `developer.websiteUrl`
- `developer.privacyUrl`
- `developer.termsOfUseUrl`

3. Change the “botId” placeholder to your Azure AD application's ID from above. This is the same GUID that you entered in the template under “Bot App ID”.

4. In the “validDomains” section, replace the placeholder with your Messaging App Service's domain. This will be `[BaseResourceName].azurewebsites.net`. For example, if you chose “contosolistsearch” as the base name, change the placeholder to `contosolistsearch.azurewebsites.net`.

5. Create a ZIP package with `manifest.json`, `color.png`, and `outline.png`. The two image files are the icons for your app in Teams.

Add a new SharePoint list

Enter the URL of the SharePoint list that you want to index,

Configure the list by selecting:

- Display name for the list
- The column that should be searchable
- Up to 4 additional columns that will be included in the result
- How often the list data should be refreshed

Click on "Submit"

When it's done indexing the list, the app will navigate back to the home page. You can repeat the process and configure up to 4 other SharePoint lists to search.

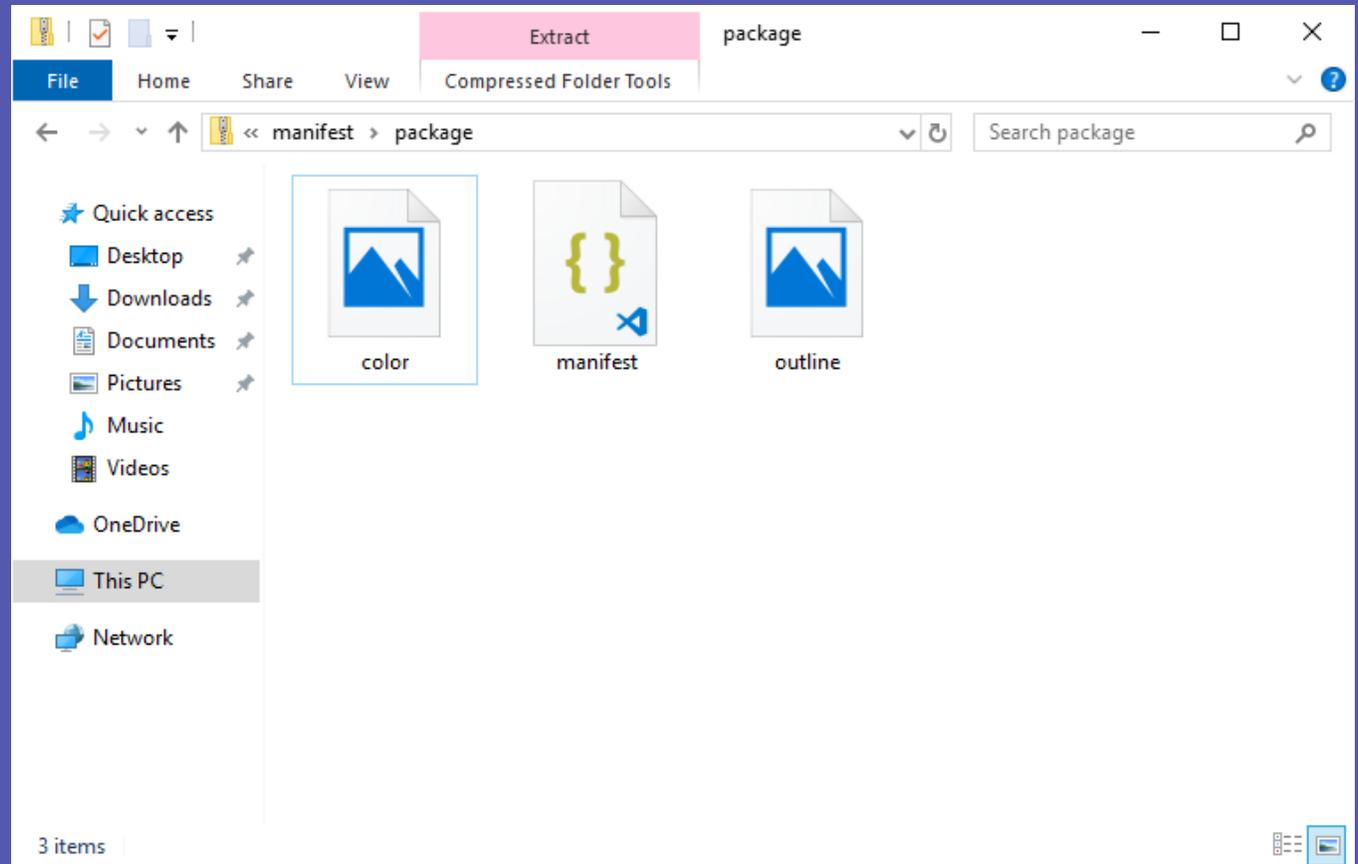
The screenshot shows the Configuration App interface for adding a new SharePoint list. The page has a dark header with "Configuration App" and "Home" on the left, and the user email "TestSharepoint@acco365.onmicrosoft.com" and "Sign out" on the right. The main content area is white and contains the following fields and controls:

- A text input field for the URL of the SharePoint list, containing "https://acco365.sharepoint.com/sites/test/Lists/TestListSearch/AllItems.aspx", with an "Enter" button to its right.
- A "List name" field with the value "TestListSearch".
- A dropdown menu for "Please select the column in your SharePoint List you want to search enabled in:", currently set to "Customer name".
- A section for "What columns do you want to display results from? Please pick up to 4. They will be displayed in the results in the order you pick them:" with four dropdown menus. The first two are set to "Customer PM" and "Title", and the other two are set to "-".
- A section for "How frequently do you want to refresh the SharePoint list data?" with three radio buttons: "6 hours" (selected), "12 hours", and "24 hours".
- At the bottom right, there are "Cancel" and "Submit" buttons. A green arrow points to the "Submit" button.



Found on GitHub

Make sure that the 3 files are the *top level* of the ZIP package, with no nested folders.





STEP 6 - IceBreaker

Run the app in Microsoft Teams



- If your tenant has sideloading apps enabled, you can install your app personally by following the instructions below.
 - Upload the custom app package using the Store:
<https://docs.microsoft.com/en-us/microsoftteams/platform/concepts/apps/apps-upload#load-your-package-into-teams>
- You can also upload it to your tenant's app catalog, so that it can be available for everyone in your tenant to install:
<https://docs.microsoft.com/en-us/microsoftteams/tenant-apps-catalog-teams>
- Run your messaging extension:
<https://docs.microsoft.com/en-us/microsoftteams/platform/concepts/apps/apps-upload#accessing-your-uploaded-messaging-extension>

Step 6 – Manifest File (ZIP)



```
manifest.json [3]
1  {
2    "$schema": "https://developer.microsoft.com/en-us/json-schemas/teams/v1.3/MicrosoftTeams.schema.json",
3    "manifestVersion": "1.3",
4    "version": "1.0.0",
5    "id": "d55d08d9-bacb-4567-942f-afd85d632dcc",
6    "packageName": "com.microsoft.teams.icebreaker",
7    "developer": {
8      "name": "ThoughtStuff",
9      "websiteUrl": "https://thoughtstuff.co.uk",
10     "privacyUrl": "https://thoughtstuff.co.uk/privacy",
11     "termsOfUseUrl": "https://thoughtstuff.co.uk/tos"
12   },
13   "icons": {
14     "color": "color.png",
15     "outline": "outline.png"
16   },
17   "name": {
18     "short": "Icebreaker"
19   },
20   "description": {
21     "short": "Icebreaker is a bot that randomly pairs team members up to build team unity.",
22     "full": "Icebreaker is a cute little bot that randomly pairs team members up every week to help the team build trust and personal connections."
23   },
24   "accentColor": "#64A2CC",
25   "bots": [
26     {
27       "botId": "439d20a4-f939-4e80-81f0-62b6c4b29352",
28       "scopes": [
29         "personal",
30         "team"
31       ],
32       "supportsFiles": false,
33       "isNotificationOnly": true
34     }
35   ],
36   "permissions": [
37     "identity",
38     "messageTeamMembers"
39   ],
40   "validDomains": [
41     "icebreaker-qxqm2jkkeaqsm.azurewebsites.net"
42   ]
43 }
```

Step 6 – Upload the IceBreaker App



The screenshot shows the Microsoft Teams app marketplace interface. On the left, there is a navigation pane with categories: Human resources, Productivity, Project management, Sales and support, and Social and fun. Below these is a section for 'Upload a custom app' with two options: 'Upload for me or my teams' and 'Upload for ThoughtStuff'. The main area displays a grid of app tiles, including MindMeister, Smartsheet, Calendar BOT, PowerApps, Wrike, Zoom Meetings, Incoming Webhook, and Asana. A file explorer window is overlaid on top, showing the path 'microsoft-teams-icebreaker-app-master > Manifest'. The file explorer contains a single file named 'Icebreaker.zip' with a traffic cone icon. The file name field at the bottom of the explorer is set to 'Icebreaker.zip' and the file type is 'Custom Files (*.zip)'. The 'Open' button is highlighted.

Step 6 – Add to a TEAM



Apps

Search all

All

Personal apps

Bots

Apps

Connectors

Messaging

ThoughtStuff

Top picks

Analytics and BI

Developer and IT

Education

Human resources

Productivity

Project management

Sales and support

Social and fun

Upload a custom app

Browse available apps and services

Icebreaker

Add

Add to a team

Privacy and Permissions

About

Icebreaker is a cute little bot that randomly pairs team members up every week to help the team build trust and personal connections.

Bots

Chat with the app to ask questions and find info

Created by: ThoughtStuff
Version 1.0.0

Privacy and permissions

By using Icebreaker, you agree to the privacy policy and terms of use.

- Receive messages and data that I provide to it.
- Send me messages and notifications.
- Access my profile information such as my name, email address, company name, and preferred language.
- Receive messages and data that team members provide to it in a channel.
- Send messages and notifications in a channel.
- Access this team's information such as team name, channel list and roster (including team member's names and email addresses) - and use this to contact them.

Step 6 – Ready



Microsoft Teams

Search or type a command

Add Icebreaker to your apps.

Icebreaker

Activity About

By using Icebreaker, you agree to the Terms of use and Privacy statement.

Today

Icebreaker 1:41 PM

Hi there!



If you're reading this, it's most likely because Tom Morgan added me to the **Icebreaker Team**.

I get to help you meet more people around your organization by randomly pairing you with someone new every week. You get to make more friends and learn about the people you work with. It's a win-win-win situation.

To meet new people, just hang tight. I'll send you an invite soon.

Take a tour Pause all matches



Bochum



Hamburg



Thank you for your participation

Thomas Poett

Blog: <http://www.uclabs.blog>

 Meetups
www.meetup.com/Trust-in-Tech-Meetup-Munich/
www.meetup.com/Microsoft-Teams-Meetup-Munich/

 @thomaspoett
 <http://www.uclabs.blog>


Thomas.Poett
[@trans4mation.de](https://twitter.com/trans4mation.de)
Thomas.Poett
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Microsoft
Most Valuable Professional
MVP since 2012
+ Microsoft SfB Elite Team