

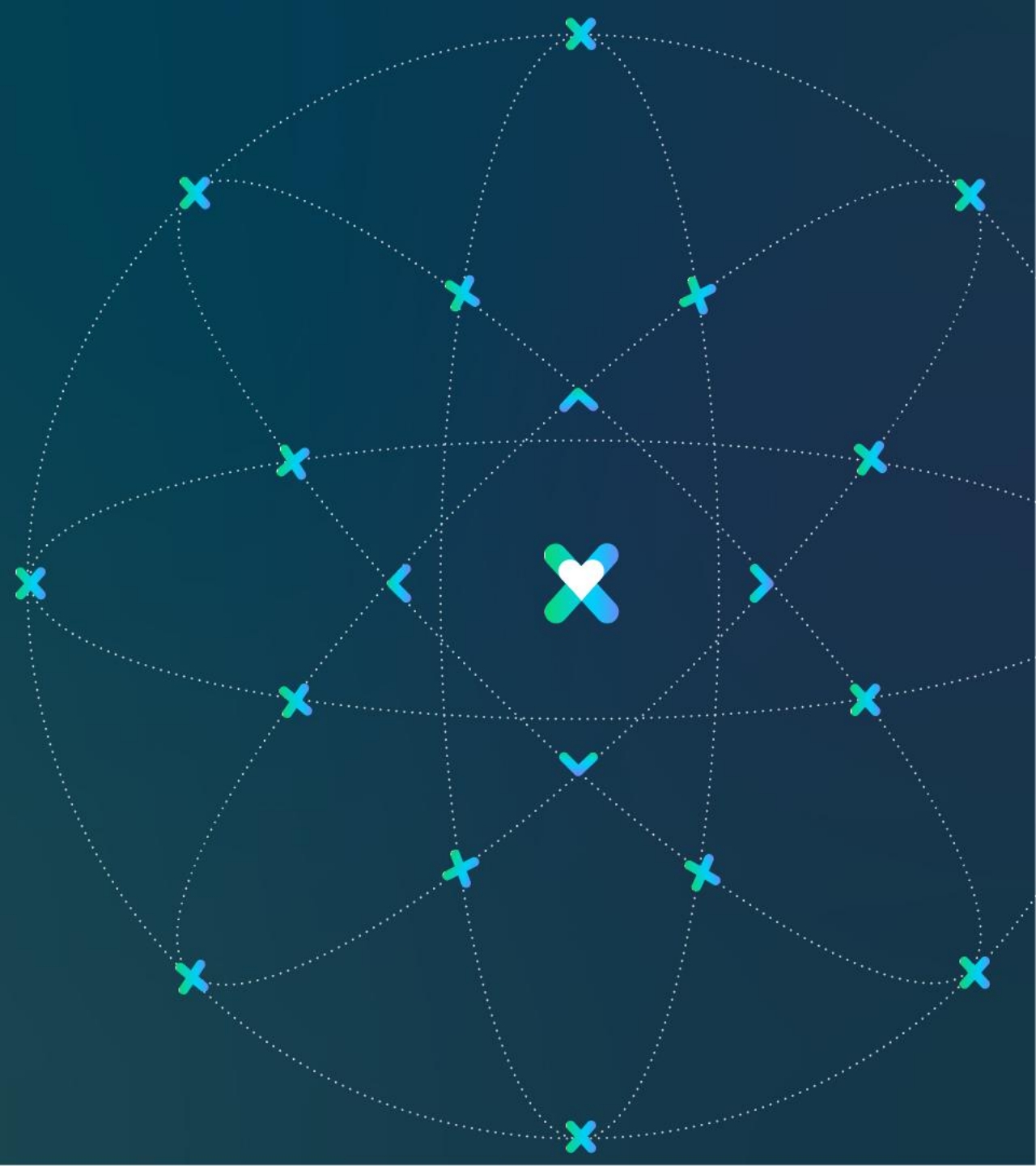
blackbaud®

Getting Started with SKY API® & SKY Add-Ins®

A Very Beginner's Guide

Glen Hutson – Principal Solutions Architect -
Blackbaud

 bbdevdays





Glen Hutson

Principal Solutions Architect

Joined Blackbaud in 2007

Been working with SKY API / SKY Add-ins since 2019

Today

This is a "101" Session meant for those who are really new to the basic concepts of APIs and the tools available to take advantage of them.

Agenda

Discussing such questions such as:

1. What are APIs?
2. What is SKY API?
3. What are SKY Add-Ins?
4. How do Pro-Coders Get Started?
5. What is Power Automate?
6. How do Low-Coders Get Started with Power Automate?
7. Now why did I walk to the kitchen?

Introduction

"OK, what is an API?"

*APIs (**A**pplication **P**rogramming **I**nterface) are mechanisms that enable two software components to communicate with each other using a set of definitions and protocols. For example, the weather bureau's software system contains daily weather data. The weather app on your phone "talks" to this system via APIs and shows you daily weather updates on your phone.*

--Via Amazon (<https://aws.amazon.com/what-is/api/>)

Basic Concept of API



- Role of API
 - Allows distinct systems to share information with each other in a common, structured manner.
 - Prevents direct access to underlying data in each system.
- Think of a Restaurant
 - Waiter represents the API
 - Waiter relays requests and results between customer and kitchen
- Functionality
 - API receives requests from System A
 - API sends requests to internal parts of System B
 - API returns results to System A

Another way of looking at it...

APIs work as an intermediary in front of another system. It allows access to a pre-selected set of data, often involving authentication to ensure that only the right parts of the outside world have access.



APIs: Not just for Web

- Though our focus is on APIs for Blackbaud's Web-based Solutions, APIs can be present in a number of different scenarios, such as on-device systems.
- Apple's MusicKit, WeatherKit, and HealthKit are examples of Device/Operating System APIs that are available to 3rd party developers and Apps. This allows access to data / parts of those features without direct access to the underlying part of the system.
- If you use any 3rd party apps integrated with Apple's Health / Fitness, you've probably been asked a *lot* to ensure that the right data is being shared.



SOAP, REST, what?

In order for systems to communicate via an API, there needs to be some commonality established. There are various protocols (predefined structures) that are used in API Communication. Among the many, two are:

- SOAP – **S**imple **O**bject **A**ccess **P**rotocol
 - Available in BBCRM/Altru and Luminate Online
- REST - **R**epresentational **S**tate **T**ransfer
 - Available in a variety of Blackbaud Solutions.
 - The main focus of today's session.



How SKY API fits in



There are many different APIs involved in Blackbaud Solutions.



SKY API is a REST-based framework introduced in 2014 to give a common API infrastructure across Blackbaud Solutions.



Started with Raiser's Edge NXT and Financial Edge NXT and then expanded to other solutions.



Blackbaud CRM/Altru and Grantmaking were recently added to SKY API.



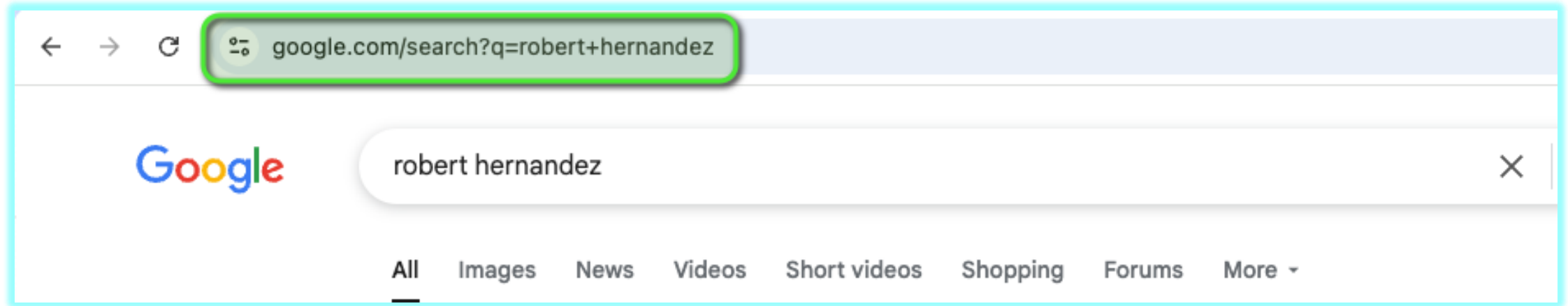
Blackbaud also uses SKY APIs to facilitate communication among Blackbaud Solutions.

My lightbulb moment

When working with something new, I always try to base it on a familiar frame of reference. In starting to really dive into APIs, the light bulb finally came on: I was trying making it more complicated than it needed to be.



Something familiar



When using Google to search for Robert Hernandez, the address at the top includes:

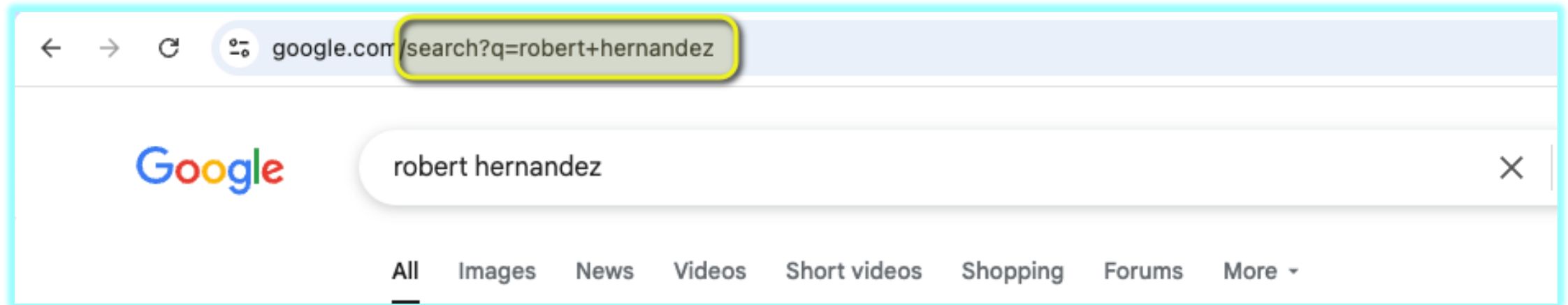
`https://google.com/search?q=robert+hernandez`

Something new

I was taking a look at the SKY API documentation and noted that when “searching” Raiser’s Edge NXT for Robert Hernandez via the API, this is what it looks like:

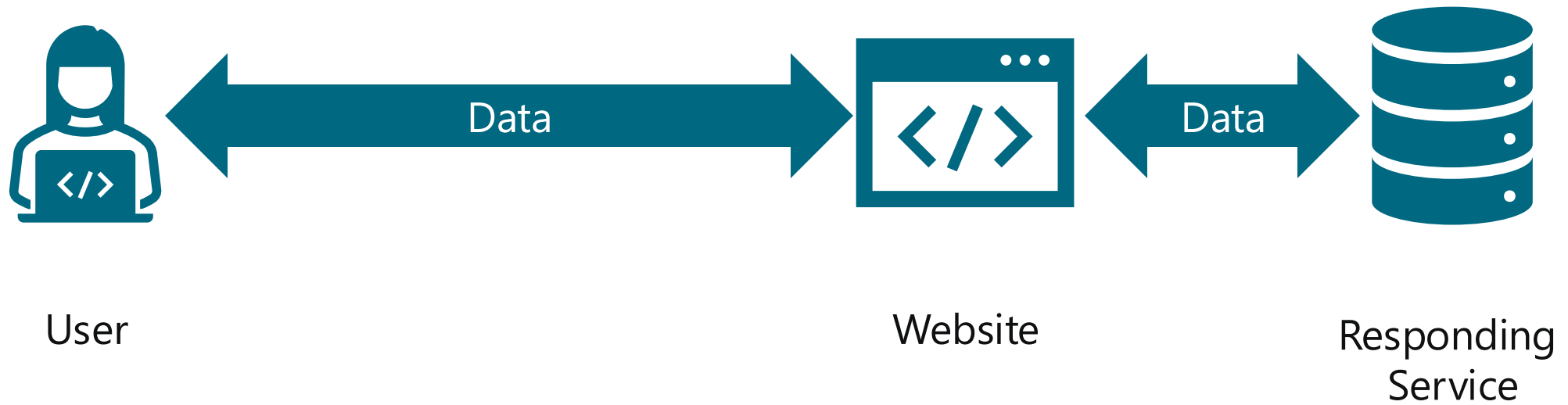
```
▶ GET https://api.sky.blackbaud.com/constituent/v1/constituents/search?search_text=robert%20hernandez
```

It’s a bit more involved, but can you see the similarities?

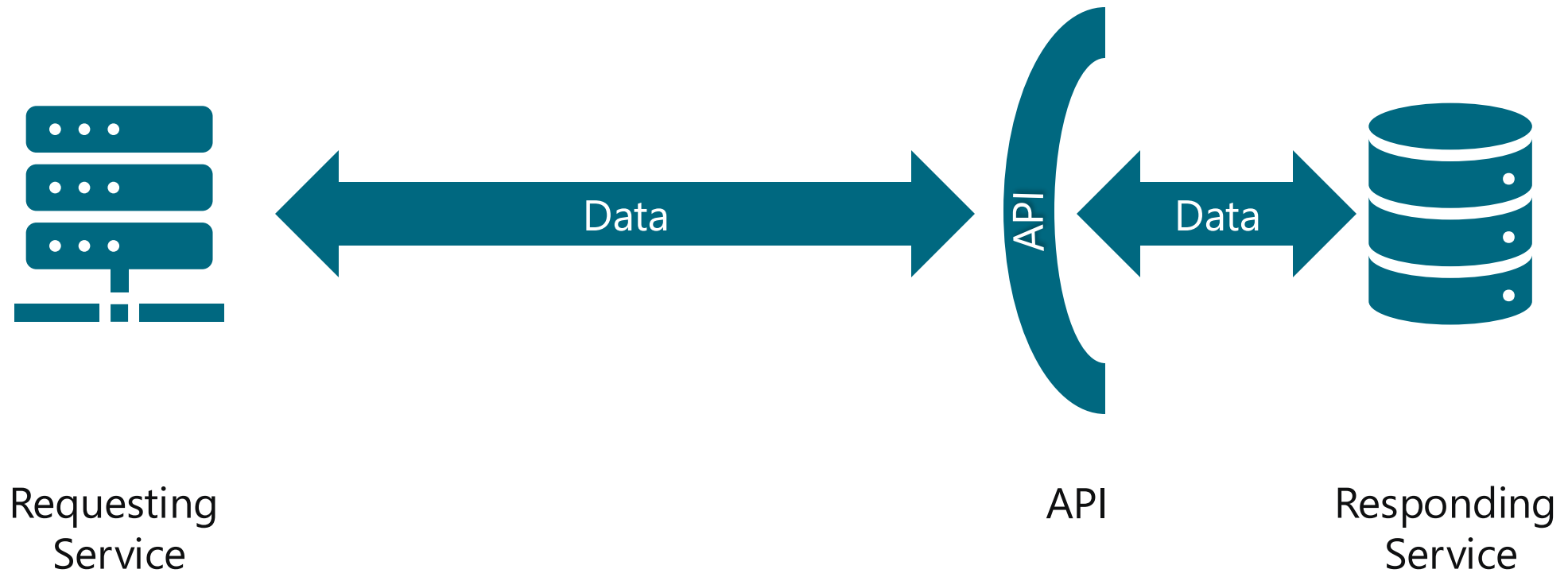


Don't try putting the API address directly within your browser, it won't work.

Instead of this...



... It's this...



Slightly more complicated

If I wanted to tell the API to not include inactive records:

► GET https://api.sky.blackbaud.com/constituent/v1/constituents/search?search_text=robert%20hernandez&include_inactive=false

GET

https://api.sky.blackbaud.com/constituent/v1/constituents/search?search_text=robert%20hernandez&include_inactive=false

The Gist

SKY (REST) APIs use Web Addresses (URLs) with structures similar to what you see in a typical web browser, just with some additional pieces.

In fact, it uses some of the same "Methods" that are common to standard web browser functions:

- GET – Ask for information
 - GETting a web page.
- POST – Send information
 - Similar to what happens when you submit a form on a website


A couple of unique ones:

PATCH – Update Information

DEL – Well, delete some information

Endpoints & Calls

An API **endpoint** is that specific type/piece of data you can access or modify in the API.



An API **call** is the specific request to an API endpoint.



In the previous example, this is **calling** the *Search Constituent endpoint*.

Who is this JSON and why do you keep talking about them?

- JSON – **J**ava**S**cript **O**bject **N**otation
- When systems talk to each other, they need a common language. JSON is one of several and the one used by SKY API.
- Used for the information that's returned as part of a GET call or as the data submitted as part of a POST or PATCH call.
- Uses a KEY: VALUE pairing

JSON Examples

Single JSON Object

```
{  
  "make": "DeLorean",  
  "model": "DMC-12",  
  "year": 1981  
}
```

Multiple JSON Objects ("Array")

```
[  
  {  
    "make": "DeLorean",  
    "model": "DMC-12",  
    "year": 1981  
  },  
  {  
    "make": "Cadillac",  
    "model": "Miller-Meteor Sentinel",  
    "year": 1959  
  }  
]
```

SKY APIs and Permissions

- Connecting to SKY API uses a Blackbaud ID ("BBID").
- The permissions granted to that user are honored when using the SKY API.
- This means whatever changes you can make directly through the Solution (even Delete!) can be done via SKY API.

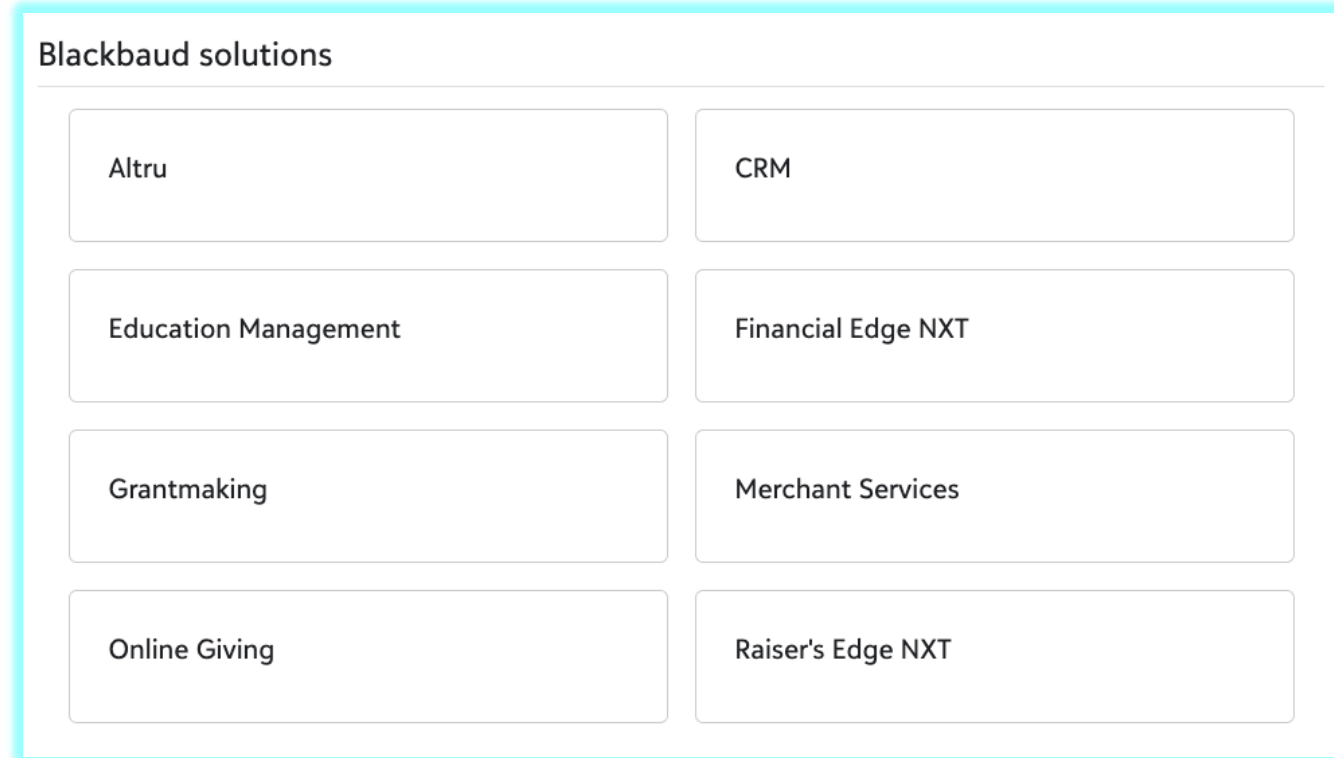
Raiser's Edge NXT Terminology Change!

You may have already noticed, but with the introduction of Raiser's Edge NXT and SKY API, there's been a terminology change.

- *Previous:* "Constituent ID"
 - *Now:* "Lookup ID"
- *Previous:* "(Constituent) System Record ID"
 - *Now:* "Constituent ID" or simply "ID" depending on scenario.

Now you can start *peeking* at API Documentation

- API Reference Starts at <https://developer.blackbaud.com/skyapi/products> where you can choose the solution for which you wish to explore the API.
- Note that “CRM” in the list is “Blackbaud Enterprise Fundraising CRM” which is different than Raiser’s Edge NXT.



Raiser's Edge NXT Search Constituent

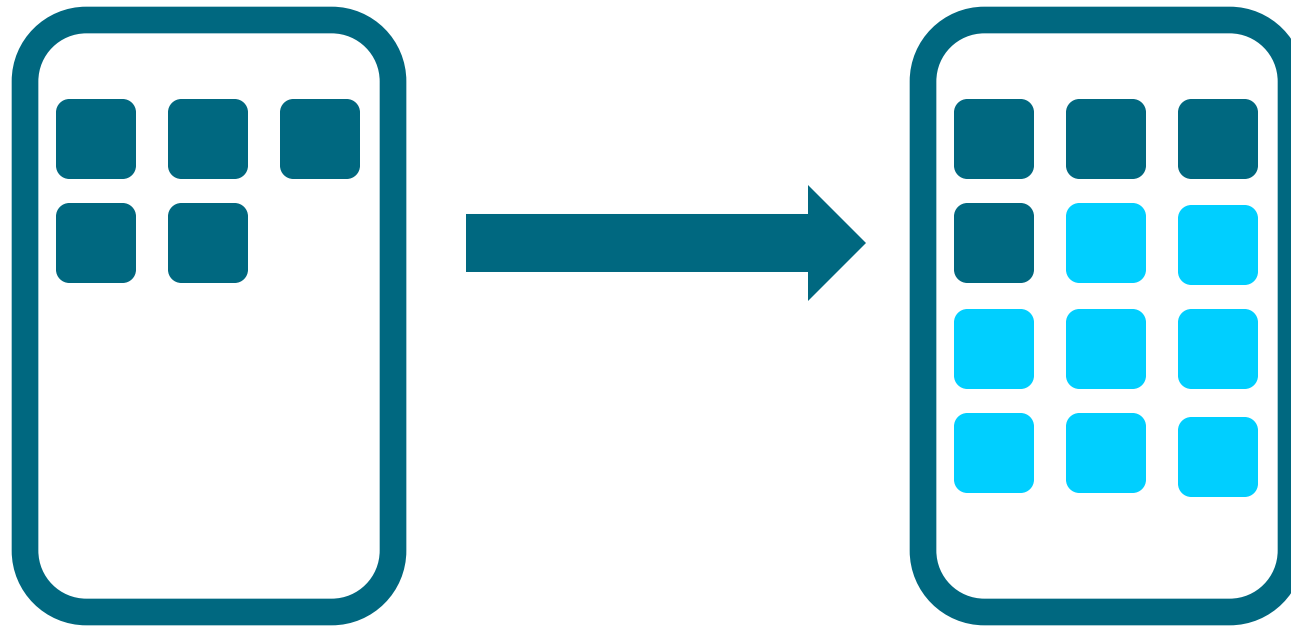
<https://developer.sky.blackbaud.com/api#api=56b76470069a0509c8f1c5b3&operation=SearchConstituent>

Raiser's Edge NXT Get Action

<https://developer.sky.blackbaud.com/api#api=56b76470069a0509c8f1c5b3&operation=GetAction>

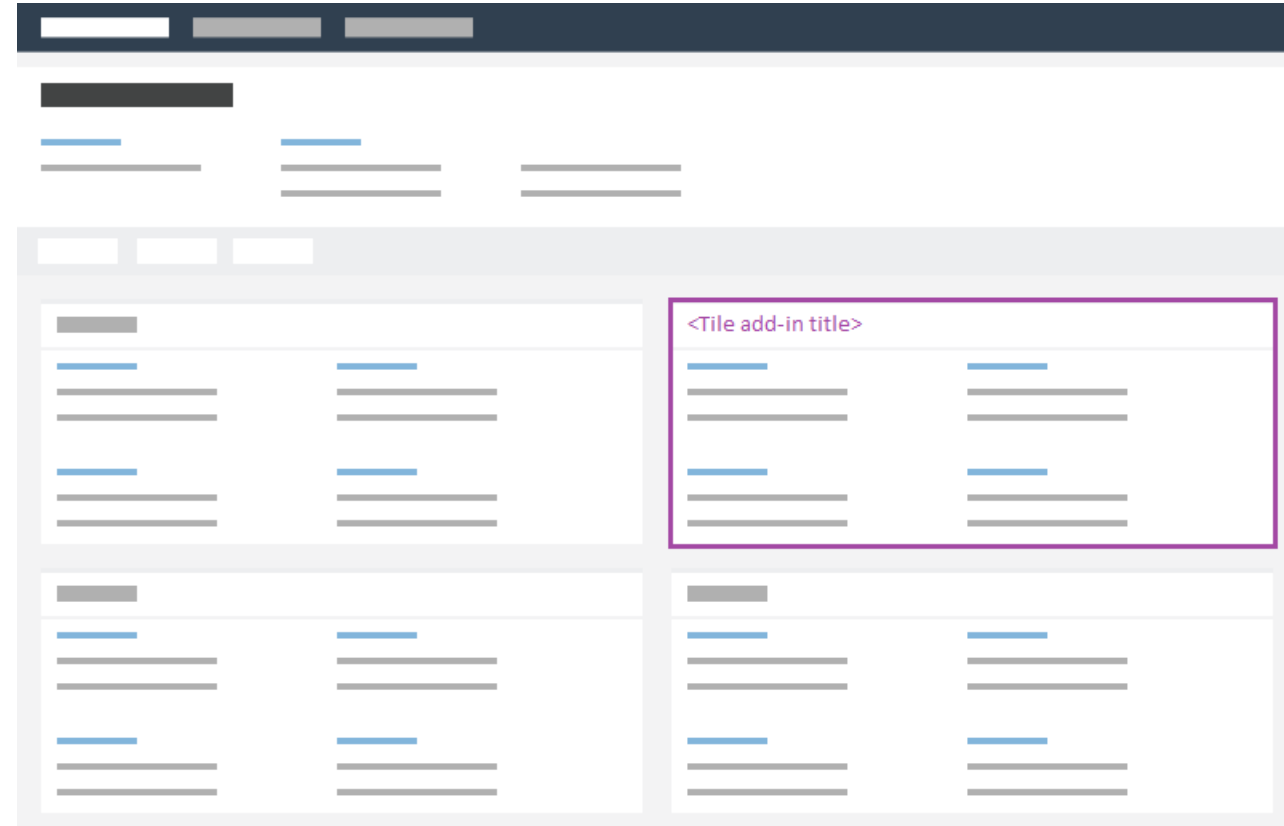
Extensibility Concept

When getting a new smartphone, it has several built-in apps and functions. However, you may want more than what's out of the box and add onto it. That's one example of extensibility.



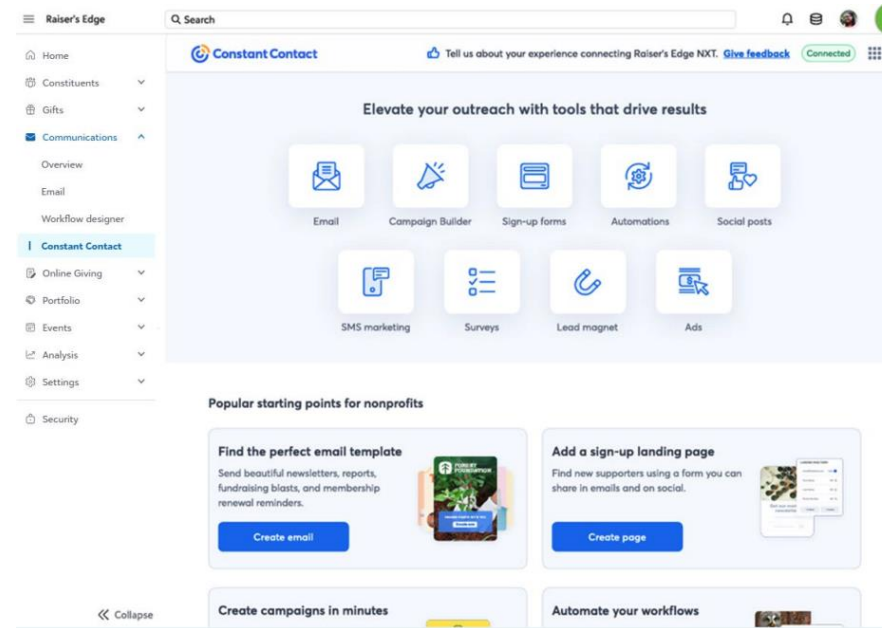
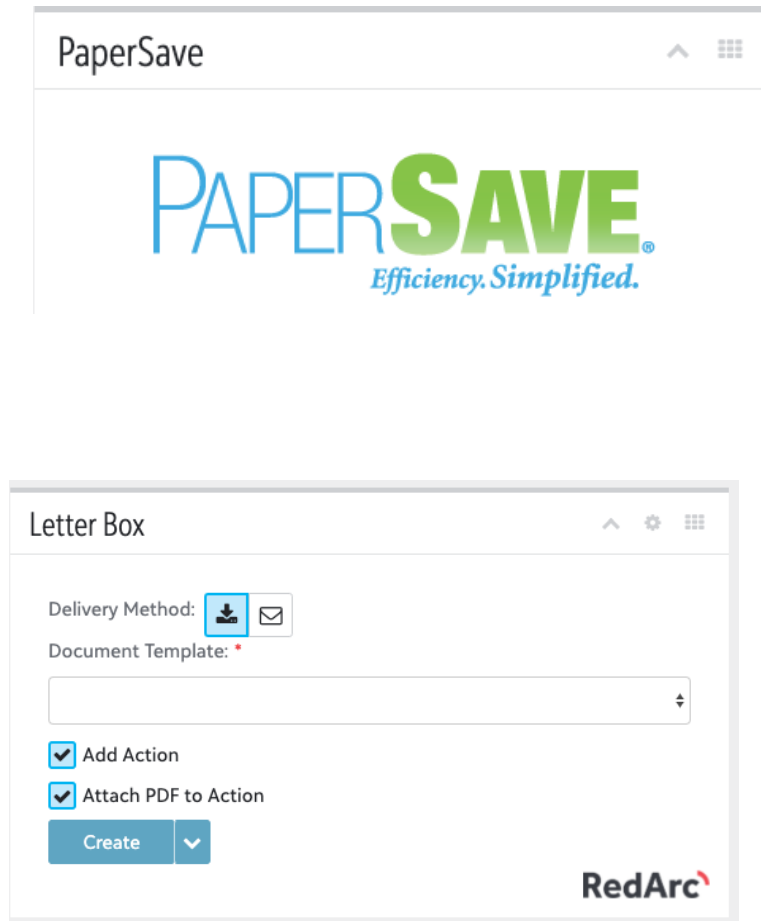
Intro to SKY Add-ins

- SKY Add-Ins are an *Extensibility* feature of Blackbaud Solutions
- It allows for adding features/functions without directly touching the underlying Blackbaud Solution.
- Available to Customers, Partners, and non-related 3rd parties.
- Often shows up as a “Custom Tile” but can also take the form of fly-outs, modals (pop-ups), and full pages.
- Uses SKY API to help exchange information.



The Result

- SKY Add-ins are what allows 3rd party functionality to appear in-product.



The data/functionality doesn't exist in the SKY Add-in -enabled solutions but rather surfaced in them.

Where can I put SKY Add-ins?

- Raiser's Edge NXT
- Raiser's Edge NXT Donor Portal
- Financial Edge NXT
- Blackbaud Grantmaking
- Blackbaud Education Management (limited)
- Blackbaud Enterprise Fundraising CRM (limited & Cloud Operations Only)
- Altru (Independent Page Only)
- Online Giving

The "where" and the "what" varies by Solution.

External data along with native data

- Data doesn't have to live *in* Raiser's Edge NXT to complete the 360-degree view of your constituents.
- It's using Weather API to gather the information.

☰

Raiser's Edge NXT

Home

Fundraising ▾


Marketing ▾

Events

Lists ▾

Analysis ▾

Tools ▾



Robert C. Hernandez

Preferred Name: Bob Spouse: [Wendy Hernandez](#)

⋮

Edit alert

Apply workflow

Edit ▾

Mark as... ▾

Merge into another record

Constituent Weather + Time (Custom) ⌵ ⌵

Constituent Date/Time (as of page load)

Monday, October 16, 2023 1:41 PM (America/Chicago - DST Active)

Current Weather

All temperatures in Fahrenheit

Temperature	Feels Like	Current Conditions
53°F	43°F	Cloudy

Forecast Today

Day: Scattered light rain showers are expected. The high will be 57°.

Night: The skies will be mostly clear. The low will be 44°.

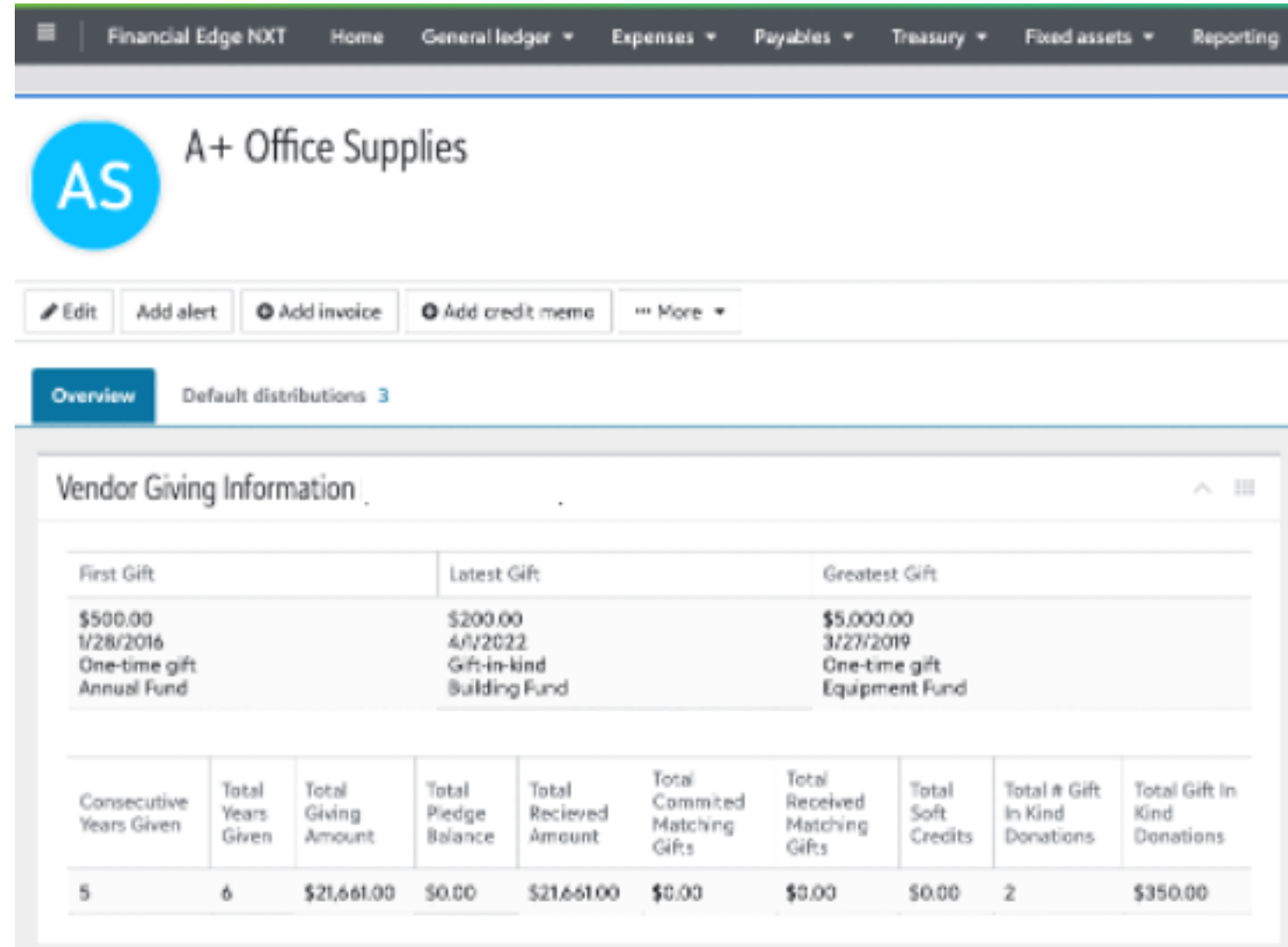
Forecast Tomorrow

Day: There will be mostly sunny skies. The high will be 64°.

Night: The skies will be clear. The low will be 46°.

Cross-Reference Between Systems

- In Financial Edge NXT, automatically pull Vendor Giving Summary information from Raiser's Edge NXT.
- It's using Raiser's Edge NXT SKY API to get the giving information.



The screenshot displays the Financial Edge NXT interface for a vendor named "A+ Office Supplies" (AS). The top navigation bar includes links for Financial Edge NXT, Home, General ledger, Expenses, Payables, Treasury, Fixed assets, and Reporting. Below the navigation bar, the vendor's name and logo are shown. A row of action buttons includes Edit, Add alert, Add invoice, Add credit memo, and a More dropdown menu. The main section is titled "Vendor Giving Information" and contains two tables.

Vendor Giving Information

First Gift	Latest Gift	Greatest Gift
\$500.00 1/28/2016 One-time gift Annual Fund	\$200.00 4/1/2022 Gift-in-kind Building Fund	\$5,000.00 3/27/2019 One-time gift Equipment Fund

Consecutive Years Given	Total Years Given	Total Giving Amount	Total Pledge Balance	Total Received Amount	Total Committed Matching Gifts	Total Received Matching Gifts	Total Soft Credits	Total # Gift In Kind Donations	Total Gift In Kind Donations
5	6	\$21,661.00	\$0.00	\$21,661.00	\$0.00	\$0.00	\$0.00	2	\$350.00

Custom Functionality


- Create custom data entry screens to give limited-rights users the ability to submit information change requests right from the record.

Raiser's Edge NXT

Home

Fundraising

Market



Robert C. Hernandez

Preferred Name: **Bob** Spouse: [Wendy Hernandez](#)

...

Add-ins

Contact information

Addresses [View details](#)

Home ★

1953 N Hudson Ave.

CHICAGO, IL 60614-5217

Business

425 S Wabash Ave

Chicago, IL 60605-1208

...and 3 more

Email addresses

...

Email

Record Update Request

Use this form to send a request to the Records team to review and update information about this constituent.

Address

Address Type

Choose Address Type

Address

Enter address lines, don't forget to put Apartment, Suite, etc

City

Enter City

State / Province

Enter State / Province

Zip/Post Code

Enter Zip or Post Code

Country

Enter Country

Is this the Primary Address?

Choose Option

Can we send correspondence to this address?

Choose Option

Email

Email Address Type

Choose Email Address Type

Ways to Test

- Some label options as “Good, Better, Best”. These are “Meh, Better, Best”.
- Meh: Examples Records in Live DB
 - Pros: Your data structure (Campaigns, Funds, Appeals, Custom Fields, etc)
 - To Consider: Need to update your reports, queries, etc to filter out the test records. May accidentally change or delete records you didn’t intend to.
- Better: Cohort Database - Free Shared DB.
 - See <https://kb.blackbaud.com/knowledgebase/articles/Article/205032> (or search for “SKY Developer Cohort”) for details on which cohort environments are available and how to get access.
 - Pros: Don’t have to worry about accidentally altering your live data. Can test items before pushing them live.
 - To Consider: Not your data structure. Some access may be limited.
- Best: Your own Test Environment
 - Pros: Copy of your data, using your data structure, with records you recognize. Can test items before pushing them live.
 - To Consider: Additional Blackbaud Subscription. See your Account Manager for more info.

Getting Started: Pro Code

If you are a programmer or have a programmer ("Pro-Code") on staff, there is a lot of info available:

- General Developer Info: <https://developer.blackbaud.com/>
- SKY Add-Ins Info: <https://developer.blackbaud.com/skyapi/docs/addins>
- RENXT Specific Info: <https://developer.blackbaud.com/skyapi/products/renxt>
- SKY API Community: <https://community.blackbaud.com/forums/viewcategory/425>
- Blackbaud Developers' Conference (You are Here!) has a number of pro-code sessions: <https://www.blackbaud.com/bbdevdays>

Yeah, what about other options? One that don't include as much coding?



Low-code building blocks for every developer

The Power Platform is an extensible platform of low-code tools that makes it easy to create efficient and flexible solutions rapidly in an environment you trust.



Power Apps

Application development



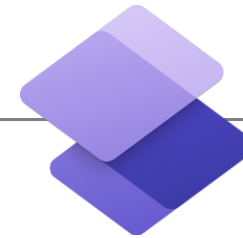
Power Automate

Process automation



Power BI

Business analytics



Power Pages

External websites



Copilot Studio

Intelligent copilots



**Data
connectors**



AI Builder



**Microsoft
Dataverse**



Power Fx



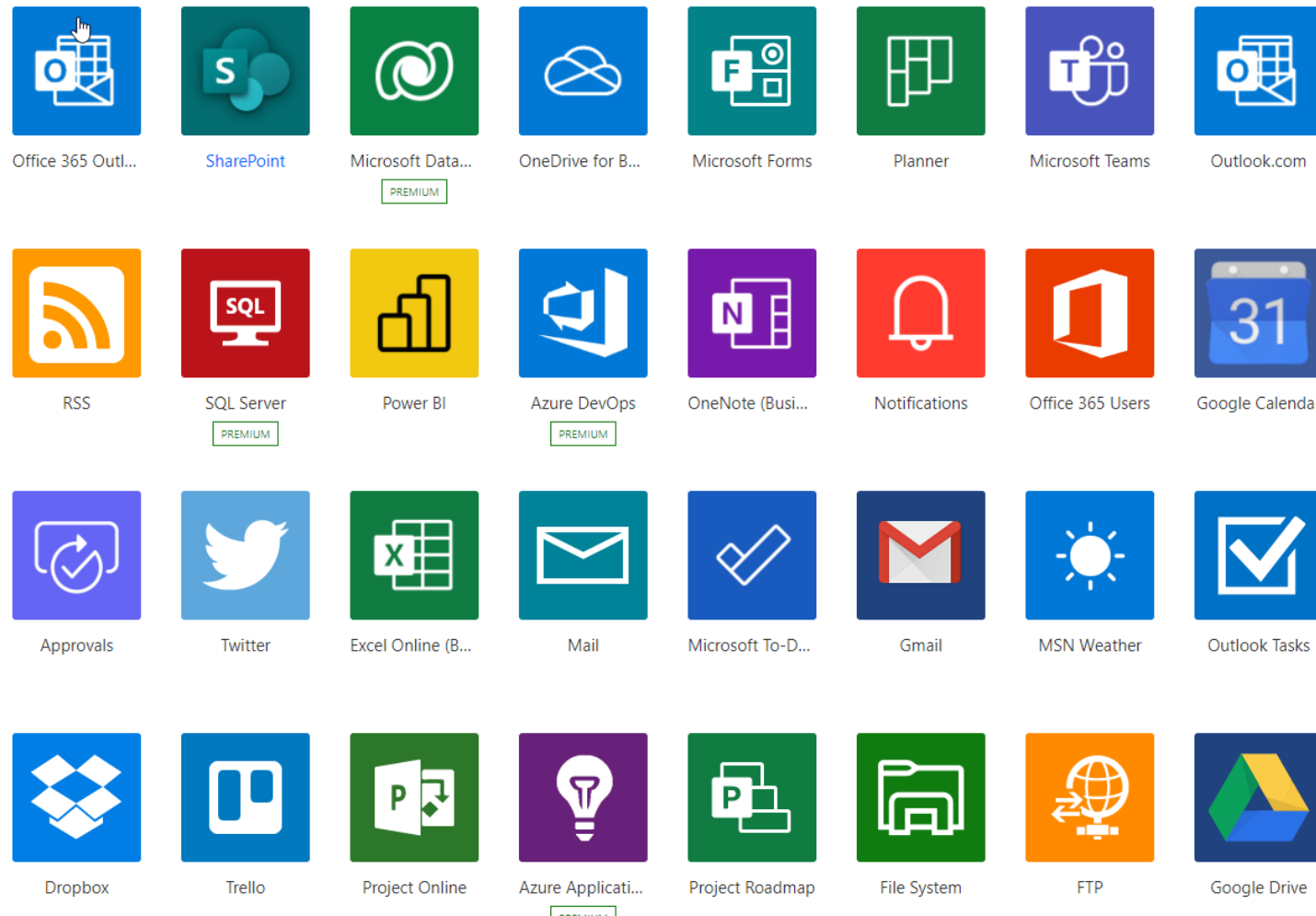
**Managed
Environments**

Introduction to Power Automate

- Part of the Power Platform by Microsoft
- API Accessibility
 - Hides complex API details
- Provides a drag-and-drop interface
 - Similar to REXXT Workflows
- User-Friendly for Non-Programmers
 - Designed for 'low-coders'
 - Empowers users without programming skills



Power Automate – Connectors

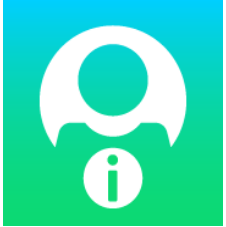


A *Connector* is what links an external system into Power Platform.

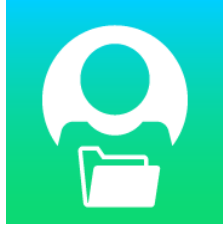
<https://powerautomate.microsoft.com/en-us/connectors/>

Generally Speaking, a connector is a “wrapper” for an API. It hides the nitty gritty while still maintaining the impact. If something is not in a related API, it won't be in the connector.

The Blackbaud Family of Power Platform Connectors



Blackbaud Raiser's
Edge NXT
Constituents



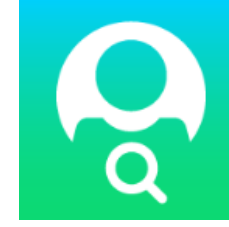
Blackbaud Raiser's
Edge NXT Documents



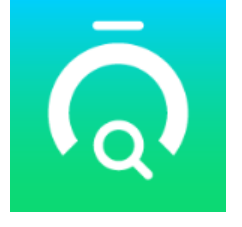
Blackbaud Raiser's
Edge NXT Events



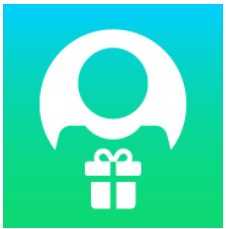
Blackbaud Raiser's
Edge NXT
Fundraising



Blackbaud RENXT
Query



Blackbaud FENXT
Query



Blackbaud RENXT
Gifts



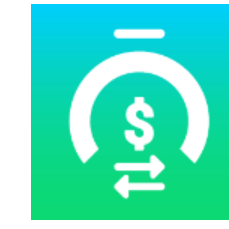
Blackbaud Raiser's
Edge NXT
Interactions



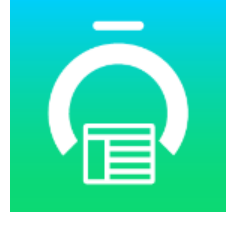
Blackbaud Raiser's
Edge NXT Lists



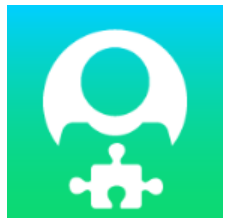
Blackbaud Raiser's
Edge NXT Prospects



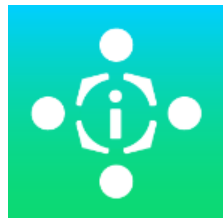
Blackbaud FENXT
Payable



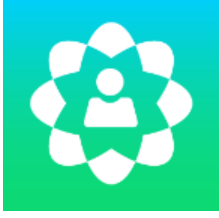
Blackbaud FENXT
General Ledger



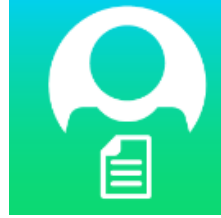
Blackbaud SKY
Add-ins



Blackbaud CRM
Constituent



Blackbaud Altru
Constituent



Blackbaud RENXT
Reports



Microsoft Connectors



Office 365 Outlook



Excel Online
(Business)



Word Online
(Business)

Premium



SharePoint



Planner



Approvals



OneDrive



Microsoft Teams



Microsoft Forms



Outlook Tasks

What about G-Suite?



Google Calendar



Google Contacts



Google Drive



Google Sheets



Google Tasks

Form Building



Cognito Forms



JotForm

Premium



SurveyMonkey

Premium



Gravity Forms by
reenhanced

Premium

Contracts/ Signatures



Adobe Acrobat
Sign



DocuSign

Premium

Project Management



Basecamp 3



Trello



Asana

Events



GoToWebinar

Premium



Eventbrite

Premium

Marketing



Gratavid

Premium



Twitter



MailChimp

Premium



Twilio



WordPress

Program Management



Salesforce

Premium

Ad-hoc notification and report delivery

Get ad-hoc reports and notifications delivered to your inbox (or Teams / Slack, etc)

- Past Due Actions
- Major Gifts Last week

FW: Reminder: Overdue Action Tasks Internal

Sent: Monday, November 4, 2024 10:57 AM

Subject: Reminder: Overdue Action Tasks

Good Morning Team,

As part of our ongoing efforts to maintain an organized and efficient database, we kindly request your attention to the constituent action records listed below, which are overdue from last quarter. Your cooperation in reviewing and updating these records is crucial to ensure accurate and up-to-date information and reporting.

Constituent Name	Action Due Date	Action Summary	Priority
Hisham W. Schiroke	10/10/2012	Reservations at Rafferty's. Will review agenda for Capital Campaign.	Normal
George R. Soho	04/01/2016	Send Birthday Card annually the first week in January.	High
Sophie E. Gatchell	02/01/2016	Send Birthday cards the first week in February.	High
Lilla T. Donaher	04/01/2016	Send Birthday cards the first week in February.	High
Caroline C. Beazley	10/24/2016	Meet to review plans for the new Foundation.	Normal
Betty L. Chaknis, M.D.	05/06/2016	Lunch meeting to discuss possible gift annuity. Meeting at Arthur's Restaurant.	Low
Immanuel W. Magedanz, Sr.	05/07/2016	Meeting with George at Mimi's for prospect list.	Low
Minyx	07/10/2016	Discuss volunteer options for next year.	High
Khadija S. Osting	04/16/2016	Asked if she would consider making a donation for our auction.	Low
Graeme B. Lompa, Jr.	12/01/2016	Regarding phonathon plans for next year.	High
Ebony T. Mackenzie	04/19/2016	Held in the board room quarterly.	Normal
Dunstan S. Boland, Jr.	04/15/2016	Lecture to be held in Franklin Hall.	High
Hisham W. Schiroke	04/18/2016	Meeting with Mr. Diresta at his home to discuss the major proposal we first talked about back in July. Mr. Diresta has promised to give us the money by December 31. We want to make sure he is still committed to this deadline. 12/06/2004 3:01:15 PM Su	Normal
George R. Soho	08/01/2016	Calling each constituent and personally thanking them for the continued support.	Normal
Ebony T. Mackenzie	07/14/2016	Calling each constituent and personally thanking them for the continued support.	Normal
Carine G. Baune	08/01/2016	Calling each constituent and personally thanking them for the continued support.	Normal
Giles R. deGruyter, Ph.D.	08/01/2016	Calling each constituent and personally thanking them for the continued support.	Normal
Aristide C. Rickles	05/16/2016	Calling each constituent and personally thanking them for the continued support.	Normal

Public-facing data collection

Use a Microsoft Form (or similar) on your main website to collect information and even send it to the system as an actionable item.

Constituent Services

If you have a question for our Constituent (Donor) Services team, please let us know here!

* Required

1. What is your First Name?

Enter your answer

2. What is your Last Name?

Enter your answer

3. What is your Email Address? *

Please use the email address to which you receive communications from Good Takes Over Foundation

Enter your answer

4. What is your phone number?

Enter your answer

5. What is your question?

Enter your answer

Submit

Expanded view

The information below was submitted as part of the form. The constituent was matched via email address. Please review any information submitted as compared to their constituent record and update accordingly.

First Name: Robert
Last Name: Hernandez
Email Address: RobertHernandez@fakemail.null
Phone Number: 555-555-1212
Inquiry: I would like to receive a copy of your latest Board Report. Thank You!

Close

Actions

112 Actions

Add action

Constituent Services

Task/Other - Constituent Services

10/13/2023

Online Inquiry Submission

Note Text

The information below was submitted as part of the form. The constituent was matched via email address. Please review any information submitted as compared to their constituent record and update... See more

Remember these Examples: All w/Power Automate

Raiser's Edge NXT

Home

Fundraising


Marketing

Events

Lists

Analysis

Tools



Robert C. Hernandez

Preferred Name: Bob Spouse: Wendy Hernandez

Edit alert

Apply workflow

Edit

Mark as...

Merge into another

Financial Edge NXT

Home

General ledger

Expenses

Payables

Treasury

Fixed assets

Reporting



A+ Office Supplies

Constituent Weather + Time (Custom)

Constituent Date/Time (as of page load)
Monday, October 16, 2023 1:41 PM (America/Chicago - DST Active)

Current Weather
All temperatures in Fahrenheit

Temperature	Feels Like	Current
53°F	43°F	Cloud

Forecast Today
Day: Scattered light rain showers are expected. The high will be 57°. **Night:** The skies will be mostly clear. The low will be 44°.

Forecast Tomorrow
Day: There will be mostly sunny skies. The high will be 64°. **Night:** The skies will be clear. The low will be 46°.

Edit

Add alert

Add invoice

Add credit memo

More

Overview Default distributions 3

Vendor Giving Information (Power Automate)

First Gift	Latest Gift	Greatest Gift
\$500.00 1/28/2016 One-time gift Annual Fund	\$200.00 4/1/2022 Gift-in-kind Building Fund	\$5,000.00 3/27/2019 One-time gift Equipment Fund

Consecutive Years Given	Total Years Given	Total Giving Amount	Total Pledge Balance	Total Recieved Amount	Total Committed Matching Gifts	Total Received Matching Gifts	Total Soft Credits	Total # Gift In Kind Donations	Total Gift In Kind Donations
5	6	\$21,661.00	\$0.00	\$21,661.00	\$0.00	\$0.00	\$0.00	2	\$350.00


SKY Add-In visuals may be (but not always) facilitated via Adaptive Cards or Power Apps, which are outside the scope of this discussion.

Raiser's Edge NXT

Home

Fundraising

Marketing



Robert C. Hernandez

Preferred Name: Bob Spouse: Wendy Hernandez

Add-ins

Contact information

Addresses View details

Home 1953 N Hudson Ave. CHICAGO, IL 60614-5217

Business 425 S Wabash Ave Chicago, IL 60605-1208

and 3 more

Email addresses

Email

Record Update Request

Use this form to send a request to the Records team to review and update information about this constituent.

Address

Address Type Choose Address Type

Address Enter address lines, don't forget to put Apartment, Suite, etc

City Enter City

State / Province Enter State / Province

Zip/Post Code Enter Zip or Post Code

Country Enter Country

Is this the Primary Address? Choose Option

Can we send correspondence to this address? Choose Option

Email

Email Address Type Choose Email Address Type

Extend to your Desktop / Mobile Device



WiiFM?

Not Nintendo Wii Radio, but “what’s in it for me”?

Power Automate can be used for many types of daily tasks. My first ones included:

- Custom automatic reply for meeting requests that meet certain criteria.
- Adding automatic buffers before/after meetings.
- For extended Out of Office, reset my Outlook Automatic Replies so they are sent to each recipient more than once to remind them I’m still out.

Before even touching Blackbaud Solutions, using it for my daily activities is what made Power Automate “real” to me.

Getting Started: Low-Coders using Power Automate

- Power Automate Getting Started: <https://docs.blackbaud.com/microsoft-connectors-docs/microsoft-power-platform/power-automate>
- Power Platform Specific Community: <https://community.blackbaud.com/forums/viewcategory/586>
- Pre-Built free templates created by Blackbaud Staff, Customers, and Partners: <https://docs.blackbaud.com/microsoft-connectors-docs/microsoft-power-platform/showcase>
- Blackbaud University Training: Courses are constantly being updated and re-evaluated, so search for "Power Platform" or "Power Automate".
- On-site Regional Workshops & Monthly User Groups: <https://community.blackbaud.com/events/category/66>
- Blackbaud Developers' Conference (You are Here!) has a slew of Low-Code sessions, including hands-on workshops: <https://www.blackbaud.com/bbdevdays>
- Pre-BBCon Workshop: https://www.bbconference.com/2025/preconference_workshops

Questions, comments?

