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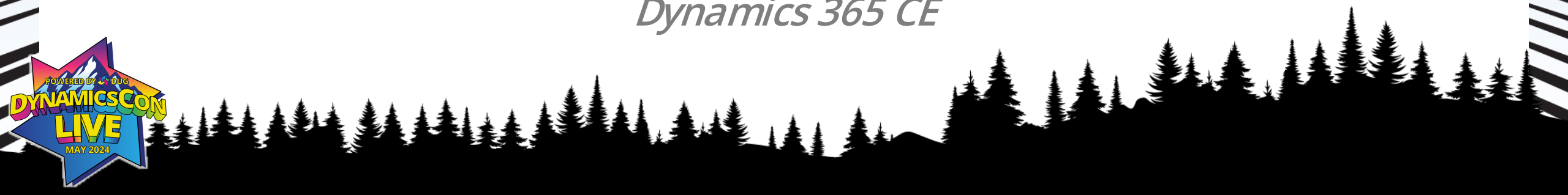
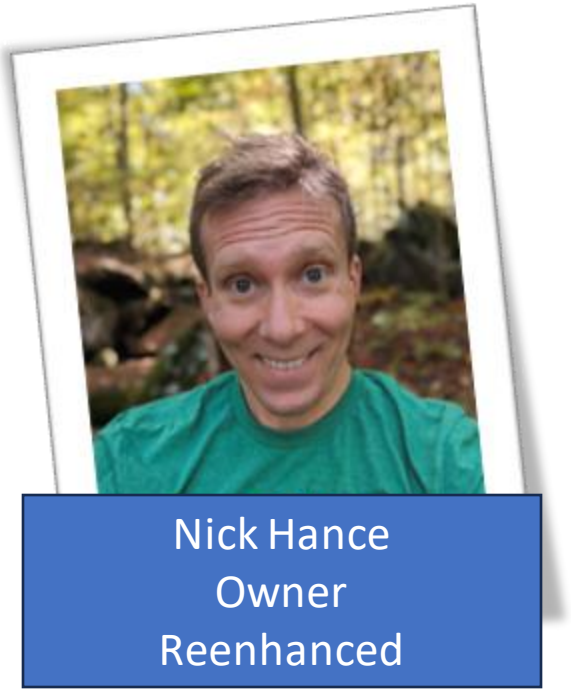
MAY 2024
live.dynamicscon.com

The Dynamics Way

Understanding the core Dynamics Tables, Relationships, and essence of Dynamics 365 CE



Hi, I'm Nick Hance!
nhance@reenhanced.com



Nick Hance
Owner
Reenhanced

- Software Developer since 1999
- Founded Reenhanced in 2005
- Reenhanced products serve 250,000+ Dynamics 365 users every week.
- Our best-selling product connects WordPress to Power Automate

Interesting fact: I like running! I ran my first 100 mile race in 2023.

The Tao of Dynamics

Taoism:

- Everything is interconnected.
- Behind all things, there is a path/way/essence. A Harmony.

What is the Tao of Dynamics 365?

What is “The Dynamics Way”?

Before we begin

- After working with Dynamics for a long time, you start to understand the way Dynamics tables are structured and the way things are.
- I will attempt to teach “what Dynamics 365 feels like.” (If that makes sense.)
- I will bounce around from topic-to-topic.

Theory: If we understand the essence of Dynamics 365,
we can understand all of Dynamics 365.

Our goals

Let’s identify patterns you will encounter.

Let’s put into words the expectations you start to form after years of experience.

🙋‍♀️ Participation welcome! 🤦‍♂️

I am not the only one with experience in this room, please feel free to share at any time. This presentation will be unique because of all of us.

PLEASE INTERRUPT ME (But remember, we have a 50 minute limit!)

Your first implementation

In a few words, what is The Dynamics Way to you?

What is Dynamics 365?

- Customer Relationship Management Software
- Extensible
- Battle-tested & Supported worldwide

Philosophy of Dynamics 365

- Start with what you get in each app.
- Add what makes you unique.
- Hide what you don’t want. (Grow into it later?)
  - Don’t delete – I learned this the hard way!

Benefits of Following The Dynamics Way

- Work with data in a standardized way
- Grow into new apps easily.
- Connect with others (at events like this) in a meaning way.

“If you stay on the path, the path will guide you.”

How did you get here?

Business Needs

- Seek Software

Implement system

- Adapt to changes? (Maybe this isn't the first attempt at a software system)

Modular Platform

- Grow into new requirements

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What do you get with Dynamics 365?

- Tables
- Columns
- Relationships
- Views
- Forms
- Dashboards
- Reports
- Flows

To work with data, I must store data.

Tables are the way data is stored.

- Example: **Account** is a “Business that represents a customer or potential customer. The company that is billed in business transactions.”

- **Account** attributes: name, accountNumber, description, websiteUrl, etc.

To work with data, I must store data.

Tables are the way data is stored.
Tables describe one thing.

We might be used to spreadsheets where it is nice to have everything in one place.

- Dynamics tables work best when they describe a single thing in the real world.
- This can be something you can see or even a concept you can describe.

To work with data, I must store data.

Tables are the way data is stored.
Tables describe one thing.
Tables connect to others.

In the real world, everything is connected.

- Dynamics tables can be associated with other tables.
- Example: Account has many Contacts. Contact belongs to Account.

Tables form the base for all of your data.

Tables can connect to other tables.

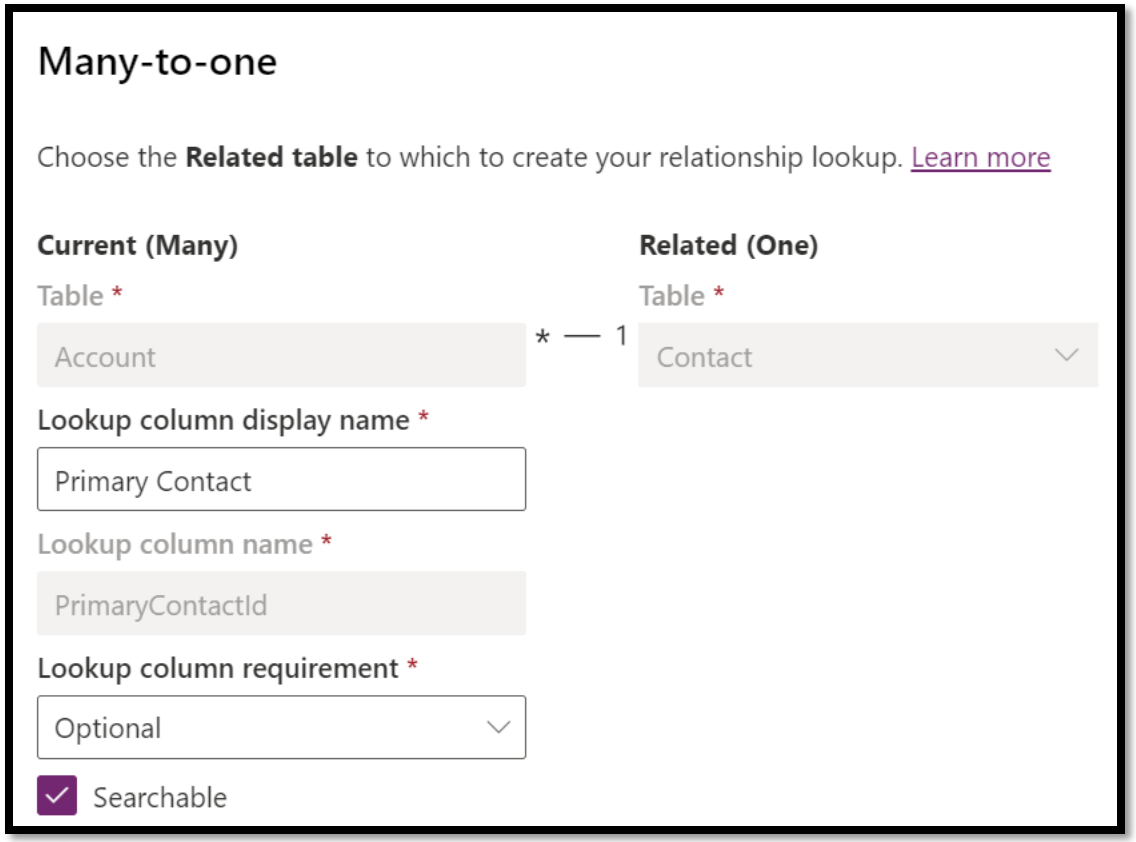
What does it mean to relate data in Dynamics 365?

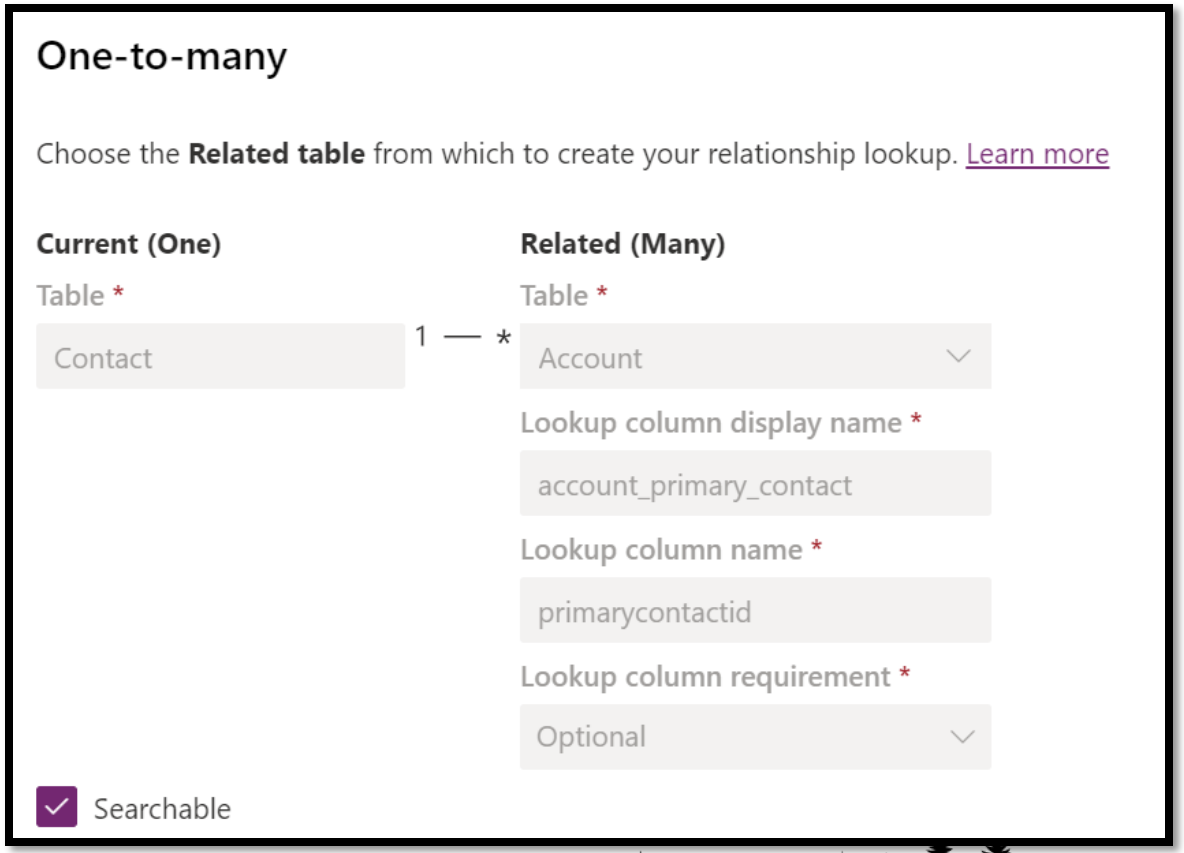
- A relationship has two sides.

- Relationships can take 3 forms:
  - Many-to-one
  - One-to-many
  - Many-to-many

Each relationship is described in two ways.
But both descriptions refer to a single relationship.

These are the same relationship





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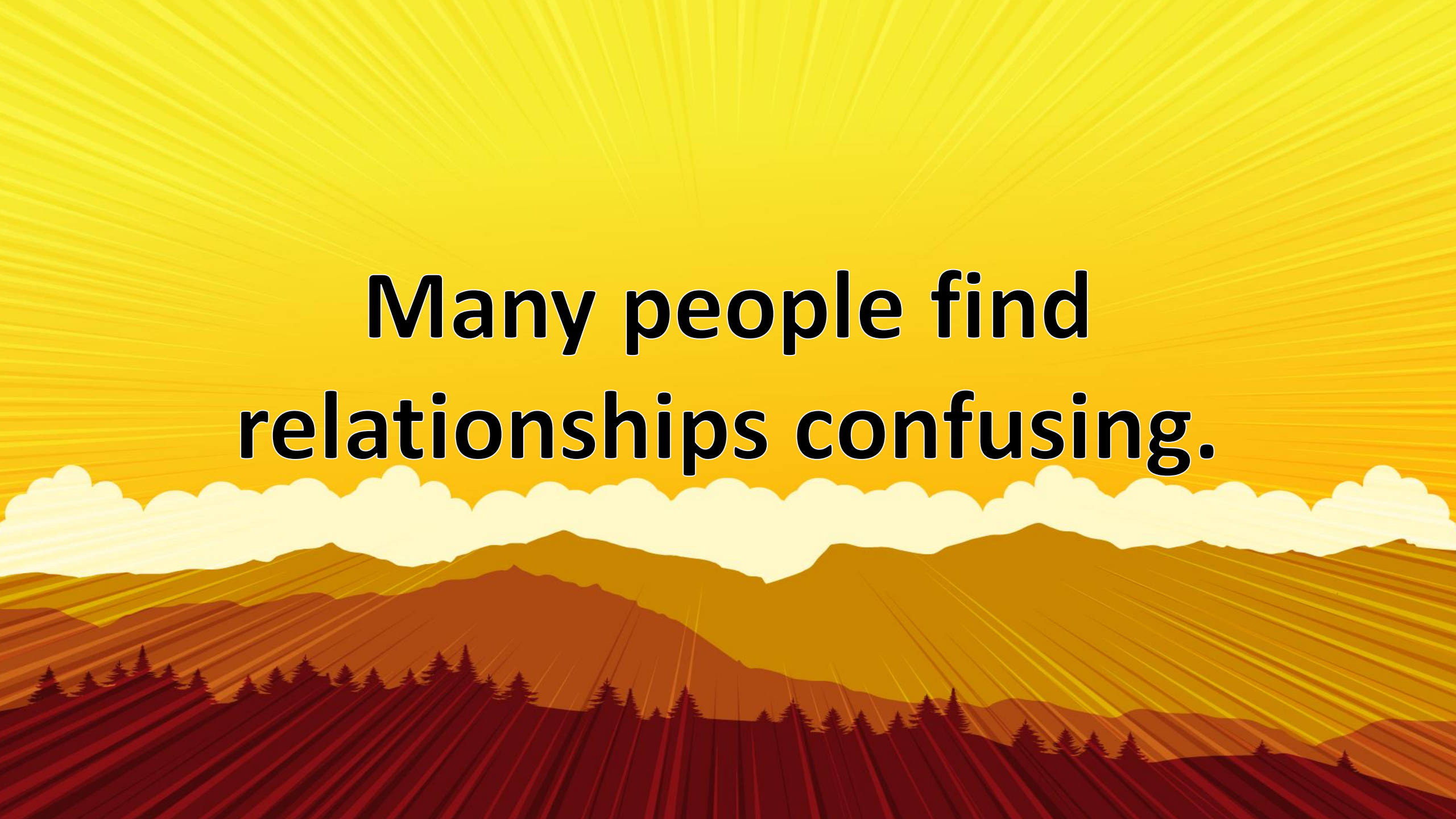
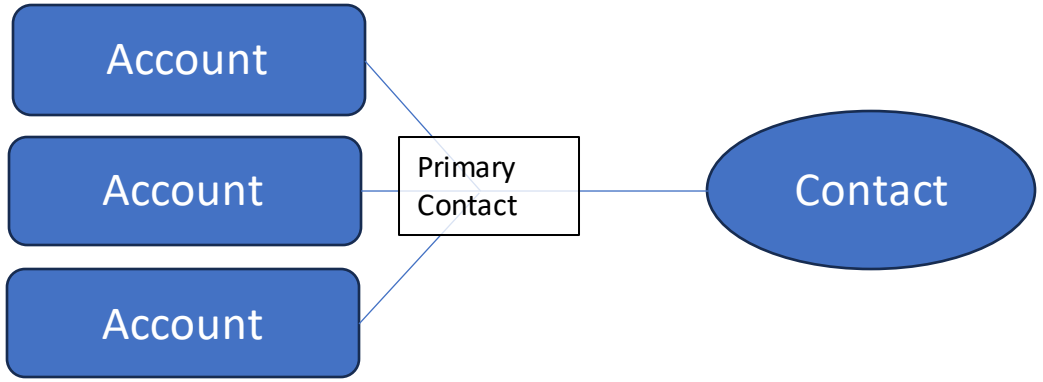
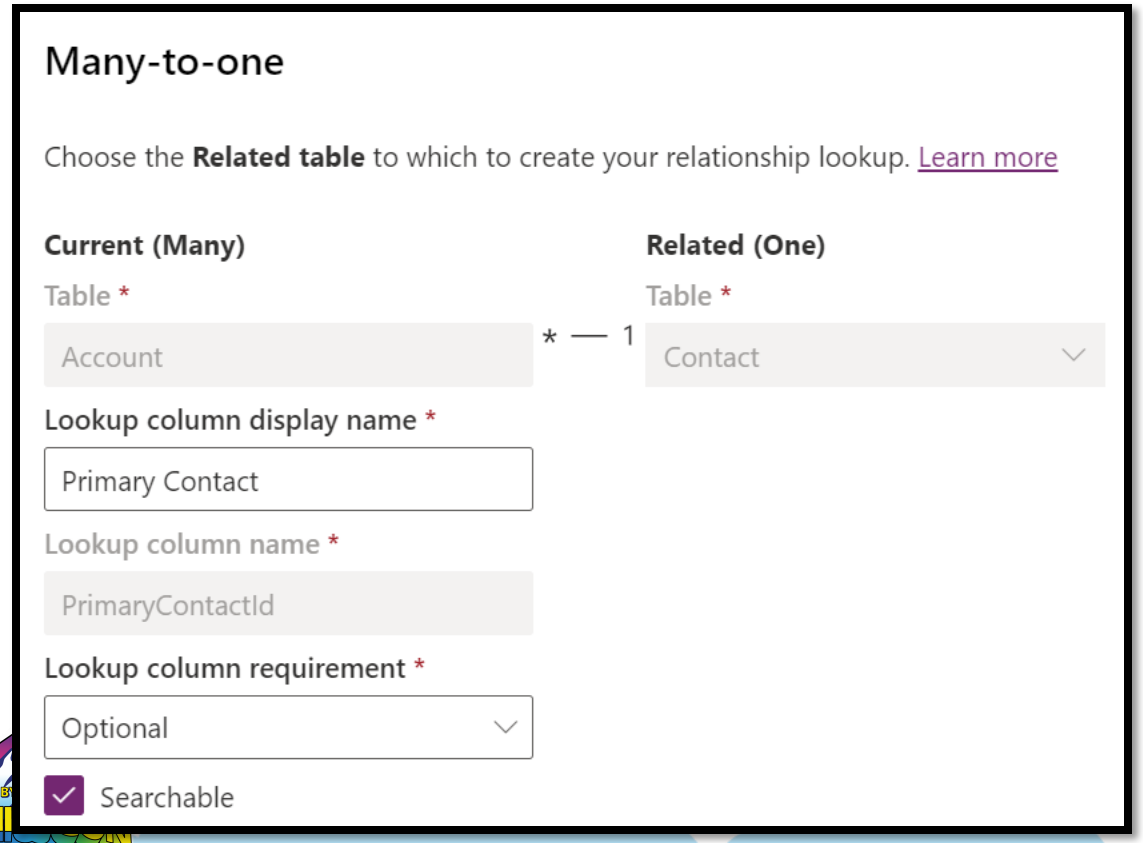
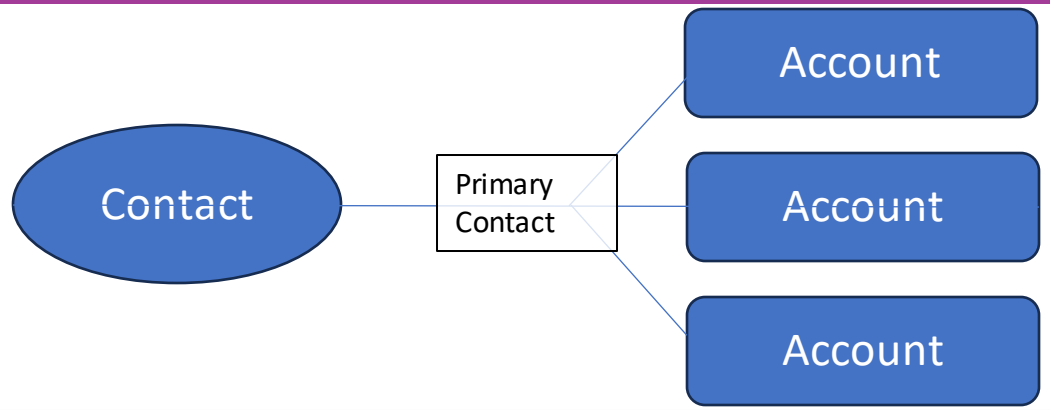

Many people find
relationships confusing.

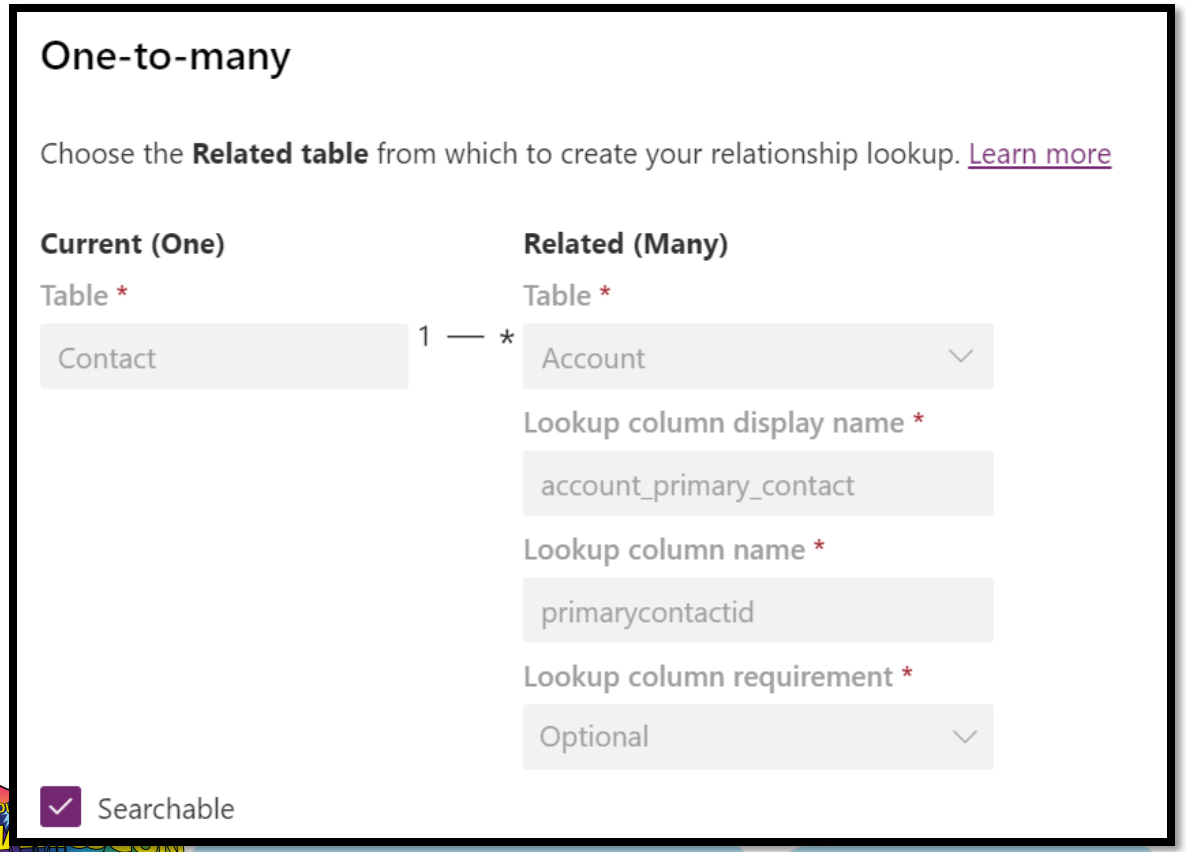


As an Account, I have a relationship that defines one Contact as my “Primary Contact”

(Many) Accounts
can have
(one) Contact
that is named
“Primary Contact”





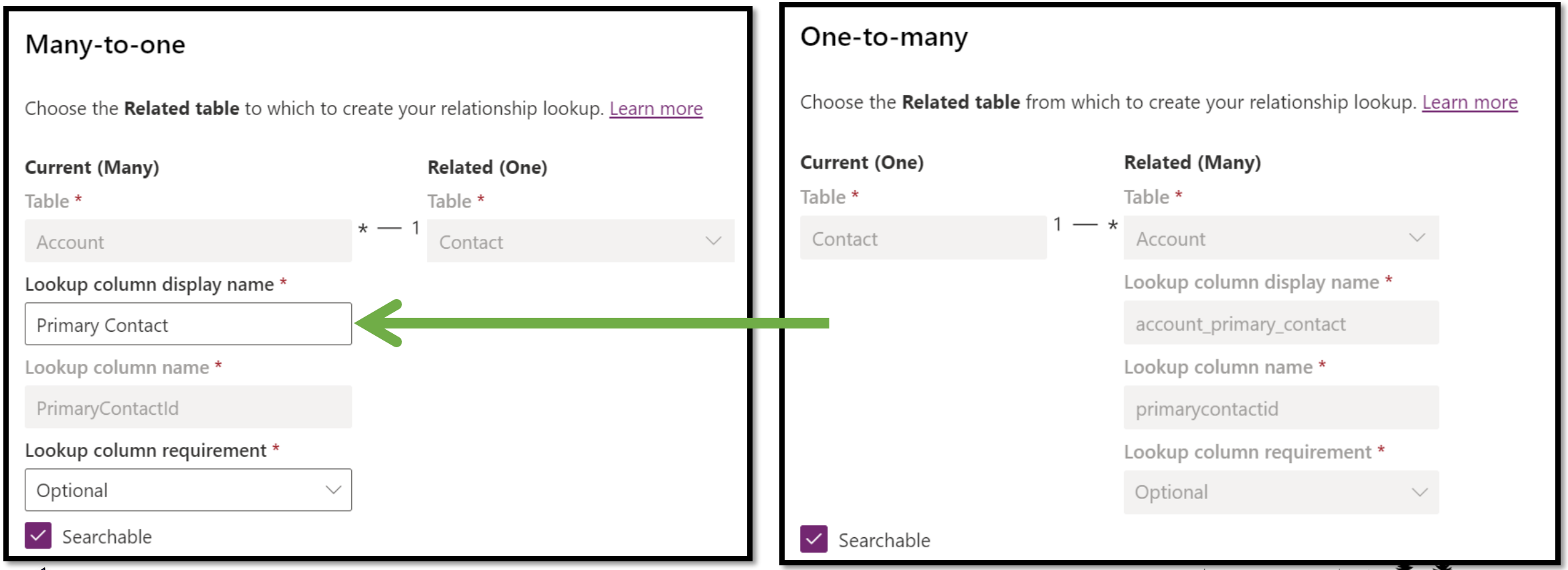


As an Contact, I can be a "Primary Contact" for an Account

(One) Contact
can have
(many) Accounts
where I am
"Primary Contact"

That’s Great, Nick.
But this is still confusing.

What's with the "column name" stuff?



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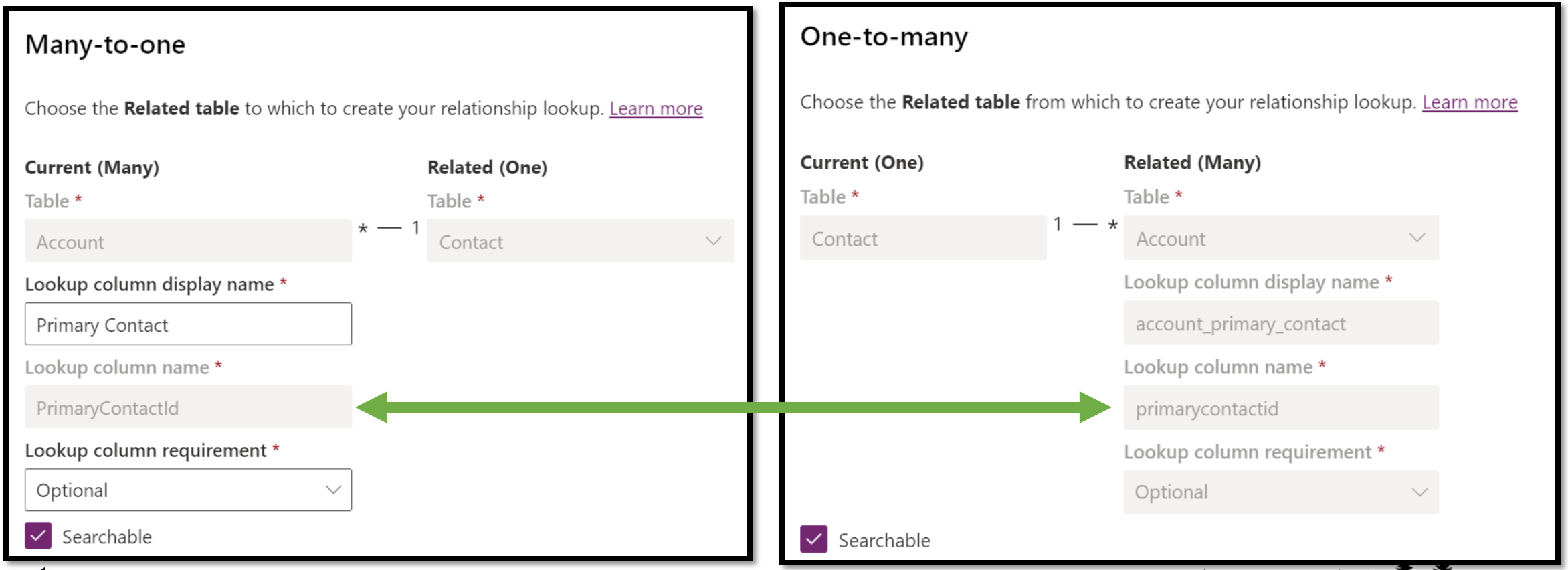
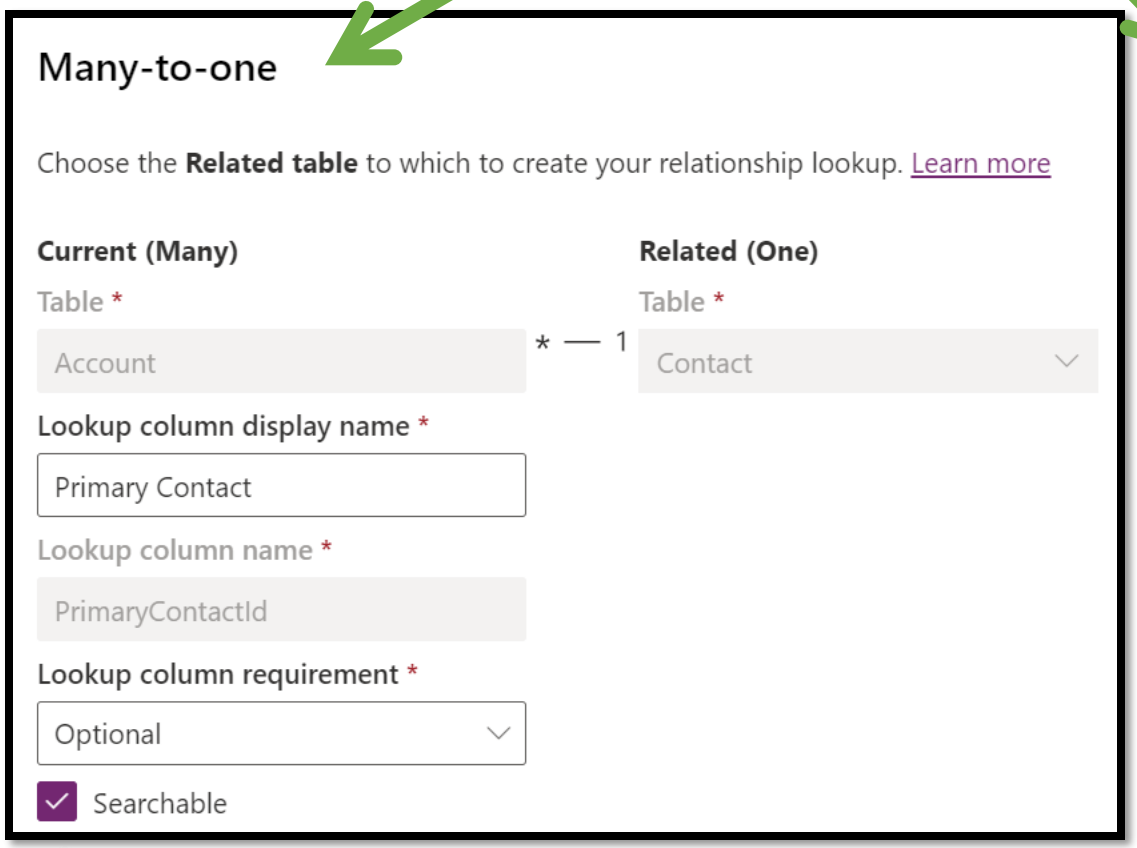
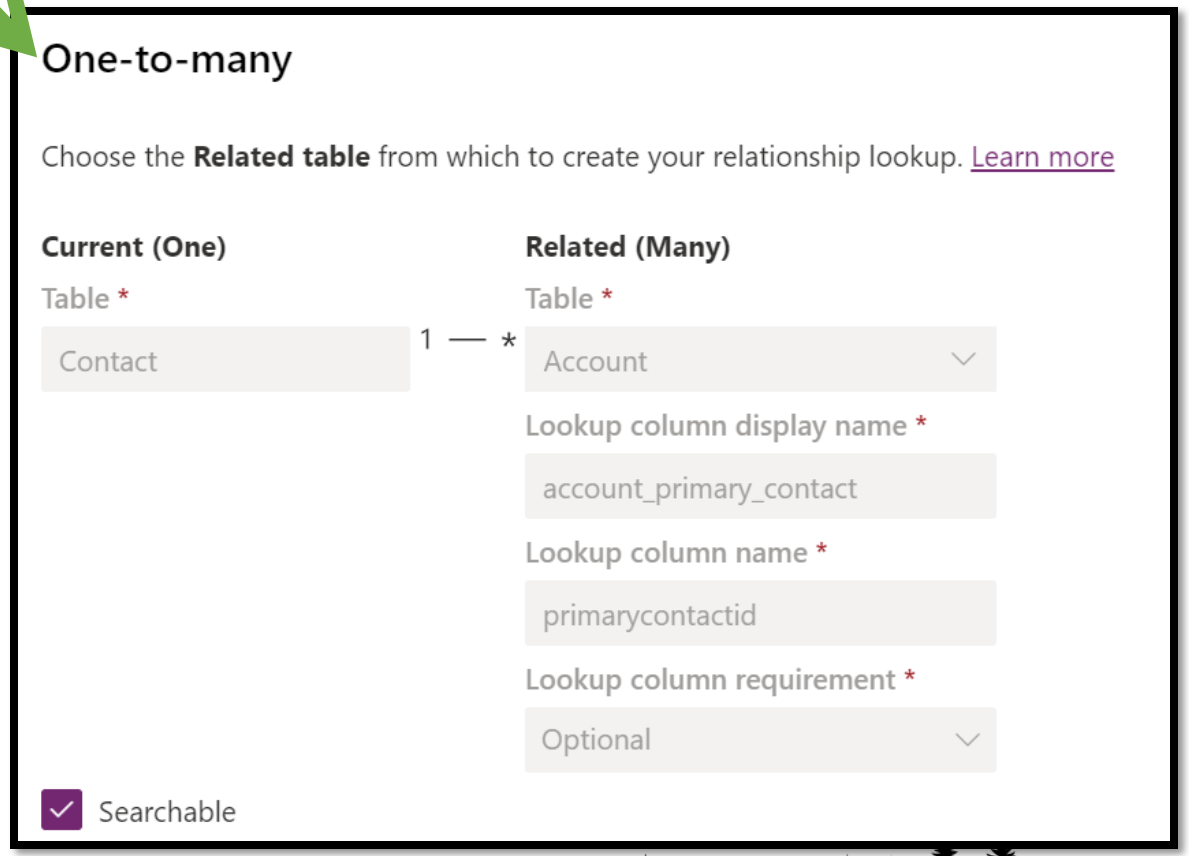
Are there two lookup columns?



How do I know what kind of relationship I need??





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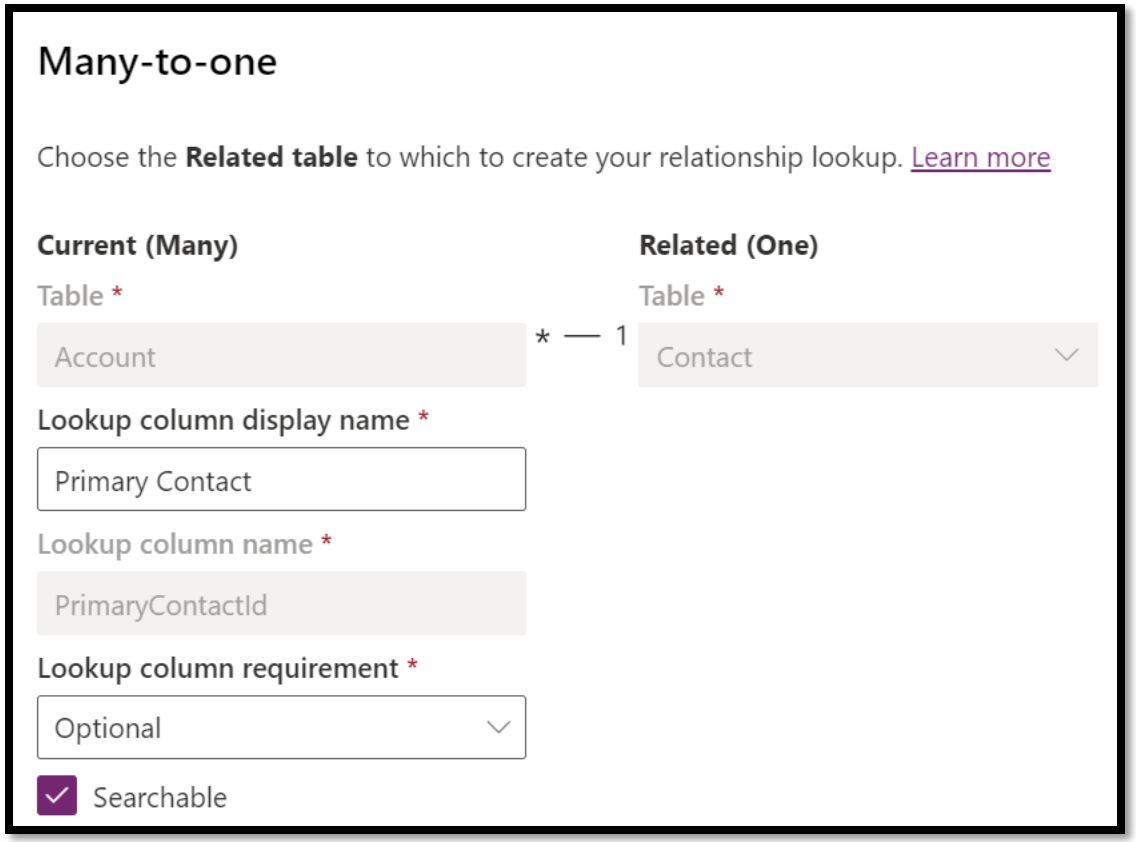
Great questions!



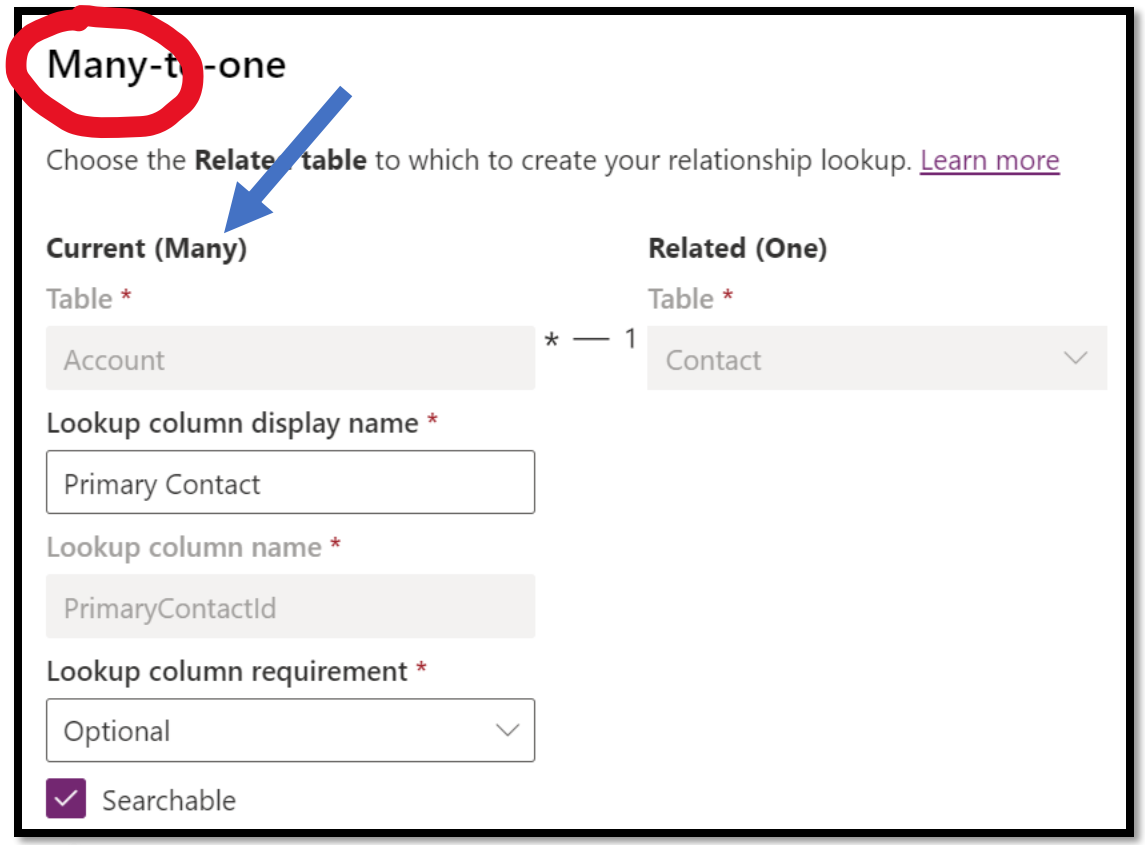
Let's make this simpler.

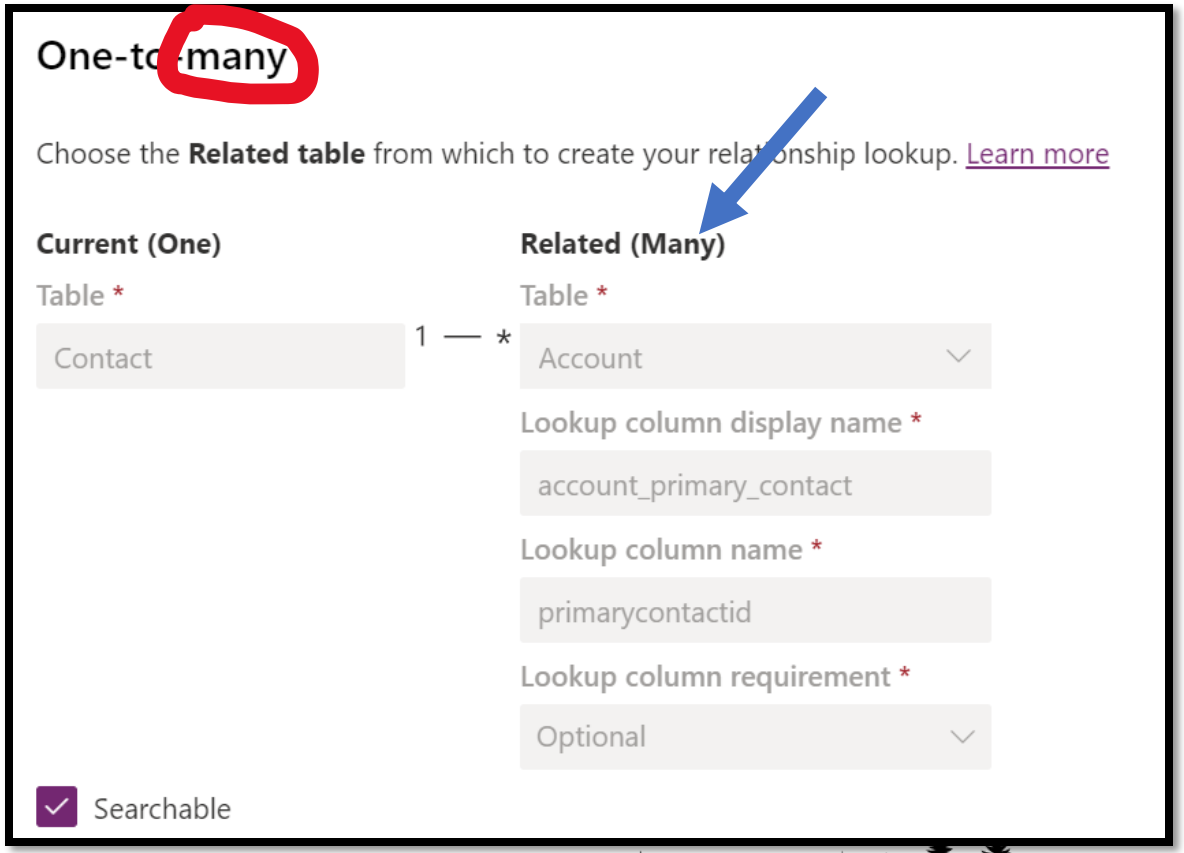
Relationships are defined on only one side of the two perspectives.

In other words, Dynamics has a way to define both sides of the relationship and that is done on only one side.

One side is "responsible" for defining the relationship.
The other side accepts the definition.

“Many” is the important side.





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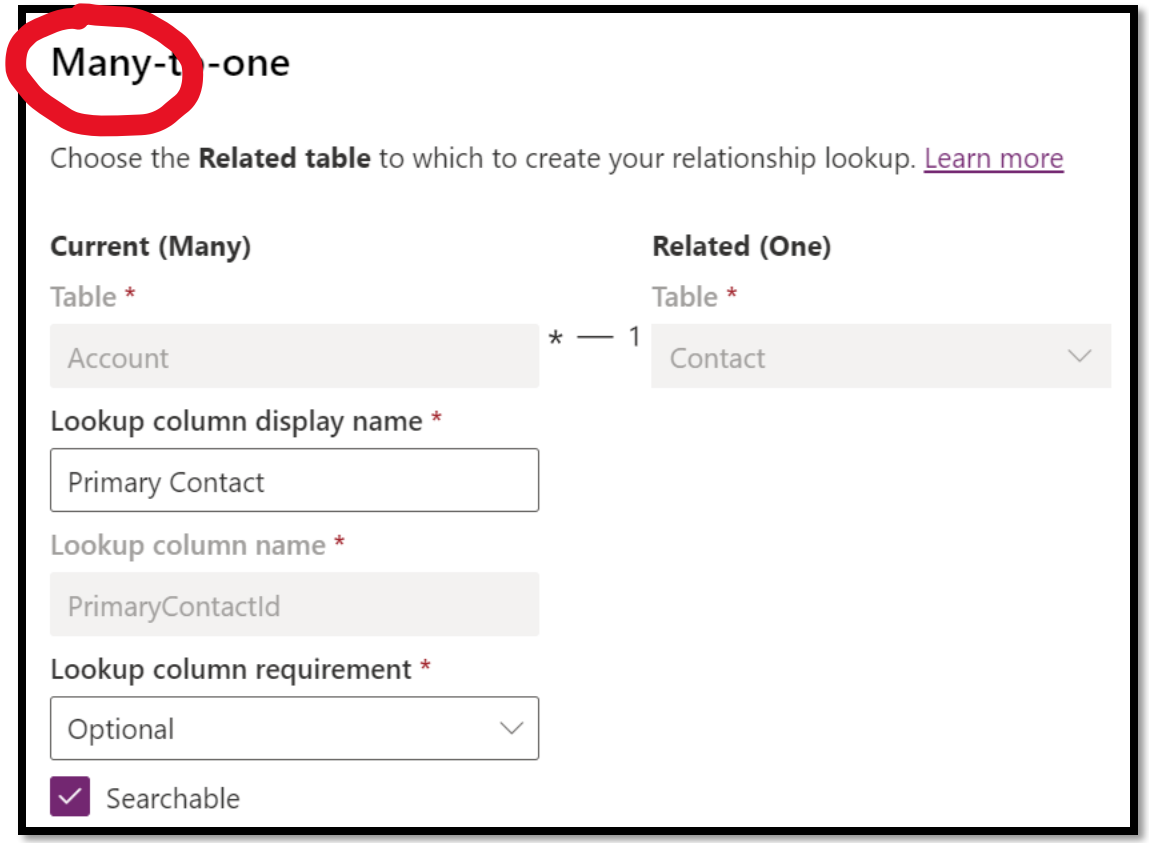
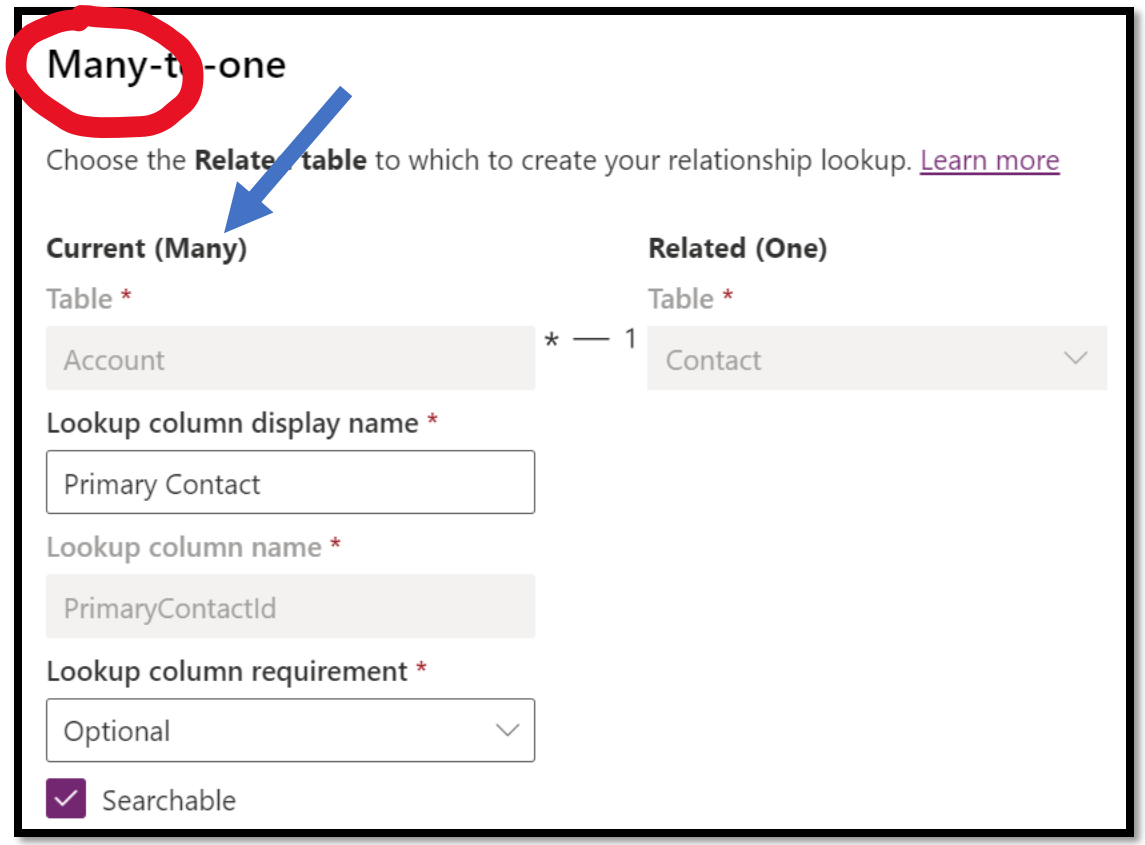
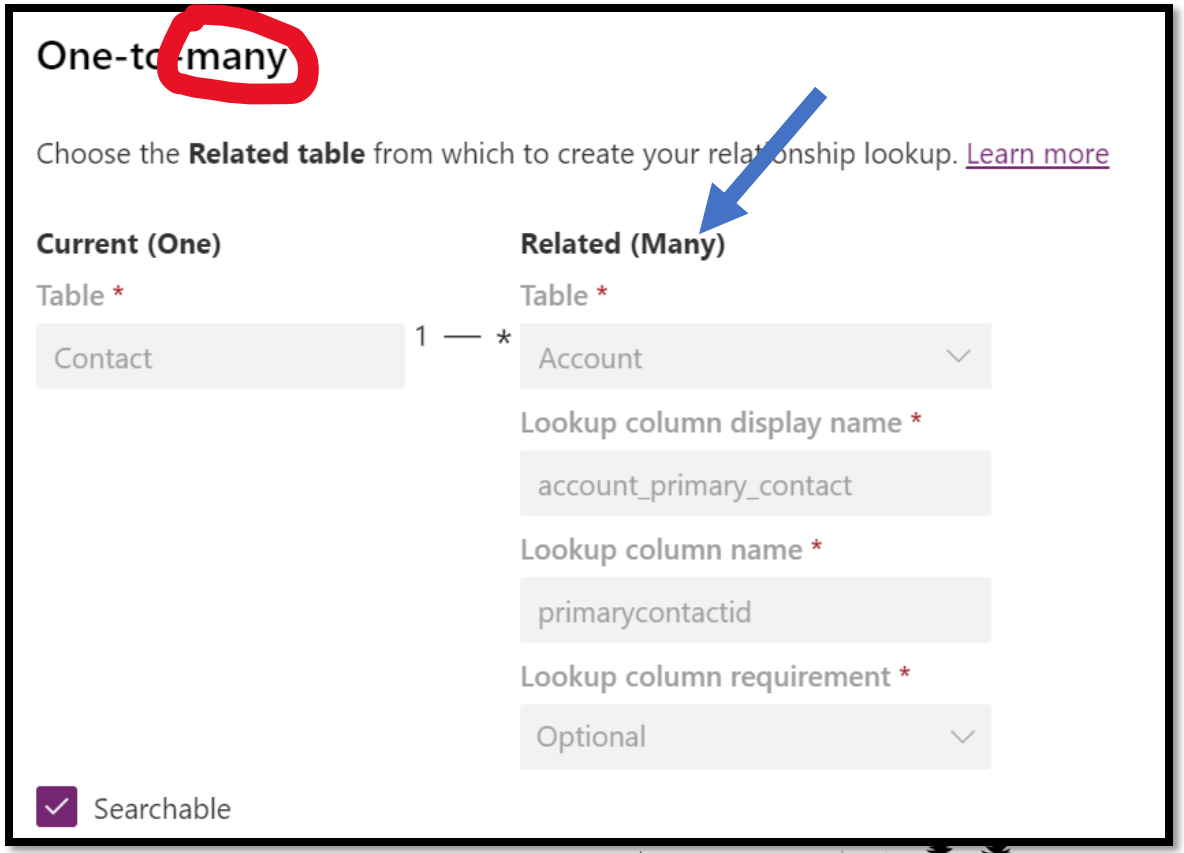


- When you create a “many-to-one” relationship, you automatically get the “one-to-many” relationship.
- A single column is added on the “many” table.
- This column defines the relationship.

Because the relationship is defined by/with the column, I find it easier to just try to understand the “many” side.

“Many” is the important side.





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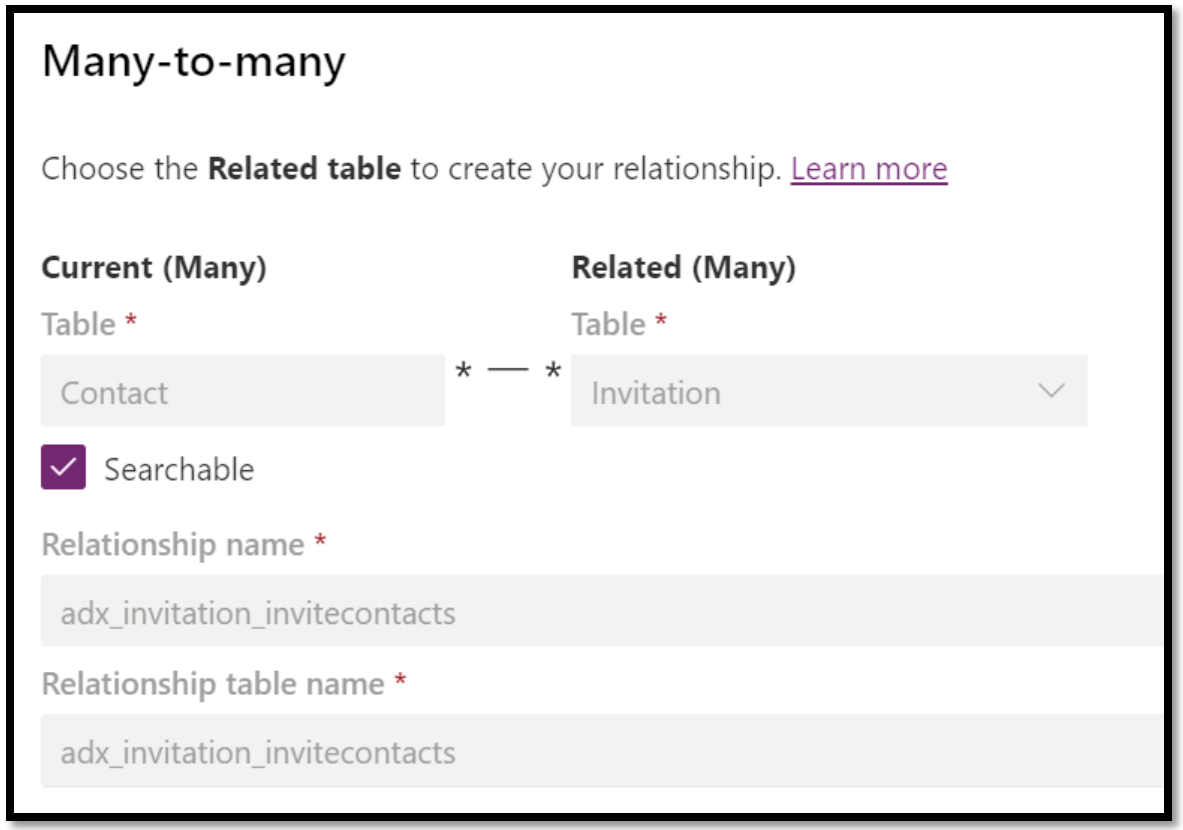
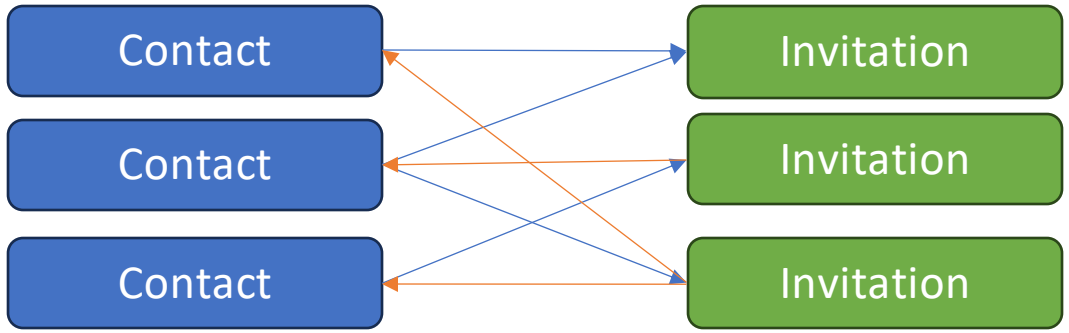
What about many-to-many?

Don’t use them.





- A contact can have many invitations.
- An invitation can have many contacts.
- Neither side is limited to a single record.

I have strong opinions about many-to-many and will not be covering it here.

Avoid using many-to-many. Build a join table and add two relationships to it instead.

I came seeking knowledge on **Dynamics 365's core tables**, Nick, but you've focused only on *relationships*. When will we tackle the standard tables?

Time is of the essence! *Pew* *BAM!* *SUPERHERO SOUNDS*

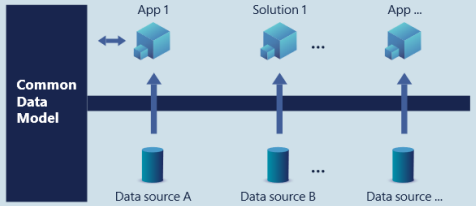
Microsoft

INTEGRATE & DISAMBIGUATE DATA WITH

THE COMMON DATA MODEL

An **open-sourced** definition of modular and extensible **business entities** with **semantic metadata** that **simplify the challenges of application development and data integration**.

The Common Data Model unifies data in a well-known schema with semantic consistency.



App developers and backend integrators can develop **independently**.

Enables quick application deployment and development, out-of-the-box intelligence, and much more.

There's a growing collection of solutions that store data in Common Data Model form:

Power BI | Dynamics 365 | Power Apps | Azure

COMMON DATA MODEL SCHEMA

CORE

- Account
- Activity
- Contact
- Currency
- Email
- Goal
- Letter
- Note
- Owner
- Organization
- Position
- Task
- ...

Working with subject matter & industry experts, Common Data Model is expanding to include additional business

Dynamics 365

DYNAMICS 365
- Account
- Appointment
- Campaign
- Contact
- Lead
- Marketing List
- Phone Call
- Social Activity
- ...

SALES
- Competitor
- Discount
- Invoice
- Opportunity
- Order
- Order Product
- Quote
- ...

SERVICE
- Case
- Contract
- Entitlement
- Resource
- Service
- Scheduling Group
- Task
- ...

FINANCE
- Main accounts
- General Ledger
- Budget
- Bank
- Fixed assets
- Dimensions
- ...

SUPPLY CHAIN
- Product Information Management
- Procurement
- Trade Agreements
- Sales
- Production
- Warehouse and Transportation Management
- Asset Management
- ...

COMMERCE
- Channel
- Product catalog
- Prices & Discounts
- Sales transaction
- Payment instrument
- Customer loyalty
- Worker
- ...

MARKETING
- Account
- Contact
- Event
- Marketing Email
- Marketing Page
- ...

WEB
- Link Clicks
- Web Interactions
- Web Page

PROJECT OPERATIONS
- Project Planning
- Project Resourcing
- Project Time and Expense
- Project Invoicing
- Project Accounting

HUMAN RESOURCES
- Department
- Job Positions
- Worker

GLOBALIZATION
- Tax determination and calculation
- E-invoicing & real time reporting
- Payment formats
- Tax and audit reports
- Business documents

HEALTHCARE
- Patient
- Practitioner
- Device
- Care Plan
- Risk Assessment
- Medication
- Procedure
- Encounter
- Episode of Care
- ...

Account:
Business that represents a customer or potential customer.

Attributes:
- accountNumber
- accountRatingCode
- createdOn
- creditLimit
- openDeals
- openRevenue
- territoryid

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Name	Description
Account	Business that represents a customer or potential customer. The company that is billed in business transactions.
AccountLeads	description.
Activity	Task performed, or to be performed, by a user. An activity is any action for which an entry can be made on a calendar.
Appointment	Commitment representing a time interval with start/end times and duration.
Campaign	Container for campaign activities and responses, sales literature, products, and lists to create, plan, execute, and track the results of a specific marketing campaign through its life.
CampaignActivity	Task performed, or to be performed, by a user for planning or running a campaign.
CampaignActivityItem	Work item of a campaign activity, such as a list or sales literature.
CampaignItem	Work item in a campaign, a list or sales literature.
CampaignResponse	Response from an existing or a potential new customer for a campaign.
Contact	Person with whom a business unit has a relationship, such as customer, supplier, and colleague.
ContactLeads	
Email	Activity that is delivered using email protocols.
Fax	Activity that tracks call outcome and number of pages for a fax and optionally stores an electronic copy of the document.
Lead	Prospect or potential sales opportunity. Leads are converted into accounts, contacts, or opportunities when they are qualified. Otherwise, they are deleted or archived.
LeadAddress	Address information for a lead.
Letter	Activity that tracks the delivery of a letter. The activity can contain the electronic copy of the letter.
MarketingList	Group of existing or potential customers created for a marketing campaign or other sales purposes.
MarketingListMember	Item in a marketing list.
PhoneCall	Activity to track a telephone call.
QuickCampaign	System operation used to perform lengthy and asynchronous operations on large data sets, such as distributing a campaign activity or quick campaign.
RecurringAppointment	The Master appointment of a recurring appointment series.
SocialActivity	For internal use only.

Common Data Model CRM Common Standard Entities

https://learn.microsoft.com/en-us/common-data-model/schema/core/applicationcommon/foundationcommon/crmcommon/overview

- These guys are in every instance of Dataverse.
  (Except where the documentation is wrong)

- What can they teach us about the essence of Dynamics 365?

Name	Description
Account	Business that represents a customer or potential customer. The company that is billed in business transactions.
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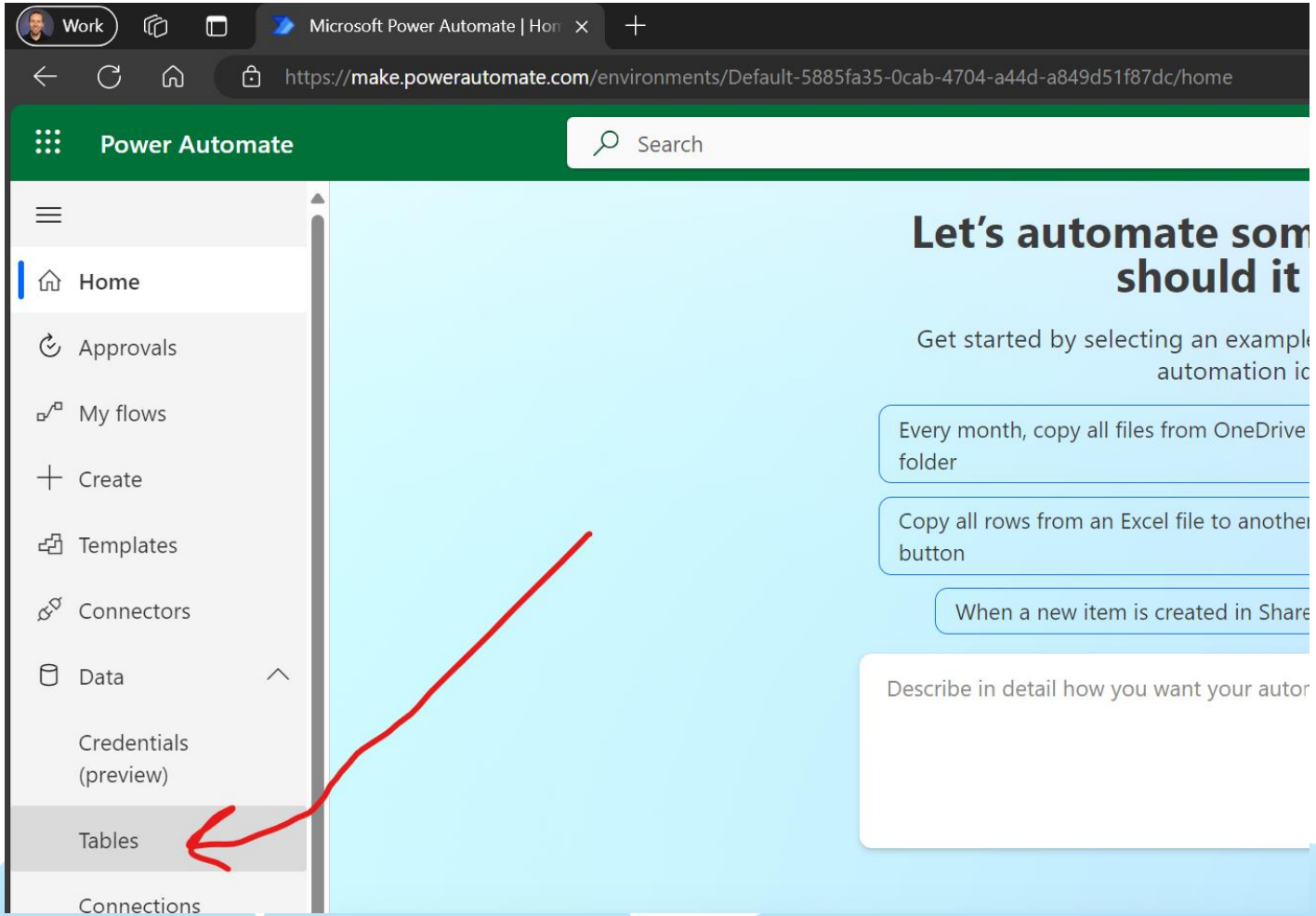
RecurringAppointment	The Master appointment of a recurring appointment series.
SocialActivity	For internal use only.

Tables

Recommended | Custom | All

Table	Name
Account	account
Address	customeraddress
Appointment	appointment
Attachment	activitymimeattachment
Business Unit	businessunit
Contact	contact
Currency	transactioncurrency
Email	email
Email Template	template
Fax	fax
Feedback	feedback
Letter	letter
Mailbox	mailbox
Organization	organization
Phone Call	phonecall
Position	position
Recurring Appointment	recurringappointmentmas...
Task	task
Team	team
Team template	teamtemplate
User	systemuser

https://make.powerautomate.com



Tables

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Attachment	activitymimeattachment
Business Unit	businessunit
Contact	contact
Currency	transactioncurrency
Email	email
Email Template	template
Fax	fax
Feedback	feedback
Letter	letter
Mailbox	mailbox
Organization	organization
Phone Call	phonecall
Position	position
Recurring Appointment	recurringappointmentmas...
Task	task
Team	team
Team template	teamtemplate
User	systemuser

The map is not the territory.

- We'll start with Recommended because defaults tell us about how the system wants to be used.

If there's time at the end, we'll explore the rest.

Tables

Recommended | Custom | All

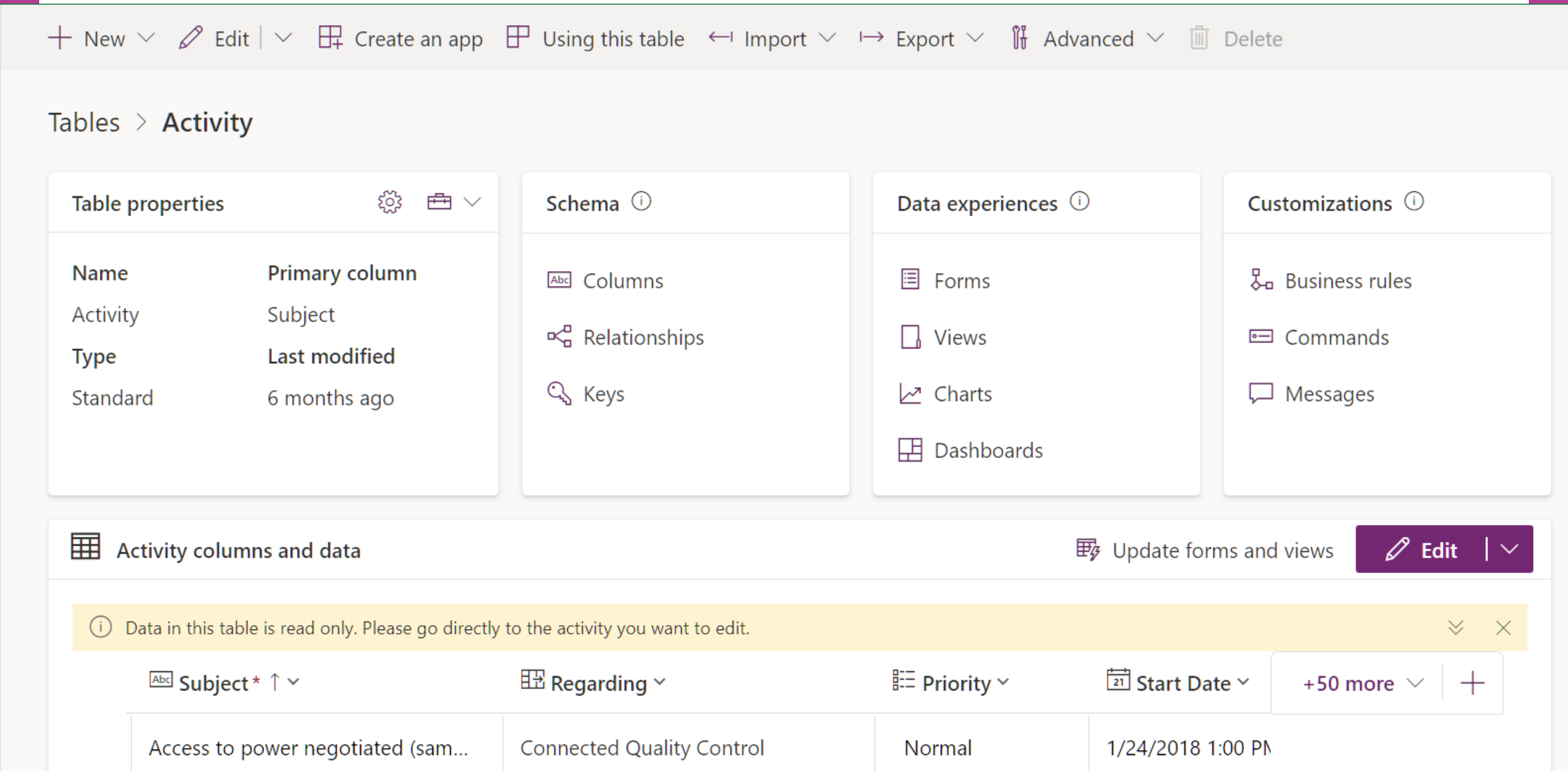
Table	Name
Account	account
Address	customeraddress
Appointment	appointment
Attachment	activitymimeattachment
Business Unit	businessunit
Contact	contact
Currency	transactioncurrency
Email	email
Email Template	template
Fax	fax
Feedback	feedback
Letter	letter
Mailbox	mailbox
Organization	organization
Phone Call	phonecall
Position	position
Recurring Appointment	recurringappointmentmas...
Task	task
Team	team
Team template	teamtemplate
User	systemuser

Activity Tables

- Activity is a special category for tables in Dynamics.
- These are all the “Recommended” activity tables.
- Additional default activities:
  - Teams chat
  - Invite Redemption*
  - Portal Comment*

* Power Pages seem to be included by default now

What is Activity?



Display name *

Activity

Plural name *

Activities

Description

Task performed, or to be performed, by a user. An activity is any action for which an entry can be made on a calendar.

Enable attachments (including notes and files)

Advanced options

Schema name *

ActivityPointer

Logical name

activitypointer

Type *

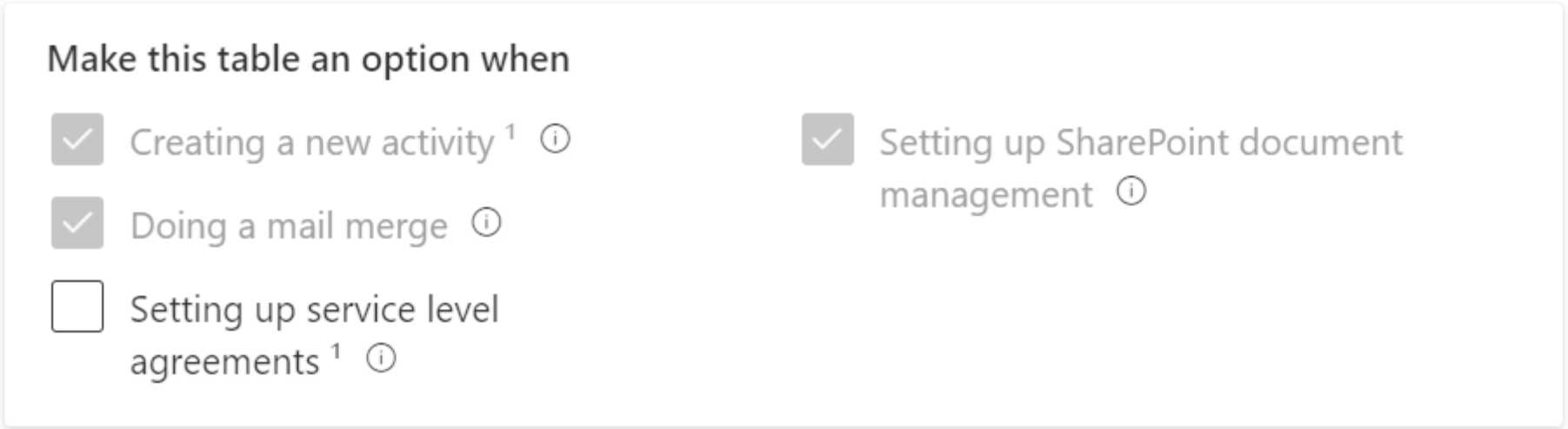
Standard

Record ownership *

User or team

"An activity is any action for which an entry can be made on a calendar."

- Description implies it has date/time fields.
- It's called "ActivityPointer" internally.
- The purpose is in the name:
  - ActivityPointer is the underlying table for all Activity Entity types
  - Activity Pointer means many different types of activities are available through this common base.



Activities can be an option on any entity

Activity is what Dynamics uses as the way to store information about real-world tasks/activities and records in a table.

Tables

Recommended | Custom | All

Table	Name
Account	account
Address	customeraddress
Appointment	appointment
Attachment	activitymimeattachment
Business Unit	businessunit
Contact	contact
Currency	transactioncurrency
Email	email
Email Template	template
Fax	fax
Feedback	feedback
Letter	letter
Mailbox	mailbox
Organization	organization
Phone Call	phonecall
Position	position
Recurring Appointment	recurringappointmentmas...
Task	task
Team	team
Team template	teamtemplate
User	systemuser

Activity Types

- Appointment
- Email
- Fax
- Letter
- Phone Call
- Recurring Appointment
- Task

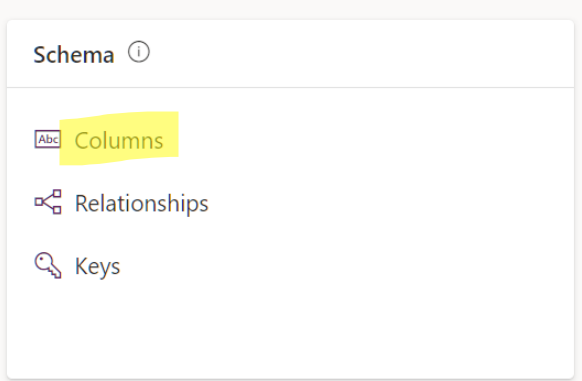
These are all defaults.
You can make your own.

What's in Activity?

- If we dig into the columns on Activity, we can see what Dynamics stores.
- Every Activity Entity has unique columns describing what makes it unique.
- Most columns from base Activity table are available:
  - Start/End times
  - Duration
  - "Additional Parameters" (??)
  - Category, Sub-Category (??)
  - Service
  - SLA (A few columns)
  - Currency

- Weird stuff:
  - What currency is your Phone Call in?

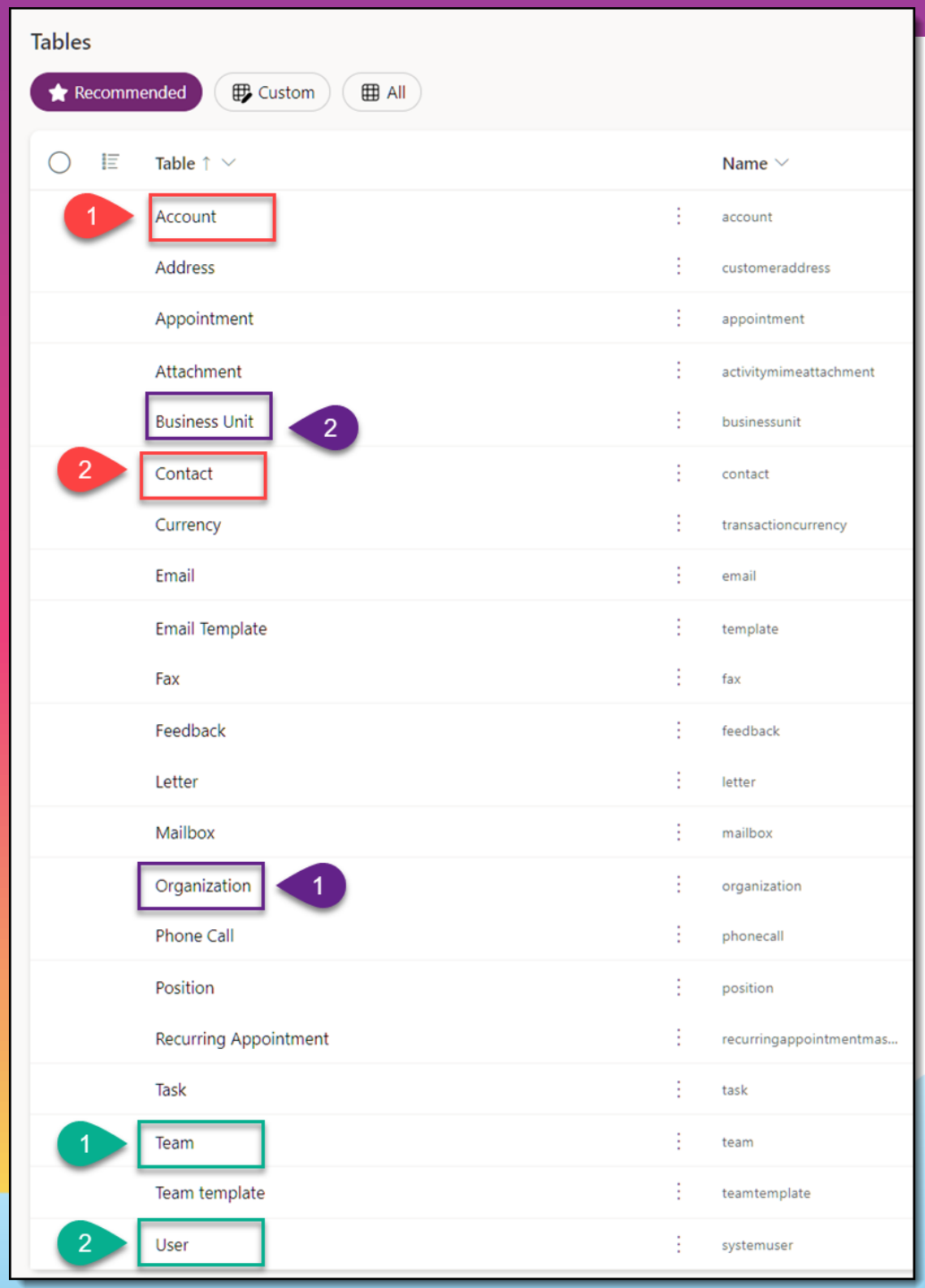
How do you know what columns to use?

- "Use the columns that make sense for your activity type"
  - You will need to look at forms and views for each Activity entity to know what to use.
- Not all columns in 

are available!
- Activities get special treatment from the Dynamics backend!

When to use Activities?

- Track events that can be tied to a specific time or time period
- You want to see the data in the timeline
- You want to track that event across multiple types of data



Parent/Child Tables

- These are all the head of hierarchies.
- Organization
  - Business Unit
- Account
  - Contact
- Team
  - User

Account

“Business that represents a customer or potential customer. The company that is billed in business transactions.”

- Special ability:
  - Roll-Up
  - 📞 Can be used as an associated record in activities
  - ✉ Integrates with Outlook

Contact

“Person with whom a business unit has a relationship, such as customer, supplier, and colleague.”

- Special Abilities:
  - 📞 Can be used as an associated record in activities
  - 👤 Can be used for sign-ins when using Power Pages
  - ✉ Integrates with Outlook

Organization

“Top level of the Microsoft Dynamics 365 business hierarchy. The organization can be a specific business, holding company, or corporation.”

- Special Abilities:
  - 1️⃣ Only one per Dynamics instance
  - 🗻 Has an astounding number of columns
  - 😺💻 Secret configuration options hidden inside me

Business Unit

“Business, division, or department in the Microsoft Dynamics 365 database.”

- Special Abilities:
  - 👮 Controls what users see what items
  - 👥 Hierarchal
  - 🆔 Integrates with Azure Active Directory / Entra

Team

“Collection of system users that routinely collaborate. Teams can be used to simplify record sharing and provide team members with common access to organization data when team members belong to different Business Units.”

- Special Abilities:
  - 👮 Can be used for permissions
  - 👑 Can be assigned as owner of records
  - 🛰️ Users can cross Business Unit lines

User

“Person with access to the Microsoft CRM system and who owns objects in the Microsoft CRM database.”

- Special Abilities:
  - 🆔 Synced with Azure Active Directory / Entra
  - 👑 Can be assigned as owner of records
  - 👮 Assigned roles and permissions
  - 🐱 💻 Secret configuration options hidden inside

Tables

Recommended | Custom | All

Table	Name
Account	account
Address	customeraddress
Appointment	appointment
Attachment	activitymimeattachment
Business Unit	businessunit
Contact	contact
Currency	transactioncurrency
Email	email
Email Template	template
Fax	fax
Feedback	feedback
Letter	letter
Mailbox	mailbox
Organization	organization
Phone Call	phonecall
Position	position
Recurring Appointment	recurringappointmentmas...
Task	task
Team	team
Team template	teamtemplate
User	systemuser

Other Tables

- Attachment
- Currency
- Email Template
- Feedback
- Mailbox
- Position
- Team Template

Attachment

Attachment > Relationships

Display name	Name	Related ta...	Relationshi...
Attachment	attachment_activ...	Attachment	Many-to-one
Item	appointment_act...	Appointment	Many-to-one
Item	template_activity...	Email Template	Many-to-one
Item	email_activity_mi...	Email	Many-to-one
Item	activity_pointer_...	Activity	Many-to-one
Name	ActivityMimeAtta...	Bulk Delete Fa...	One-to-many
Object Id	userentityinstanc...	User Entity Ins...	One-to-many
Record	ActivityMimeAtta...	Sync Error	One-to-many
Regarding	ActivityMimeAtta...	System Job	One-to-many

"MIME attachment for an activity."

Abilities:

- 📁 Stores file uploads
- 💵 Consumes expensive storage

Recommended | Custom | All

Table	Name	Type
Competitor	competitor	Standard
Discount	discount	Standard
Invoice	invoice	Standard
Lead	lead	Standard
Opportunity	opportunity	Standard
Quote	quote	Standard
Territory	territory	Standard

Dynamics 365 Sales

- New tables with the Sales App!

Product

“Information about products and their pricing information.”

Special Abilities:

- 👨‍👨‍👧 Can have families, kits, & bundles
- 🔗 Hierarchical
- ↔ Established integrations with other Microsoft apps

Lead

“Prospect or potential sales opportunity. Leads are converted into accounts, contacts, or opportunities when they are qualified. Otherwise, they are deleted or archived.”

Special Abilities:

- 🧬 Spawns into an Opportunity, Contact, and Account when qualified
- 📈 Easily integrates into Dynamics 365 Marketing
- ✉️ Integrates with Outlook

Opportunity

"Potential revenue-generating event, or sale to an account, which needs to be tracked through a sales process to completion."

Special Abilities:

- ✉ Integrates with Outlook
- 🔍 Pre-built analytics solutions for tracking performance
- 🛠 Provides default sales process

Quote

“Formal offer for products and/or services, proposed at specific prices and related payment terms, which is sent to a prospective customer.”

Special Abilities:

- 🖼️ Snapshot of opportunity at a given time.
- 📖 Tells story of how opportunity evolves.
- 👶 Inherits products from Opportunity on create.

Invoice

“Order that has been billed.”

Special Abilities:

- 📊 Useful for reporting
- 👶 Inherits products from Quote on create

Competitor

“Business competing for the sale represented by a lead or opportunity.”

Special Abilities:

- 📊 Has reports out of the box
- 👎 Not useful unless populated by you

Discount

“Price reduction made from the list price of a product or service based on the quantity purchased.”

Not much more to say.

Territory

“Territory represents sales regions.”

Special Abilities:

- ⚙ Deeply integrated into Dynamics, has own settings area
- 👥 Assigned to Users & Accounts, provides details to each

Q&A

Nick Hance
nhance@reenhanced.com

DEMO

(Time permitting)

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