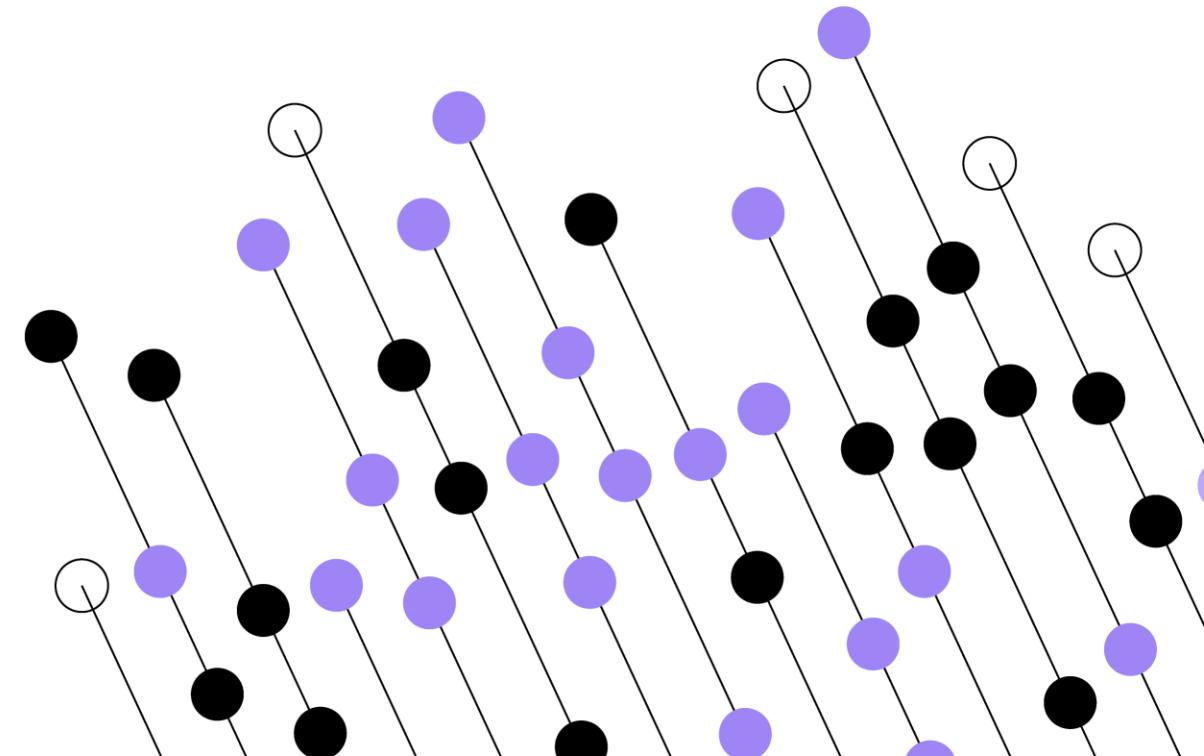


# Module 1:

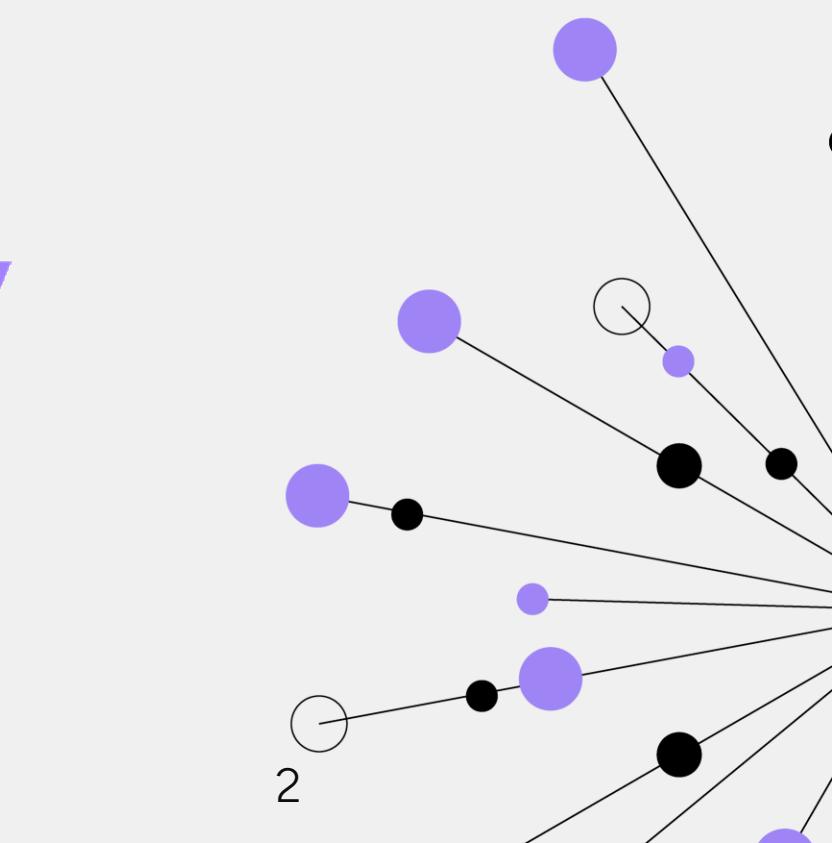
## Introduction to the Power Platform





- What is the Microsoft Power Platform
- Model-driven apps
- Dataverse
- Environments
- Environment types
- Create and manage environments

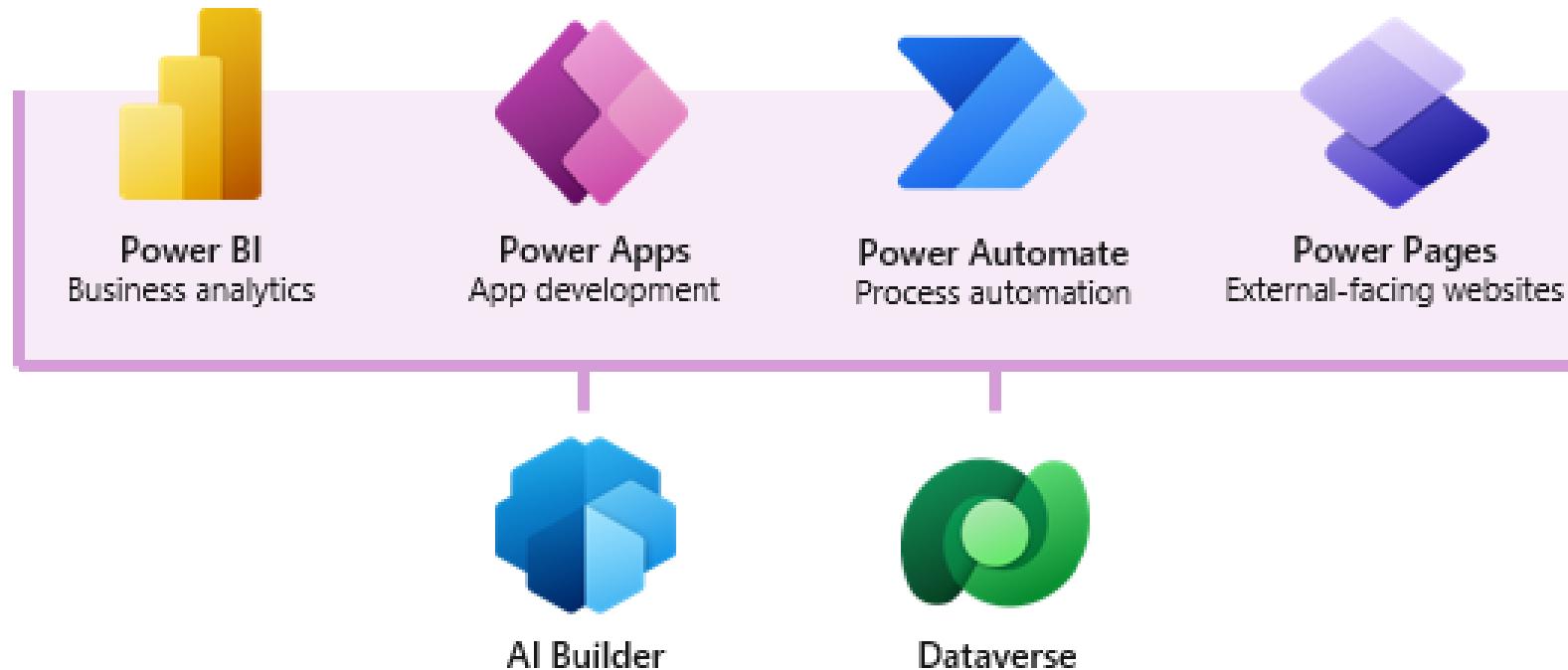
*Introduction to the Power Platform (and Environments)*





## Microsoft Power Platform

The low code platform that spans Microsoft 365, Azure, Dynamics 365, and standalone apps.



# What is the Power Platform

## Power Apps

- Model-Driven Apps
- Canvas Apps
- Portal Apps

## Power Automate

## Power Virtual Agents

## Power BI

## Microsoft Dataverse

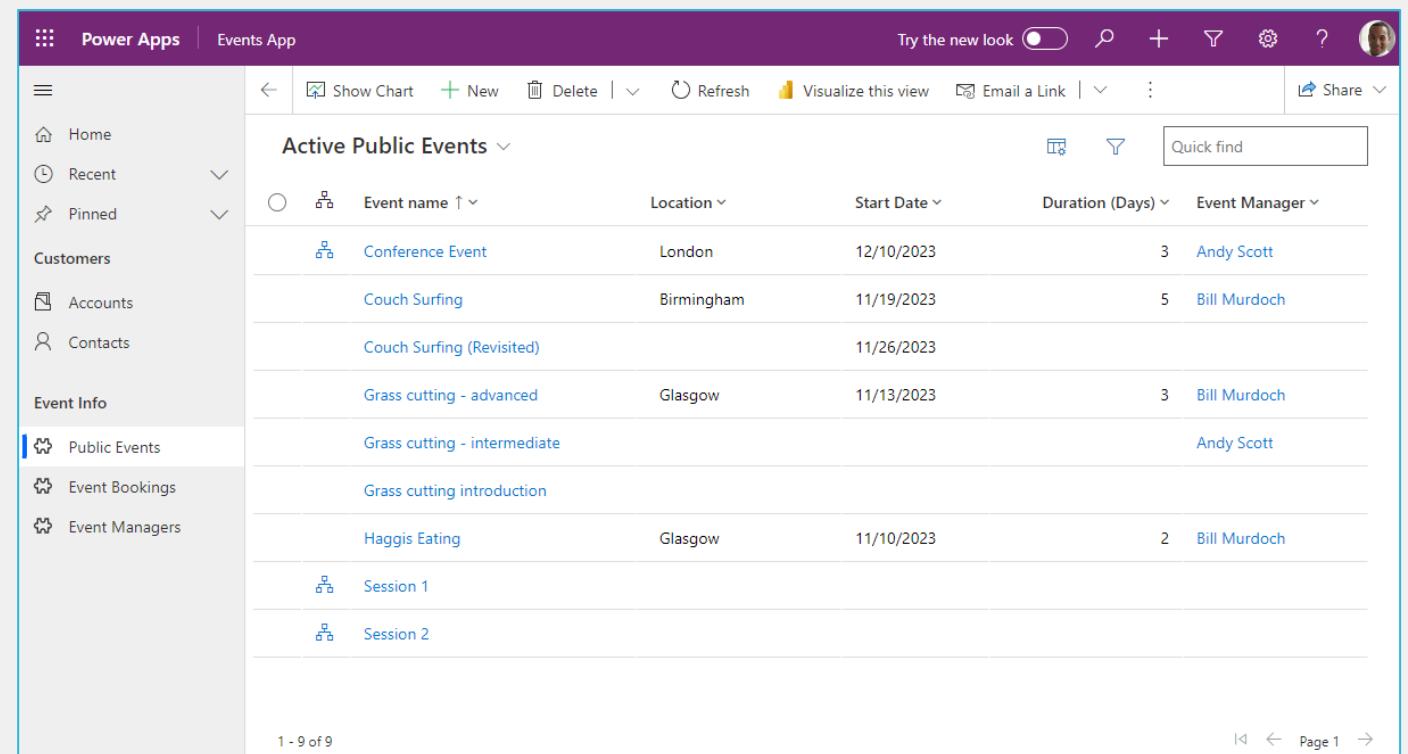


# Model-driven Apps

- Add dashboards, forms, views and charts with little or no code.
- Components you add determines the layout

- Design Phases

1. Model your business data
2. Define your business processes
3. Build the app



The screenshot shows the Microsoft Power Apps interface for an 'Events App'. The left sidebar contains navigation links: Home, Recent, Pinned, Customers, Accounts, Contacts, Event Info, Public Events (which is selected), Event Bookings, and Event Managers. The main content area displays a list of 'Active Public Events' with the following data:

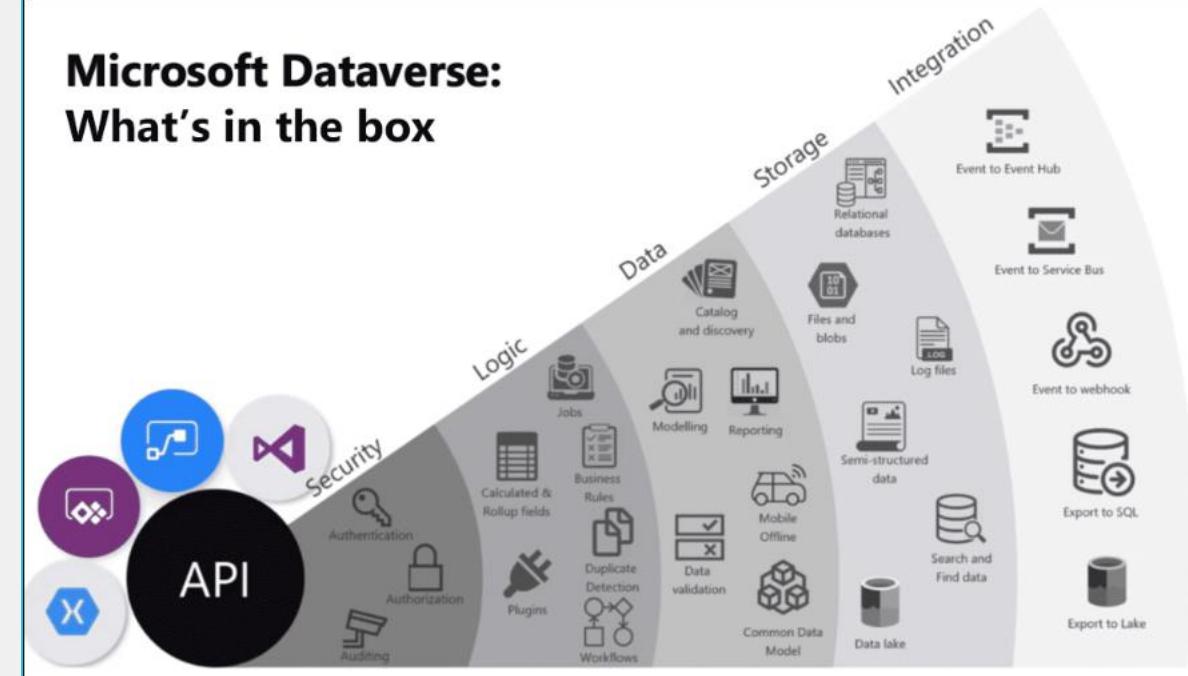
Event name	Location	Start Date	Duration (Days)	Event Manager
Conference Event	London	12/10/2023	3	Andy Scott
Couch Surfing	Birmingham	11/19/2023	5	Bill Murdoch
Couch Surfing (Revisited)		11/26/2023		
Grass cutting - advanced	Glasgow	11/13/2023	3	Bill Murdoch
Grass cutting - intermediate				Andy Scott
Grass cutting introduction				
Haggis Eating	Glasgow	11/10/2023	2	Bill Murdoch
Session 1				
Session 2				

1 - 9 of 9

# Dataverse

- Cloud-based data storage service
- Set of tables with rows and columns
- Includes standard tables (CDM)

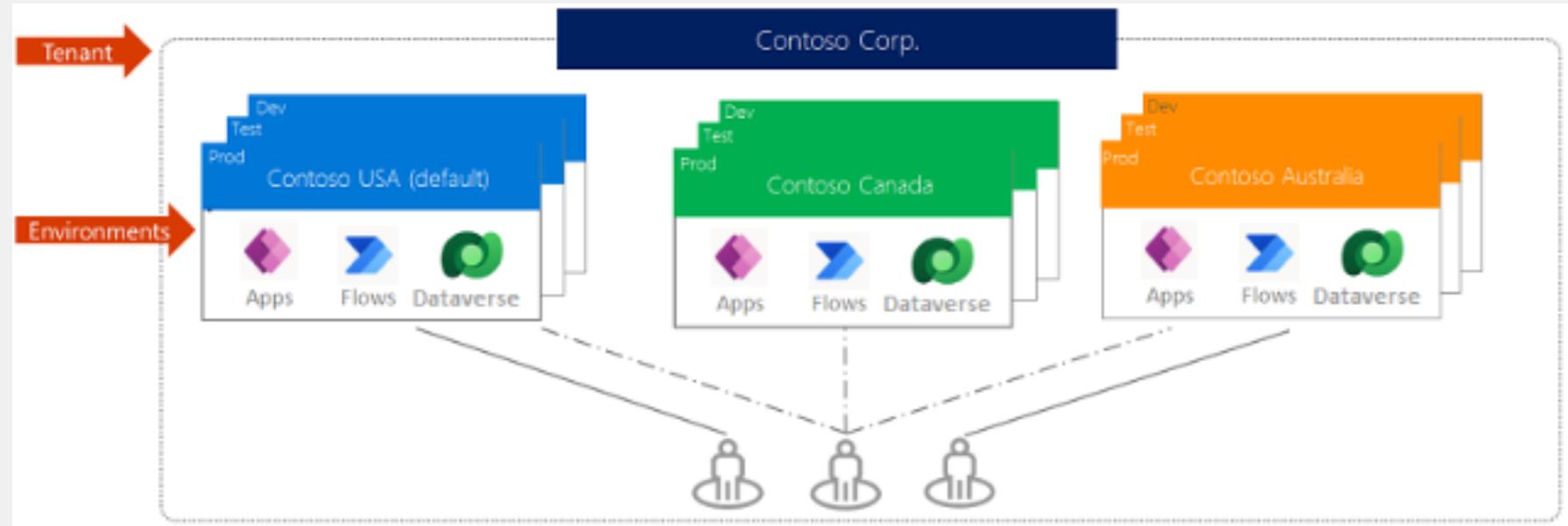
## Microsoft Dataverse: What's in the box



Security	Logic	Data	Storage	Integration
<ul style="list-style-type: none"><li>• Authentication with Entra ID</li><li>• Authorization to row and column level</li></ul>	<ul style="list-style-type: none"><li>• Duplicate detection</li><li>• Business rules</li><li>• Workflows</li></ul>	<ul style="list-style-type: none"><li>• Modelling</li><li>• Reporting</li><li>• Validation</li></ul>	<ul style="list-style-type: none"><li>• In the Azure cloud</li><li>• Do not need to worry about location or scaling</li></ul>	<ul style="list-style-type: none"><li>• APIs</li><li>• Eventing</li><li>• Data Export</li></ul>

# Environments

- Created under an Entra ID tenant
- Bound to a geographical location
- Create and manage a Dataverse instance
- Also manage
  - User access
  - Security settings

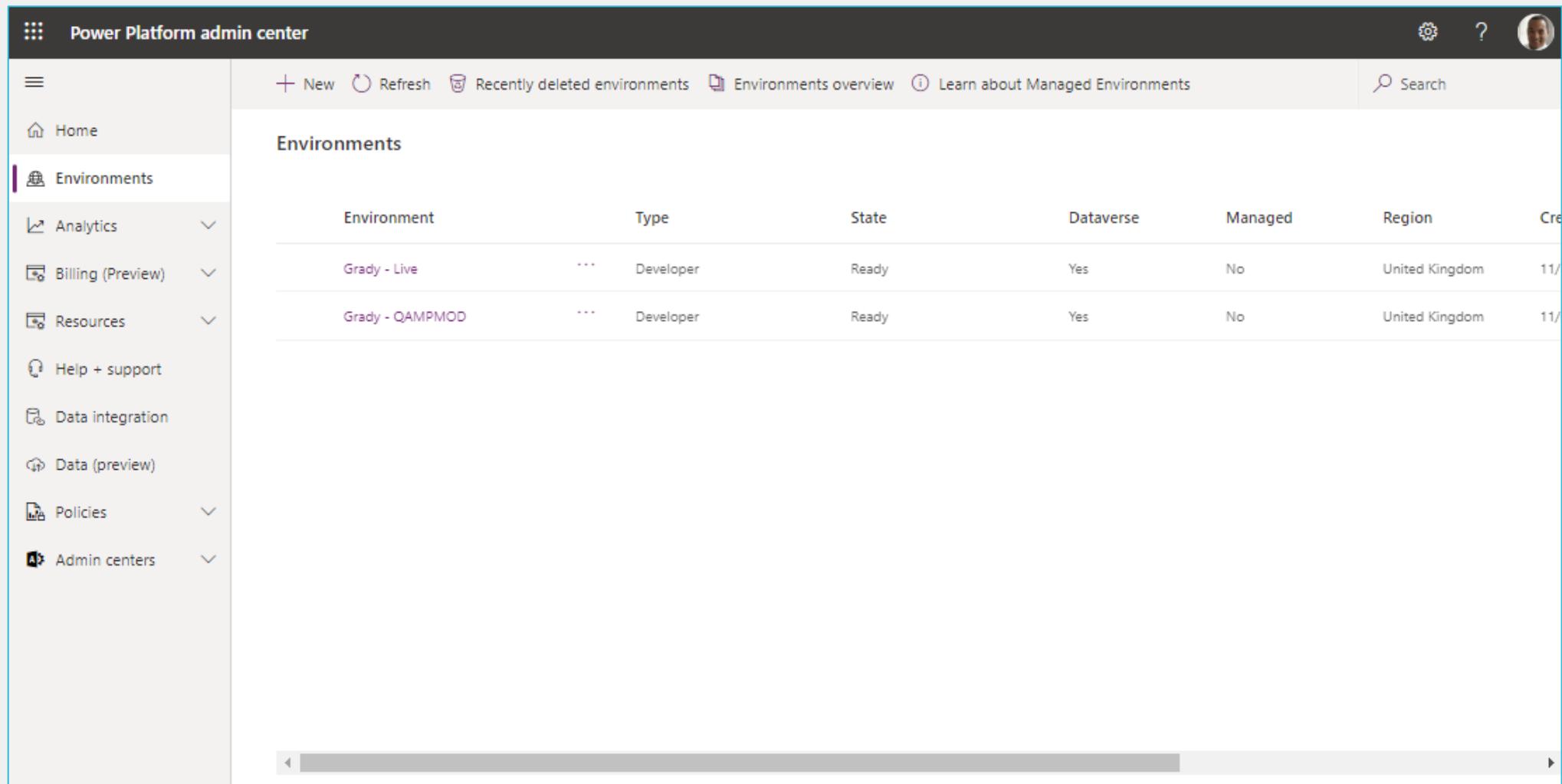


# Environment Types

- Production
  - Intended to be used for permanent work
- Default
  - Special type of production environment
  - All licensed users have access
  - Can not be deleted
  - Can not be backed up
  - Can be renamed (personal productivity)
- Sandbox
  - Non-production
  - Offers features such as copy and reset
- Trial
  - Short term testing
  - Expire after 30 days
- Developer
  - Use the Developer Plan license
  - Cannot use Security groups for membership



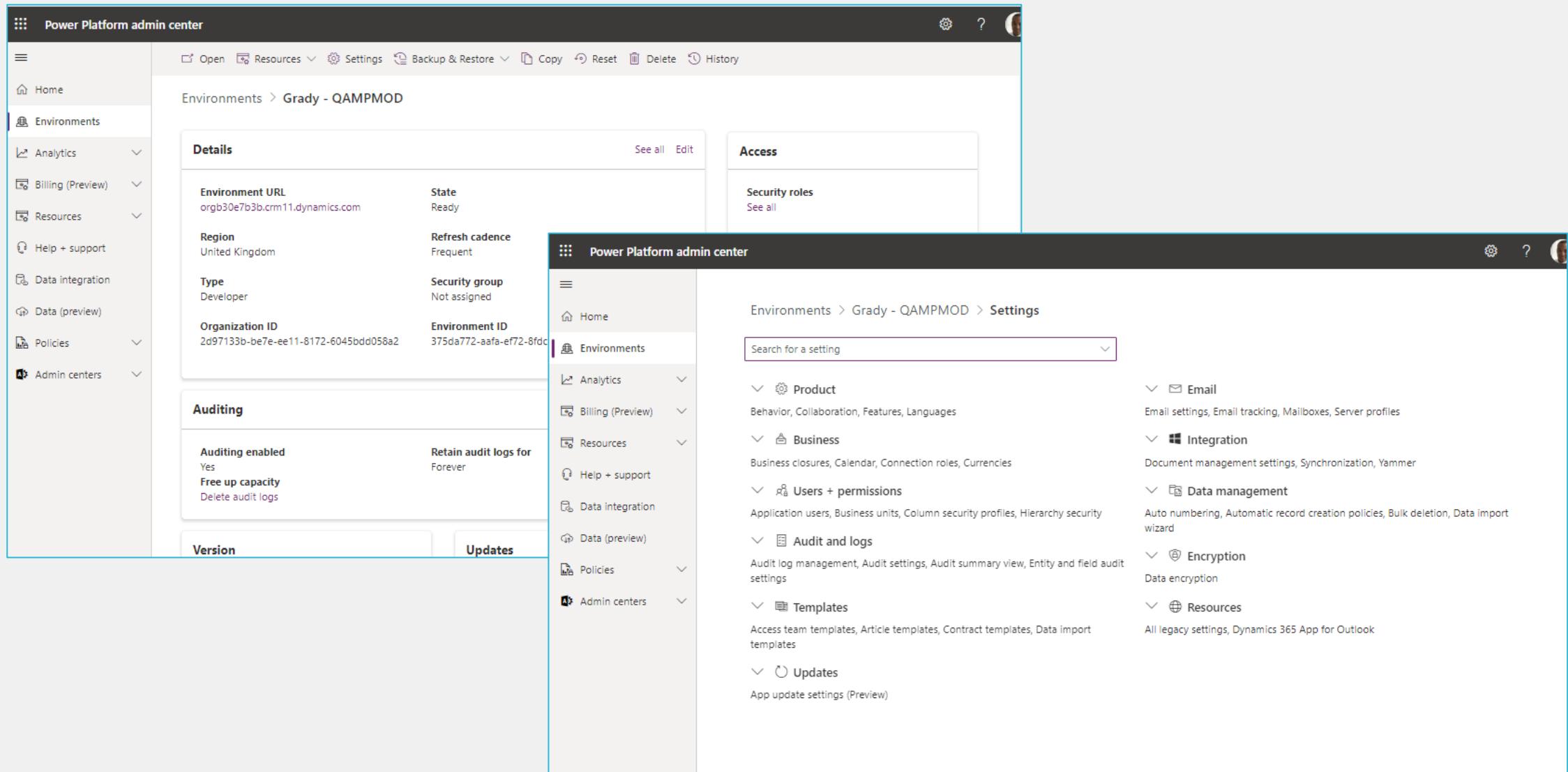
# Create and manage an environment (1/2)



The screenshot shows the Power Platform admin center interface. The left sidebar contains navigation links: Home, Environments (selected), Analytics, Billing (Preview), Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main content area is titled "Environments" and displays a table with two rows of environment data. The columns are: Environment, Type, State, Dataverse, Managed, Region, and Created. The first row shows "Grady - Live" as a "Developer" environment, "Ready", "Yes", "No", "United Kingdom", and "11/11/2023". The second row shows "Grady - QAMPMOD" as a "Developer" environment, "Ready", "Yes", "No", "United Kingdom", and "11/11/2023".

Environment	Type	State	Dataverse	Managed	Region	Created
Grady - Live	Developer	Ready	Yes	No	United Kingdom	11/11/2023
Grady - QAMPMOD	Developer	Ready	Yes	No	United Kingdom	11/11/2023

# Create and manage an environment (2/2)



The screenshot displays two main sections of the Power Platform admin center:

**Left Panel (Environment Management):**

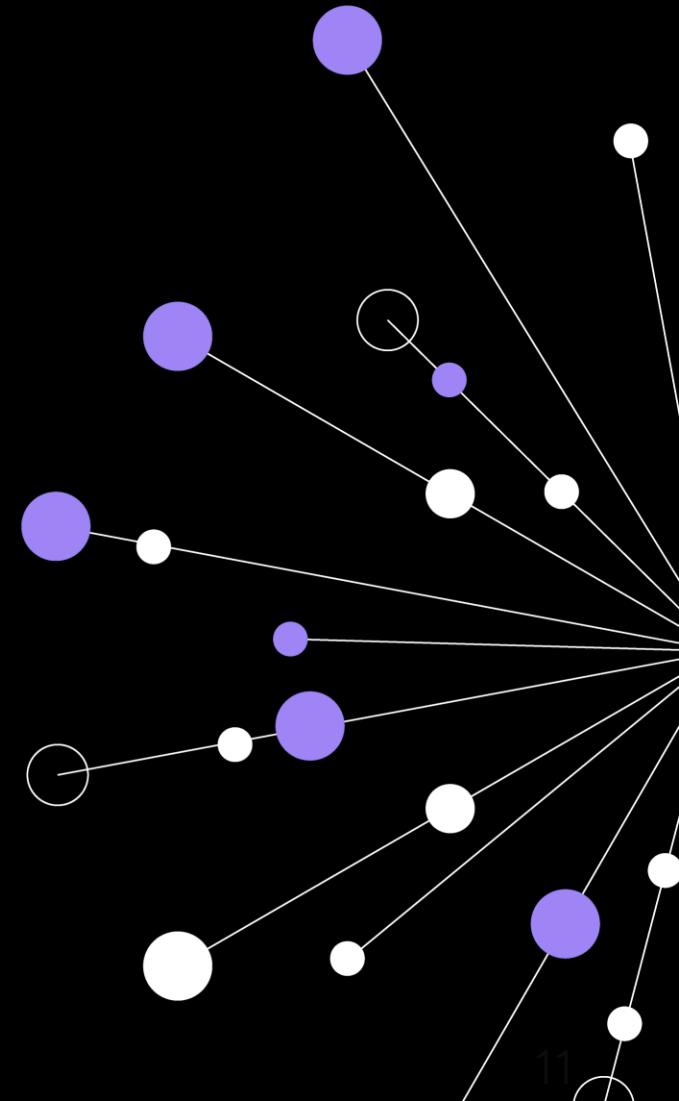
- Details:**
  - Environment URL: [orgb30e7b3b.crm11.dynamics.com](https://orgb30e7b3b.crm11.dynamics.com)
  - State: Ready
  - Region: United Kingdom
  - Refresh cadence: Frequent
  - Type: Developer
  - Security group: Not assigned
  - Organization ID: 2d97133b-be7e-ee11-8172-6045bdd058a2
  - Environment ID: 375da772-aafa-ef72-8fdc-000000000000
- Auditing:**
  - Auditing enabled: Yes
  - Retain audit logs for: Forever
  - Free up capacity** (link to Delete audit logs)
- Version** and **Updates** buttons.

**Right Panel (Settings):**

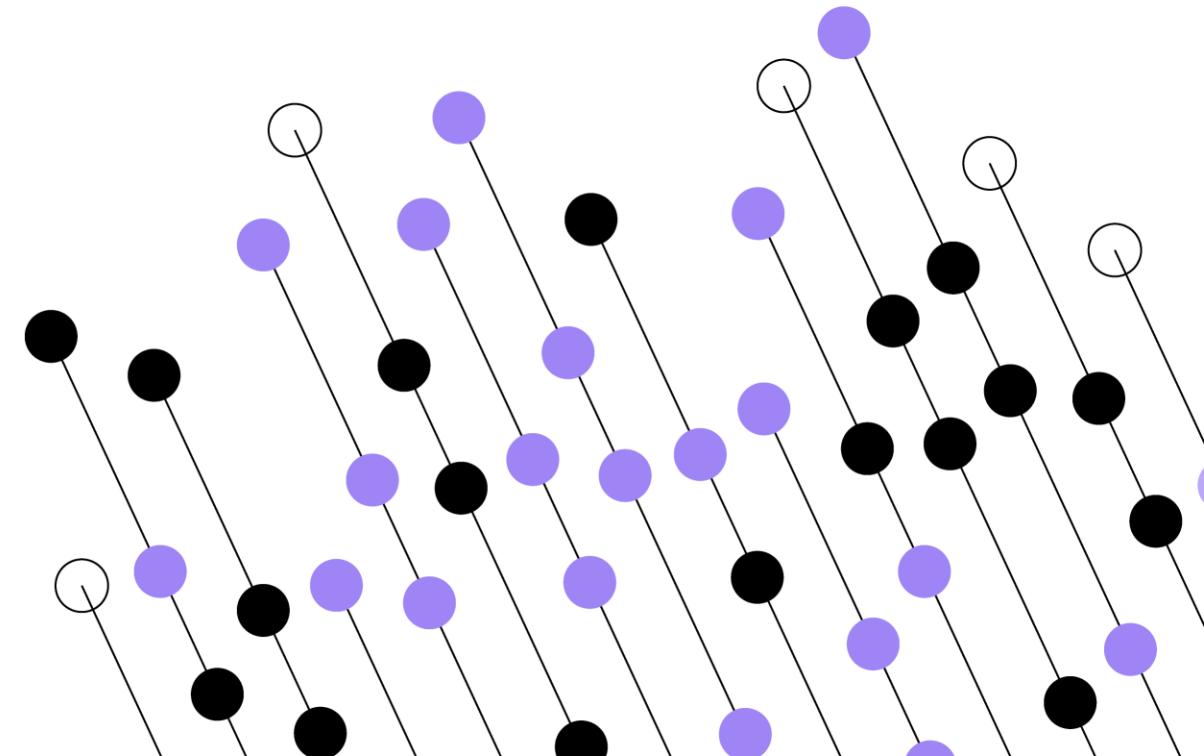
- Search for a setting** input field.
- Product**: Behavior, Collaboration, Features, Languages
- Business**: Business closures, Calendar, Connection roles, Currencies
- Users + permissions**: Application users, Business units, Column security profiles, Hierarchy security
- Audit and logs**: Audit log management, Audit settings, Audit summary view, Entity and field audit settings
- Templates**: Access team templates, Article templates, Contract templates, Data import templates
- Updates**: App update settings (Preview)
- Email**: Email settings, Email tracking, Mailboxes, Server profiles
- Integration**: Document management settings, Synchronization, Yammer
- Data management**: Auto numbering, Automatic record creation policies, Bulk deletion, Data import wizard
- Encryption**: Data encryption
- Resources**: All legacy settings, Dynamics 365 App for Outlook

# Lab 1 (Page 14)

- Configuring the Power Platform Environment
1. Create a new environment (if necessary)
  2. Explore the settings of the environment

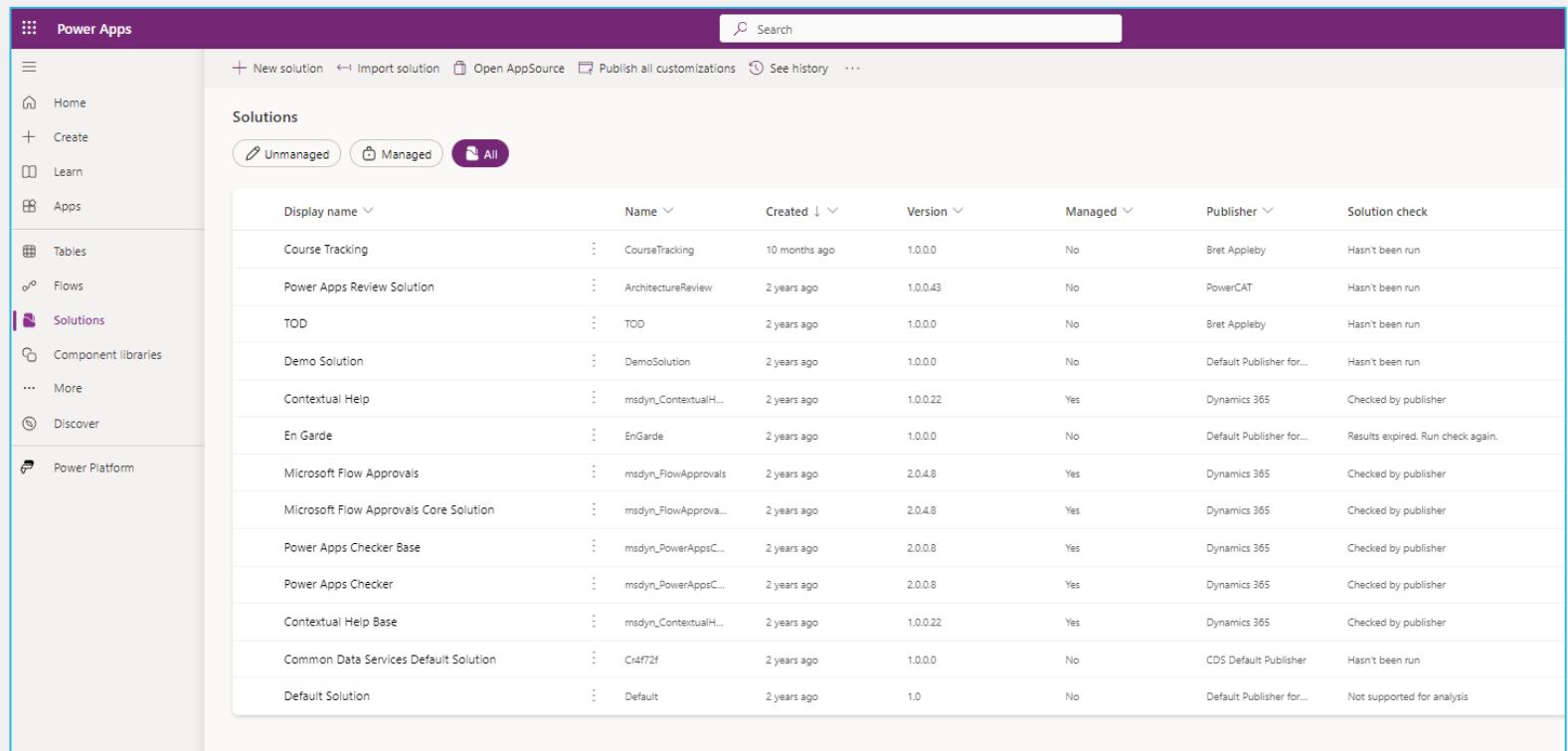


# Module 2: Power Platform Environments & Solution Management



# Power Platform Solution Management

# Solution Overview



The screenshot shows the 'Solutions' section of the Power Apps portal. The left sidebar includes options like Home, Create, Learn, Apps, Tables, Flows, Solutions (which is selected and highlighted in purple), Component libraries, More, and Discover. The main content area displays a table of solutions with the following columns: Display name, Name, Created, Version, Managed, Publisher, and Solution check. The table lists 14 solutions, including 'Course Tracking', 'Power Apps Review Solution', 'TOD', 'Demo Solution', 'Contextual Help', 'En Garde', 'Microsoft Flow Approvals', 'Microsoft Flow Approvals Core Solution', 'Power Apps Checker Base', 'Power Apps Checker', 'Contextual Help Base', 'Common Data Services Default Solution', and 'Default Solution'. The 'Managed' filter is selected in the top navigation bar.

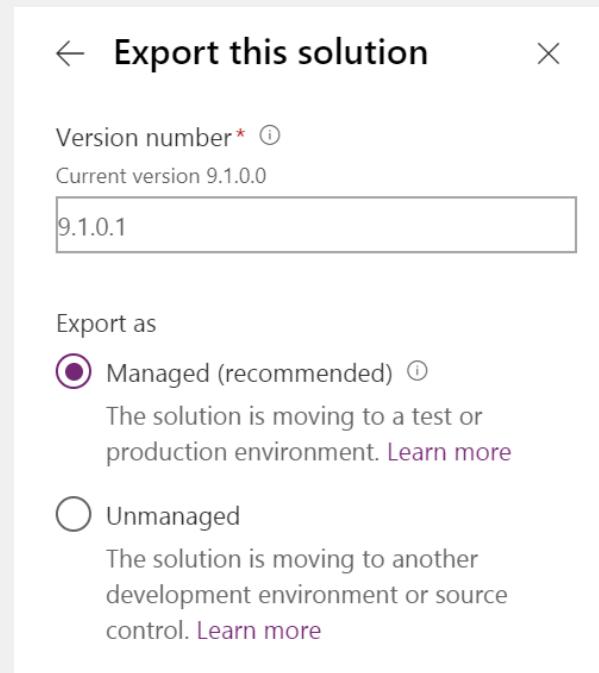
Display name	Name	Created	Version	Managed	Publisher	Solution check
Course Tracking	CourseTracking	10 months ago	1.0.0.0	No	Bret Appleby	Hasn't been run
Power Apps Review Solution	ArchitectureReview	2 years ago	1.0.0.43	No	PowerCAT	Hasn't been run
TOD	TOD	2 years ago	1.0.0.0	No	Bret Appleby	Hasn't been run
Demo Solution	DemoSolution	2 years ago	1.0.0.0	No	Default Publisher for...	Hasn't been run
Contextual Help	msdyn_ContextualH...	2 years ago	1.0.0.22	Yes	Dynamics 365	Checked by publisher
En Garde	EnGarde	2 years ago	1.0.0.0	No	Default Publisher for...	Results expired. Run check again.
Microsoft Flow Approvals	msdyn_FlowApprovals	2 years ago	2.0.4.8	Yes	Dynamics 365	Checked by publisher
Microsoft Flow Approvals Core Solution	msdyn_FlowApprova...	2 years ago	2.0.4.8	Yes	Dynamics 365	Checked by publisher
Power Apps Checker Base	msdyn_PowerAppsC...	2 years ago	2.0.0.8	Yes	Dynamics 365	Checked by publisher
Power Apps Checker	msdyn_PowerAppsC...	2 years ago	2.0.0.8	Yes	Dynamics 365	Checked by publisher
Contextual Help Base	msdyn_ContextualH...	2 years ago	1.0.0.22	Yes	Dynamics 365	Checked by publisher
Common Data Services Default Solution	C4f72f	2 years ago	1.0.0.0	No	CDS Default Publisher	Hasn't been run
Default Solution	Default	2 years ago	1.0	No	Default Publisher for...	Not supported for analysis

# Solution Properties

Display Name

Cannot be changed

Used for file name of  
exported Solution  
package



## Version Number

- Up to four numbers separated by decimals
- Major.Minor.Build.Release
- Major Number = Major Product number
- Minor: Solution Version
- Build: Patch Version
- Release: Your revision change (updated automatically each time the Solution is exported)

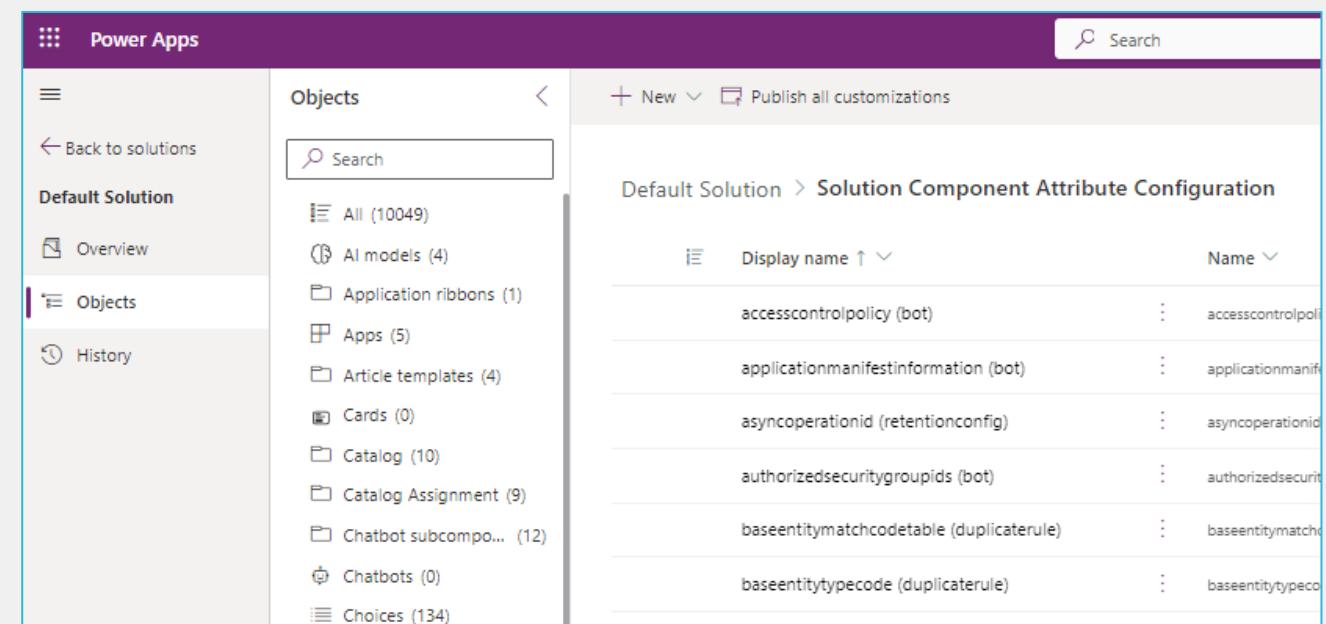
# Solution benefits

1. **Work on just the components that you need** to without any distraction or confusion from everything else in the system.
2. **Compartmentalise** the project: have different solutions for different parts of the Project.
3. Solutions, when ready, may be **exported** with all components inside ready to move to a live production environment.
4. Your exported solution will only contain the components that you have selected. Your solution will be smaller and more manageable than if you export the whole system solution.
5. Your saved exported solution becomes part of your change control records.



# The Default & Common Data Services Default solutions

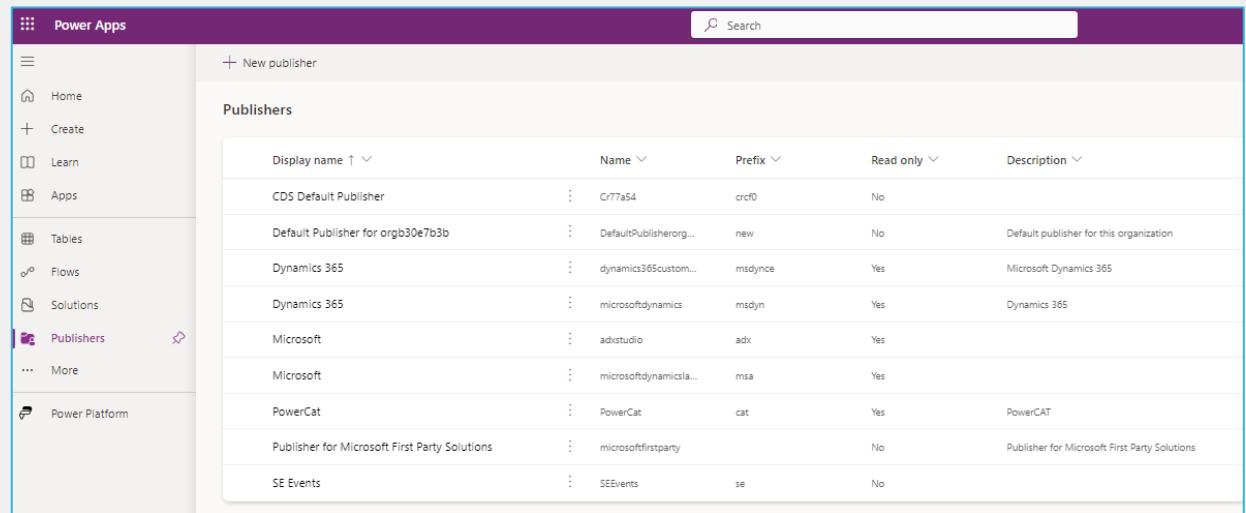
- Not recommended to work directly in the default solution.
- Initially empty
- Contains components changed and created directly from the Power Apps Maker portal



The screenshot shows the Power Apps Maker portal interface. The left sidebar has 'Objects' selected. The main area shows a list of components under 'Default Solution > Solution Component Attribute Configuration'. The table has columns for 'Display name' and 'Name'. The data includes:

Display name	Name
accesscontrolpolicy (bot)	accesscontrolpoli
applicationmanifestinformation (bot)	applicationmanifi
asyncoperationid (retentionconfig)	asyncoperationid
authorizedsecuritygroupids (bot)	authorizedsecurit
baseentitymatchcodetable (duplicaterule)	baseentitymatchc
baseentitytypecode (duplicaterule)	baseentitytypeco

# Publishers



The screenshot shows the Microsoft Power Apps interface with the 'Publishers' list. The left sidebar includes 'Home', 'Create', 'Learn', 'Apps', 'Tables', 'Flows', 'Solutions', 'Publishers' (selected), and 'More'. The main area is titled 'Publishers' and shows a table with columns: 'Display name ↑', 'Name', 'Prefix', 'Read only', and 'Description'. The table lists several publishers:

Display name ↑	Name	Prefix	Read only	Description
CDS Default Publisher	Cr77a54	crf0	No	
Default Publisher for orgb30e7b3b	DefaultPublisherorg...	new	No	Default publisher for this organization
Dynamics 365	dynamics365custom...	msdynice	Yes	Microsoft Dynamics 365
Dynamics 365	microsoftdynamics	msdyn	Yes	Dynamics 365
Microsoft	adxstudio	adx	Yes	
Microsoft	microsoftdynamicsla...	msa	Yes	
PowerCat	PowerCat	cat	Yes	PowerCAT
Publisher for Microsoft First Party Solutions	microsoftfirstparty		No	Publisher for Microsoft First Party Solutions
SE Events	SEEvents	se	No	

# Create a solution

New solution \*

Display name \*

Name \*

Publisher \*  
 Edit

Version \*

More options ▼

Power Apps

Objects \*

Back to solutions ▼

SEEvents ▼

Overview ▼

Objects ▼

History ▼

Pipelines ▼

Search \*

New ▼

Add existing ▼

Publish all customizations ▼

...

SEEvents > All

Display name <span style="color: red;">▼</span>	Name <span style="color: red;">▼</span>	Type <span style="color: red;">▼</span>	Managed <span style="color: red;">▼</span>	Last Modified <span style="color: red;">▼</span>
Account	account	Table	Yes	1 week ago
BPF Public Events	BPF Public Events	Process (Business Process Flow)	No	3 days ago
BPF Public Events	se_bpfpublicevents	Table	No	3 days ago
Contact	contact	Table	Yes	1 week ago
Event Booking	se_eventbooking	Table	No	2 days ago
Event Manager	se_eventmanager	Table	No	2 days ago
Event Task	se_eventtask	Table	No	2 days ago
Events App	se_EventsApp	Site Map	No	3 days ago
Events App	se_EventsApp	Model-Driven App	No	3 days ago
Location	se_location	Choice	No	-
Public Event	se_publicevent	Table	No	2 days ago
SE Event Agents	SE Event Agents	Security Role	No	3 days ago
SE Event Management Leaders	SE Event Management Leaders	Security Role	No	3 days ago

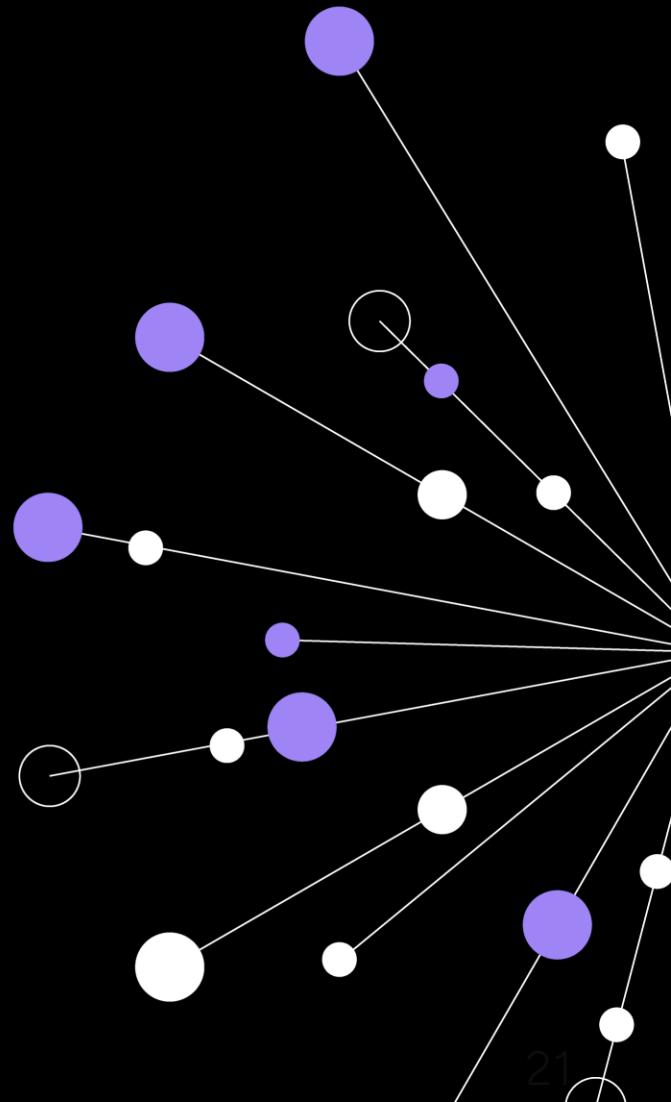
# Exporting Solutions

- Managed
- Read only
- Should be used in test and production environments
- Can be removed cleanly
  
- Unmanaged
- Editable
- Used during development
- When published components pushed into the Default solution
- Can not be removed cleanly

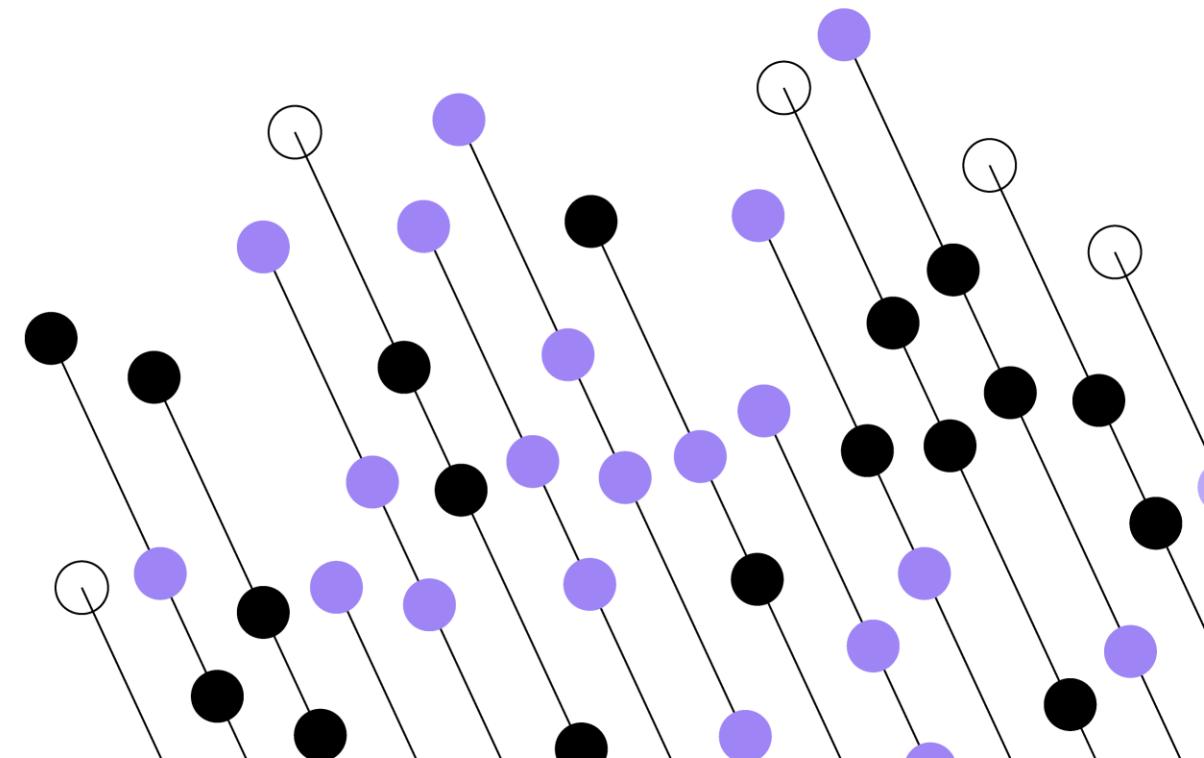
# Lab 2 (Page 23)

Create a Publisher & Solution

1. Create a new solution named SE Events
2. Create a new publisher named SE
3. Add tables to the solution
4. Export the solution as unmanaged



## Module 3: Customising Tables



# Dataverse Tables

- Tables in Dataverse
- Creating a table
- Primary Column
- Custom table types
- Record ownership
- Table advanced options
- Deleting a custom table



# Tables in Dataverse

- System
  - Automatically created
  - Most are hidden (by default) from UI
  - Provide built-in system functionality
- 
- Standard
  - Automatically created
  - Comply with the Common Data Model
  - Can be customised
  - Can not be deleted
- 
- Custom
  - None by default
  - Create to store the records needed



# Creating a Table

- Display Name
- Plural Name
- Schema Name (cannot be changed after creation)

**New table**  
Use tables to hold and organize your data. Previously called entities  
[Learn more](#)

Properties Primary column

Display name \*

Plural name \*

Description

Enable attachments (including notes and files)<sup>1</sup>

Advanced options ⌂

Schema name \*

# Primary Column

- Used to identify each record in the table
  - Does not need to be unique as there is a GUID for this
- Business required (by default)
- Used in list views to click through to get the record's form
- Also used when looking up records from another table
- Defaults to "Name"
- May want to change it to something more descriptive
- Can not be changed after the table is created



# Custom Table Types

- Standard
- Used to store data
- Can be added to the navigation in model-driven apps
- Activity
- Store interactions with other tables (e.g. phone call)
- Large number of default ones
- Appear in the timeline on model-driven app forms
- Virtual
- Connect to data from an external data source
- Elastic
- Designed for large data sets (Powered by Azure Cosmo DB)
- Flexible schema
- Automatic removal of data after a time period
- Can ingest tens of millions rows of data every hour

# Record Ownership

## User or Team

- Actions that can be performed can be controlled at the user level

Event Booking	...	se_eventbooking	User or Team	Custom	Organization	Business Unit	User	Search
Event Manager	...	se_eventmanager	User or Team	No Access	None	None	None	None
Flow Event	...	flowevent	User or Team	No Access	None	None	None	None
Public Event	...	se_publicevent	Organization	No Access	None	None	None	None
Customization (1)								



## Organization

- Access to the data is controlled at the organization level

Public Event	...	se_publicevent	Organization	No Access	None	None	None	None
Customization (1)								
Expander Event	...	expanderevent	Organization	No Access	None	None	None	None

# Table Advanced Options – For this table

Setting	Description
Apply duplicate detection rule	Apply (customisable) rules that will prevent duplicate records being created.
Track changes*	Detects what data has changed since synchronization. Required for tables available offline, should be enabled if data synchronised from external source
Provide custom help	Provide an external URL for help information
Audit changes to its data	When enabled, audits all columns by default. Auditing must be enabled for the environment.
Leverage quick-create form if available	Simpler create form
Enable long term retention	Table can be included in data retention configuration (will move certain records to long term storage)

## Table Advanced Options – Make this table an option when

Setting	Description
Creating a new activity*	Creates relationships with the activity tables
Doing a mail merge	Enable the ability to generate Office Word merged documents from this table
Setting up SharePoint document management	Allow documents attached to this table to be stored in SharePoint instead of Dataverse

# Table Advanced Options – Rows in this table

Setting	Description
Can have connections*	Create "fuzzy relationships". Used to link two records (not tables). Define connection roles (e.g. "friend").
Can have a contact email*	Adds an email column to the table and a link to the ActivityParty table (tracks recipient role e.g. ToRecipient, CCRecipient)
Have an access team	Creates an access Team for this table
Can be linked to feedback*	Creates a relationship with the Feedback table
Appear in search results	
Can be taken offline	(Also requires change tracking to be enabled)
Can be added to a queue*	Creates a relationship with the Queues table. (Provides an ordered list for records to be processed).

# Deleting a custom table

- Any dependencies must be considered first

 Failed to delete Table (Access Team). Object dependencies exist, please review before deleting.

Dependent objects (2)

You cannot delete Access Team while the following objects depend on it.

Display name ↑	Name	Object type
Demo Test App	Demo Test App	Site Map
Demo Test App	test_DemoTestApp	Model-driven App

Dependent objects (20) Required objects (0)

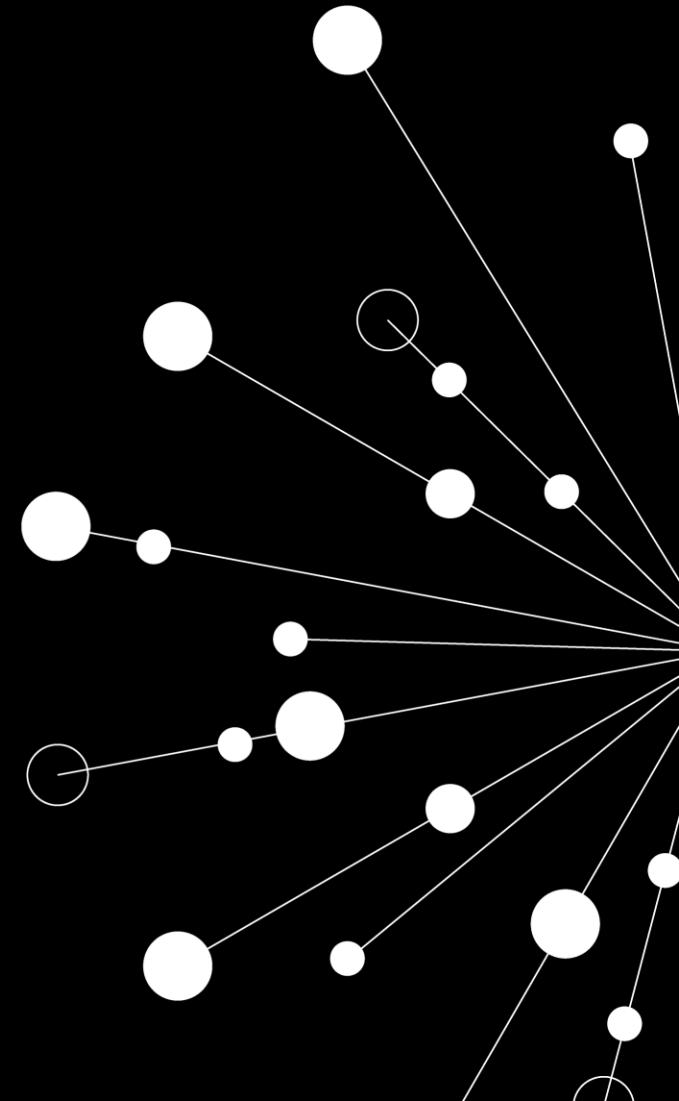
You cannot delete Access Team while the following objects depend on it.

Display name ↑	Name	Object type
business_unit_test_accessteam	business_unit_test_accessteam	Entity Relationship
Demo Test App	Demo Test App	Site Map
Demo Test App	test_DemoTestApp	Model-driven App
lk_test_accessteam_createdby	lk_test_accessteam_createdby	Entity Relationship
lk_test_accessteam_createdonbehalfby	lk_test_accessteam_createdonbehalfby	Entity Relationship

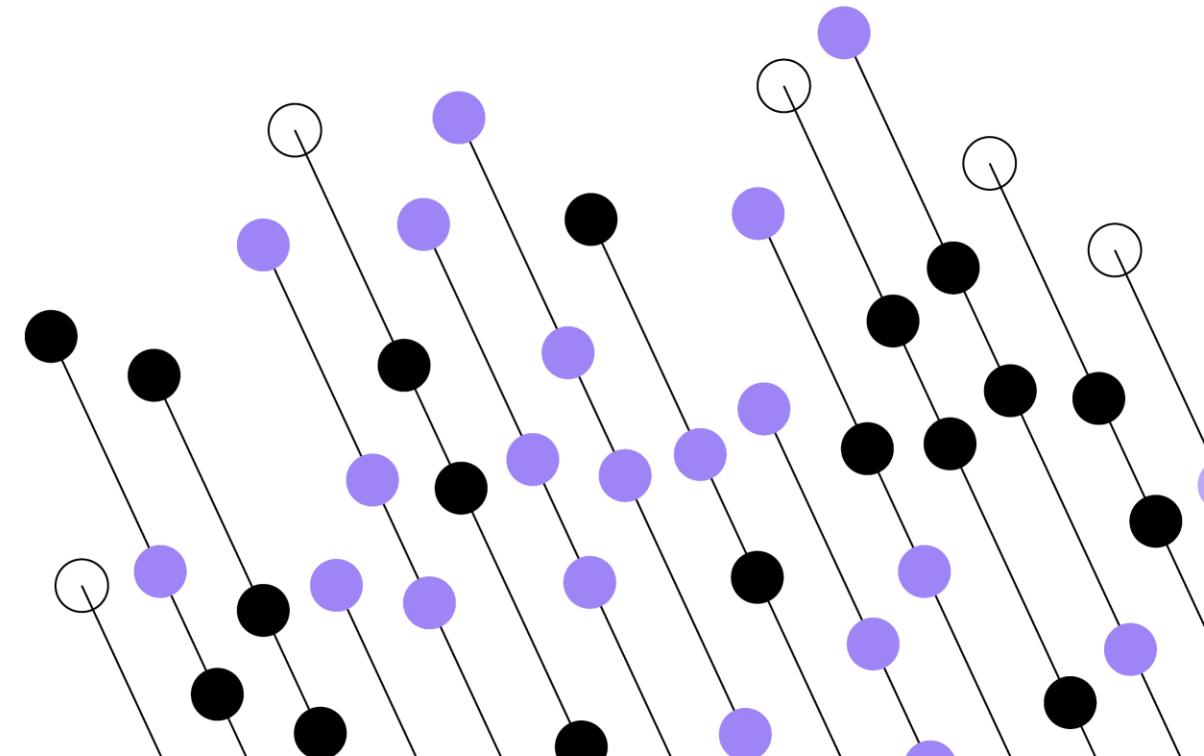
# Lab 3 – Creating Custom Tables

## (Page 34)

1. Create the Public Event Table
2. Create the Event Booking Table
3. Enable Advanced options

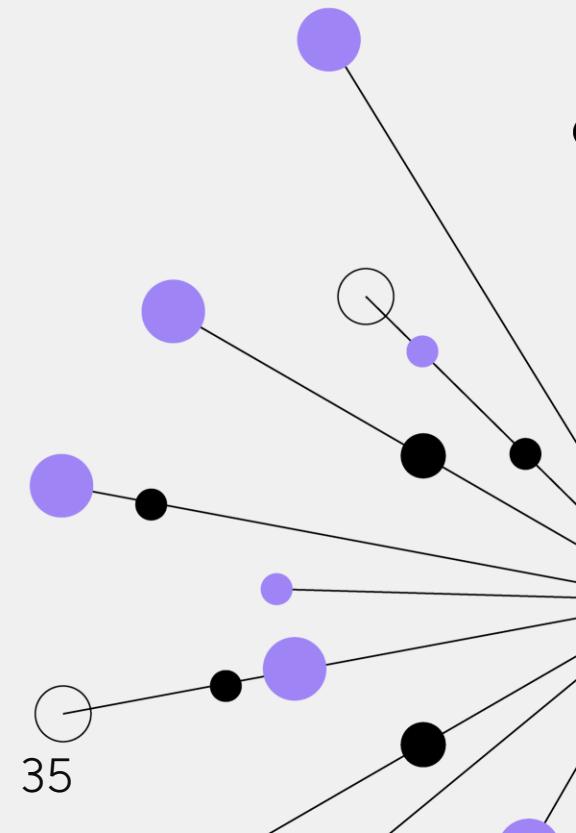


# Module 4: Creating & Customising Columns





- Columns overview
- Column data types
- Column behaviours
- "Required" setting
- Advanced settings
- Calculated columns
- Rollup columns
- *Customizing columns*



# Columns overview

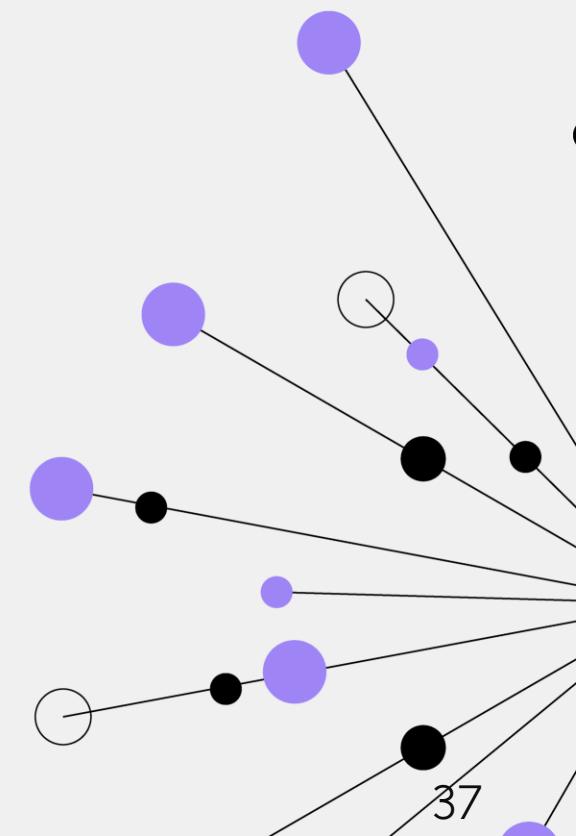
- A way to store a discrete piece of information within a table.
- Columns have types (Text, Number, Date and time)





- Single line of text
- Multiple lines of text
- Number
- Date and Time
- Lookup
- Choice
- Currency
- Autonumber
- File
- Formula

*Column data types*



# Single line of text

- Up to 4000 characters
- Formats
- Email – validates as an email address. Rendered as a mailto link in the column
- Phone number – Validated as a phone number. Rendered as a link that can be used for a Teams call
- Rich Text – Allows the use of markup tags to format the text
- Text – Plain text is displayed in a single line
- Text Area – Displays as a multiline scrollable text box
- Ticker symbol – Will display as link that will open to show a quote for the stock ticker symbol
- URL – Validated as a URL. Rendered as a link.



# Multiple lines of text

- Initially up to 2000 characters
- Can be increased to 1,048,576 characters
- Formats
- Text – Plain text
- Rich Text - Allows the use of markup tags to format the text



# Whole Number

- A number without a decimal point (integers)
- Formats
- None – Can have a maximum and minimum value
- Duration – Data is stored as a whole number of minutes. Data is displayed as duration options (1 minute, 15 minutes, 2 hours etc.)
- Time Zone – Displays as a drop-down box of time zones
- Language – Displayed as a drop-down box of (installed) languages



# Decimal and Float

- Decimal – 10 points of precision
- Float – 5 points of precision



# Date and Time

## Formats

- Date and Time
- Date only - Does not display the time portion

## Behaviour

- User Local – Displayed in the current user's local time
- Date Only – Time portion is always 12:00AM
- Time-Zone Independent – Displayed without time zone conversion



# Lookup

- Creates a link (1:N relationship) between the table and another table.
- Types
- Lookup – You specify which table to create a relationship with
- Customer – Uses the Account and Contact tables



# Choice

A list of options the user can pick from

## Types

- Choice
  - Definable list
  - Can allow single or multiple values to be selected
  - Can be a local or (synced with) a global choice
- Yes/no
  - Two options to pick from
  - Display names can be changed



# Currency

- A money value for any currencies configured for the environment
- Adds four (two for subsequent currency columns) when added.

Column Name	Purpose
<prefix>_<columnname>	The value entered by the user
<prefix>_<columnname>_base	The value after it is converted into the base currency of the organisation
Currency	Lookup column
Exchangerate	The exchange rate that is applied to the record when it is created or recalculated

# Autonumber

- Automatically generate alphanumeric strings when the record is created.

## Type

- String prefixed
- Date prefixed
- Custom – combination of:
  - Literal text
  - DateTime values
  - Number sequence
  - Random string



# File

- Add file(s) to the record
- Type
- File – Multiple files up to the maximum size
- Image – An image (you can only have one image column per table)



# Formula

- Output of an expression written in PowerFX
- Formula Suggestions – AI tool to help write the expression

Supported data types	Not currently supported (use Calculated fields)
Text	Currency
Decimal number	Whole number
Choice Yes/No (Boolean)	Choice (option sets)
Datetime	

# Status & Status Reason

- Capture Status of a row
- Status – State of the row (Active / Inactive)
- Status Reason – Reason linked to a specific status

Status	Status Reason
Active	In Progress On hold Waiting
Inactive	Cancelled Completed



# Behaviours

- Control how the value is calculated
- Different options available for different data types
- Behaviour types
- Simple – No calculation
- Calculated – Calculated value based on other columns in the table
- Rollup – Calculated value based on other tables



# Required

- Optional – Nothing happens
- Business recommended – Visual indication that the field is important. Can save the record if not populated
- Business required – Visual indication that the field is important. Can not save the record if not populated



# Advanced Settings

Setting	Explanation
IME Mode	Can be used to quickly enter Chinese, Japanese and Korean characters
Enable column security	Can set a higher level of security on the column (field)
Enable auditing	Also needs to be enabled on table and in the environment
Appears in dashboard's global filter	Column appears as a filter in the interactive experiences dashboard
Sortable	Column appears as an option for sorting in the interactive experiences dashboard



## Lab 4a (Page 54)

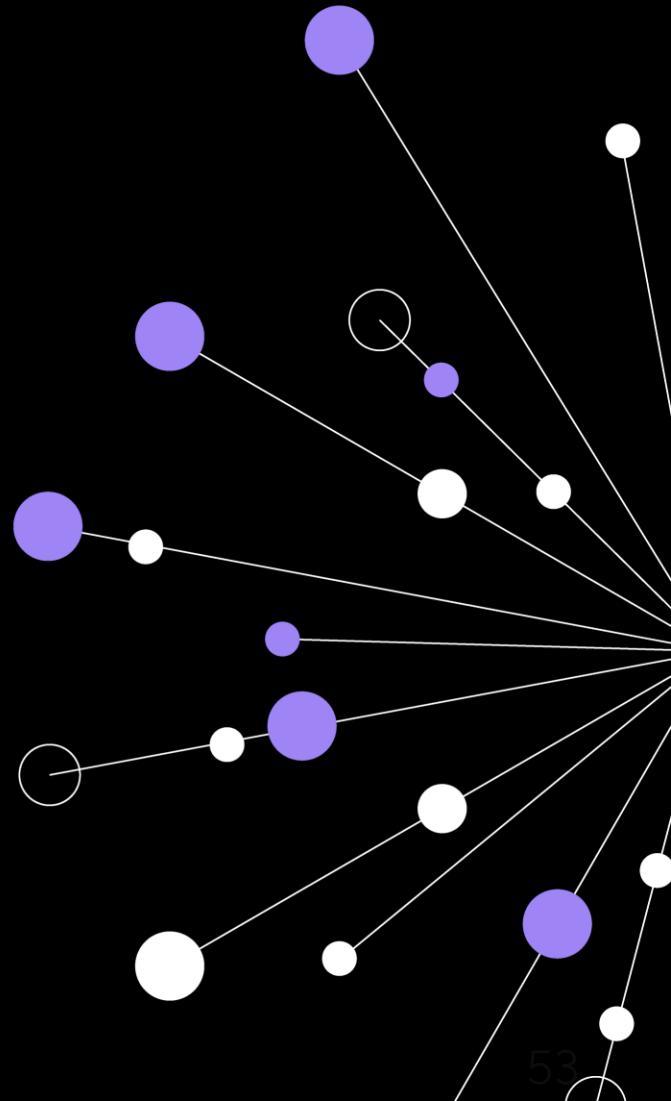
- Create Additional Columns for the Public Event and Event Booking Tables

1. Create the following columns in the Public Event Table:

- Location
- Duration
- Start Date

2. Create the following columns in the Event Booking Table

- Customer
- Public Event Booked
- Date Booked
- Discount Amount
- Event Price



# Formula Columns

- Calculated value
- Uses Power Fx

SE Events > Tables > Public Event > Columns

Display name ↑ ↴	Name ↴	Data type ↴	Managed ↴
Created By	CreatedBy	Lookup	No
Created By (Delegate)	CreatedOnBehalfBy	Lookup	No
Created On	CreatedOn	Date and time	No
Duration (Days)	se_DurationDays	Whole number	No
End Date	se_EndDate	Date and time <i>fx</i>	No
Event Name <small>Primary name column</small>	se_EventName	Single line of text	No
Import Sequence Number	ImportSequenceNumber	Whole number	No
Location	se_Location	Choice	No
Modified By	ModifiedBy	Lookup	No

Formula \* ⓘ

```
DateAdd('Start Date', 'Duration (Days)')-1
```

# Formula Columns

- Supported Data Types
  - Text
  - Decimal Number
  - Choice Yes/No (Boolean)
  - Datetime
- 
- Non-supported Data Types (use Calculated Fields)
  - Currency
  - Whole Number
  - Choice



# Calculated Columns

- Calculate value based on other columns in the table
- Behavior - Calculated

SAVE SAVE AND CLOSE

CALCULATED FIELD

## Set Total Paid

- ▲ IF...THEN
  - ▲ CONDITION (OPTIONAL)
    - If **Event Price** contains data
    - and **Discount Amount** contains data
    - + Add condition
  - ▲ ACTION
    - Set **Total Paid** to **Event Price - (Event Price \* Discount Amount)**
  - + Add Else

# Rollup Columns

- Calculate value based on an aggregation of values in another table
- E.g. Total spend based on individual purchases
- Not calculated in real-time (scheduled process)

SAVE  SAVE AND CLOSE 

ROLLUP FIELD

### Total Event Spend

▪ SOURCE ENTITY

Source: **Account**  
Use Hierarchy: **NO**

▪ RELATED ENTITY

Related: **Event Bookings (Customer)**

▪ AGGREGATION

+ Add ag

- Price Lists (Account)
- Estimate Lines (Customer)
- Estimate Lines (Vendor)
- Event Bookings (Customer)**
- Event incidents (Regarding)
- Facts (Customer)
- Facts (Vendor)

▪ RELATED ENTITY

Related: **Event Bookings (Customer)**

▪ FILTERS (OPTIONAL)

+ Add condition

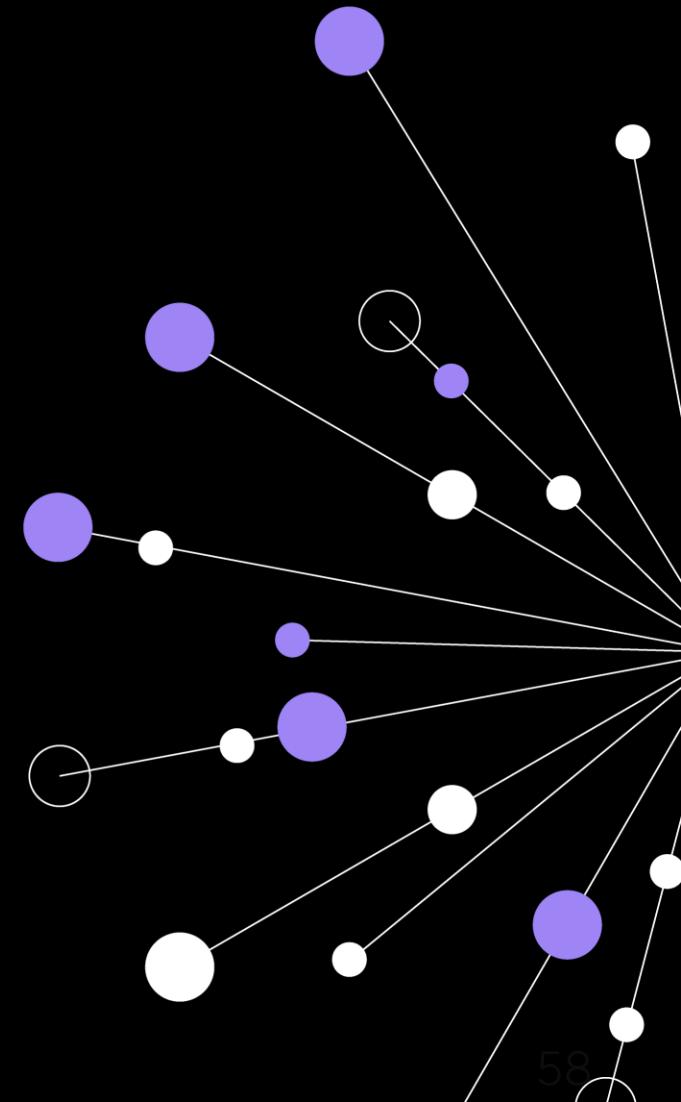
▪ AGGREGATION

Aggregate Function	Aggregated Related Entity Field
SUM	(Event Booking) Total Paid

## Lab 4b (Page 61)

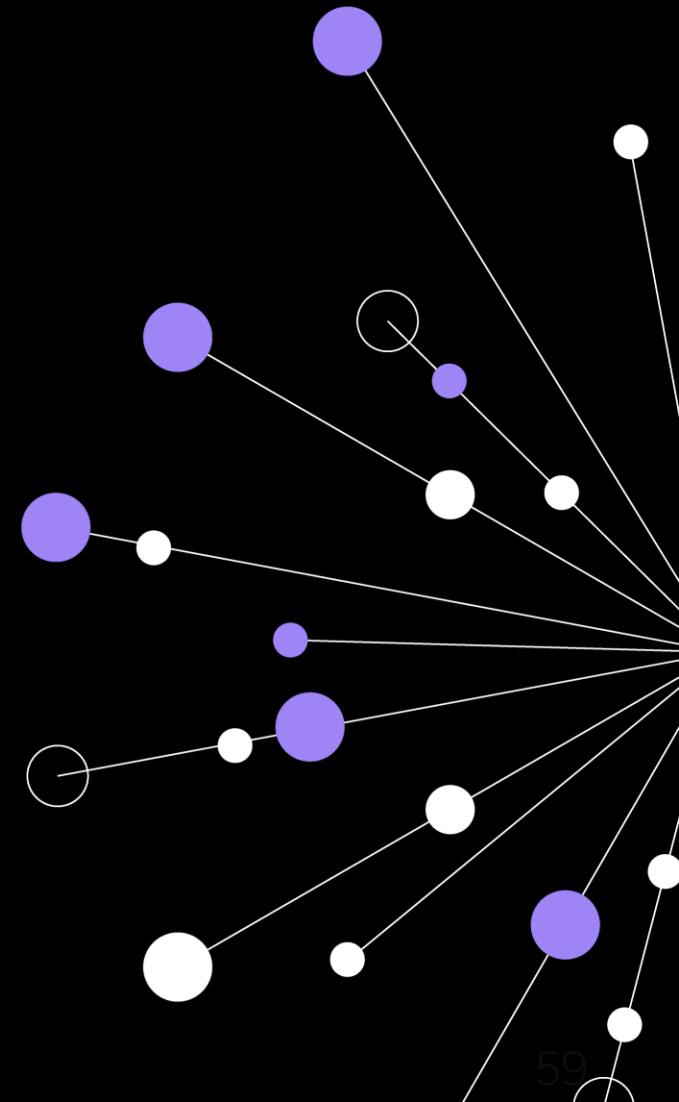
- Creating a Formula Column

1. Create an end date calculated column based on the start date and duration columns
2. Create a total paid calculated column based on the price and discount amount columns

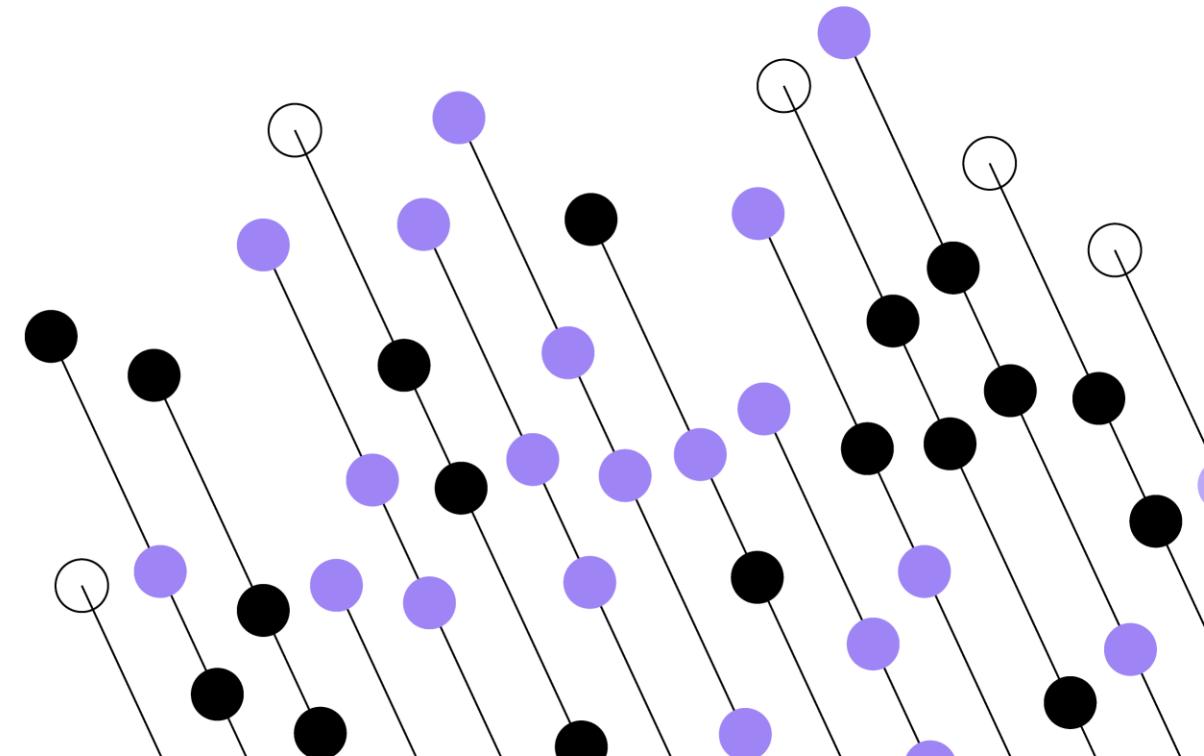


## Lab 4c (Page 67)

- Creating a Rollup Column (if time permits)
1. Create a Total Event Spend column in the Accounts Table



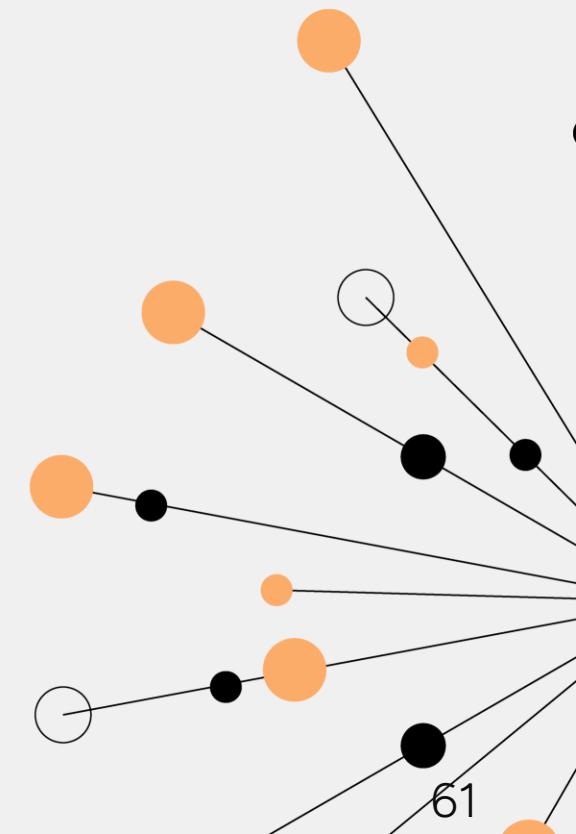
# Module 5: Model-Driven Apps





- Apps and Site Map
- Understanding the Site Map
- Areas and Navigation options
- Groups
- Sub Areas (Pages)
- Controlling Forms and Views
- App settings
- Sharing an app

*Model-driven app*



# Apps and site map

- A model-drive app will have two objects: an app and a site map.

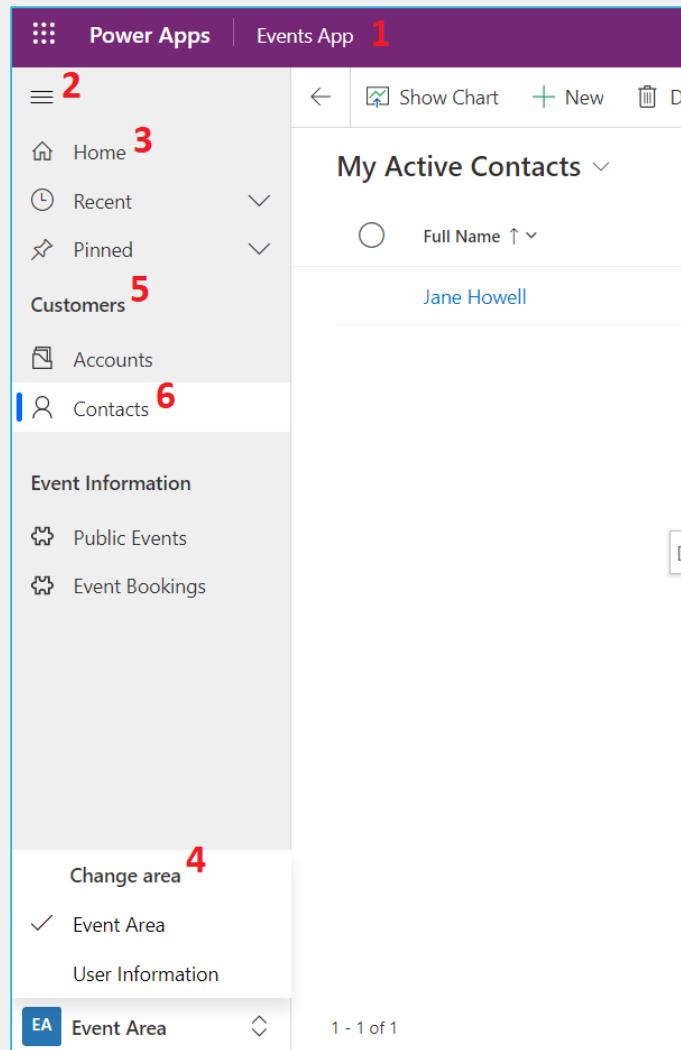
Events App	se_EventsApp	Site Map
Events App	se_EventsApp	Model-Driven App

The screenshot shows the Microsoft Power Apps portal. On the left, a navigation sidebar is highlighted with a green border. It contains links: Home, Recent, Pinned, Customers, Accounts, Contacts, Event Info, Public Events (which is selected and highlighted with a grey background), Event Bookings, Event Managers, and Site map. The main content area is titled 'Events App' and shows a list of 'Active Public Events'. The list includes:

Event name ↑	Location	Start Date	Duration (Days)	Event Manager
Conference Event	London	12/10/2023	3	Andy Scott
Couch Surfing	Birmingham	11/19/2023	5	Bill Murdoch
Couch Surfing (Revisited)		11/26/2023		
Grass cutting - advanced	Glasgow	11/13/2023	3	Bill Murdoch
Grass cutting - intermediate				Andy Scott
Grass cutting introduction				
Haggis Eating	Glasgow	11/10/2023	2	Bill Murdoch
Session 1				
Session 2				

A red box highlights the entire content area, and the word 'App' is written in red at the bottom right of the list.

# Understanding the Site Map

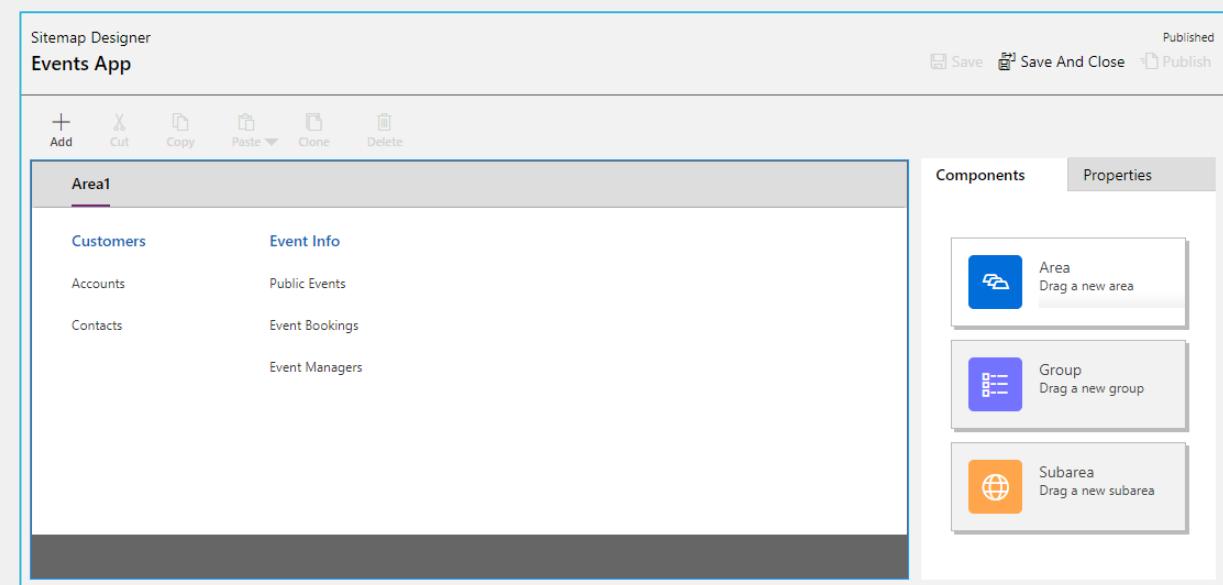
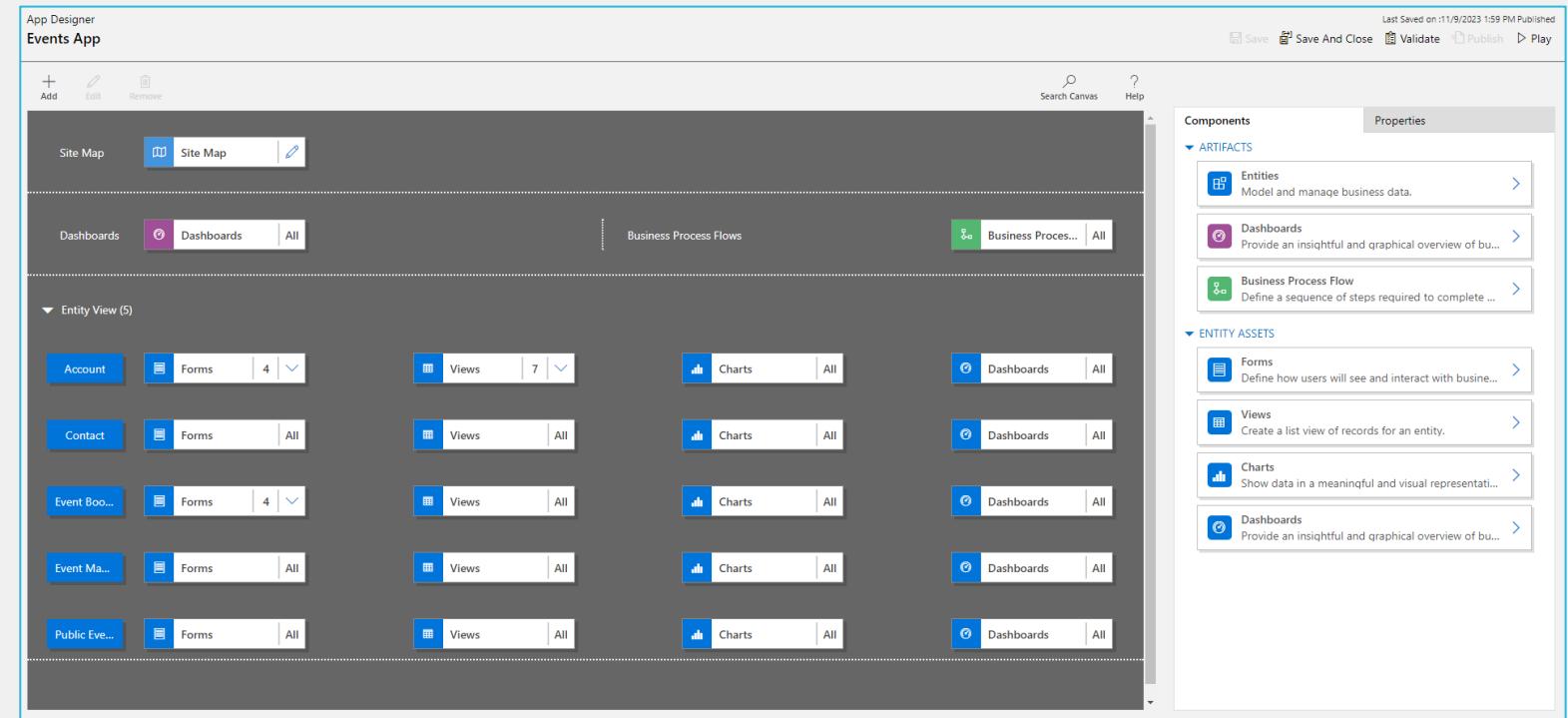


Site maps have Areas, Groups and Subareas (pages)

Location	Purpose
1	Click to change the app
2	Collapse / expand the site map
3	Home, Recent and Pinned views
4	Change the area
5	Group
6	Subarea

# Classic editor

- The app and the site map had their own interfaces to edit them



# Modern Editor

The screenshot shows the Microsoft Power Apps Modern Editor interface. The top navigation bar includes 'Power Apps | Events App', 'Environment Grady - QAMPMOD', and various settings icons. The left sidebar has sections for 'Pages' (with a '+ New' button), 'Data', and 'Automation'. The 'Navigation' section lists 'Customers' (Accounts view, Accounts form, Contacts view, Contacts form), 'Event Info' (Public Events view, Public Events form, Event Bookings view, Event Bookings form, Event Managers view, Event Managers form), and 'All other pages'. The main content area displays a list titled 'My Active Accounts' with a single item: 'Contoso' (Main Phone: 555-1934). The top ribbon has buttons for 'Show Chart', 'New', 'Delete', 'Refresh', 'Visualize this view', 'Email a Link', 'Flow', 'Run Report', 'Excel Templates', 'Share', 'Edit columns', 'Edit filters', and 'Quick find'. The right sidebar shows the 'Events App' configuration with fields for 'Solution SEEEvents', 'App name Events App', 'Description Briefly describe what this app does', 'Icon Default icon', and an 'App tile preview' showing a dark blue tile with a white icon and the text 'Events App'. A 'Advanced settings' section is also visible.

# Areas and Navigation options

Power Apps | Events App

Back + Add page Settings ...

Pages + New

Search

Navigation

Customers

- Accounts view
- Accounts form
- Contacts view
- Contacts form

Event Info

- Public Events view
- Public Events form
- Event Bookings view
- Event Bookings form
- Event Managers view
- Event Managers form

All other pages

Power Apps Events App

My Active Accounts

Account Name: T...

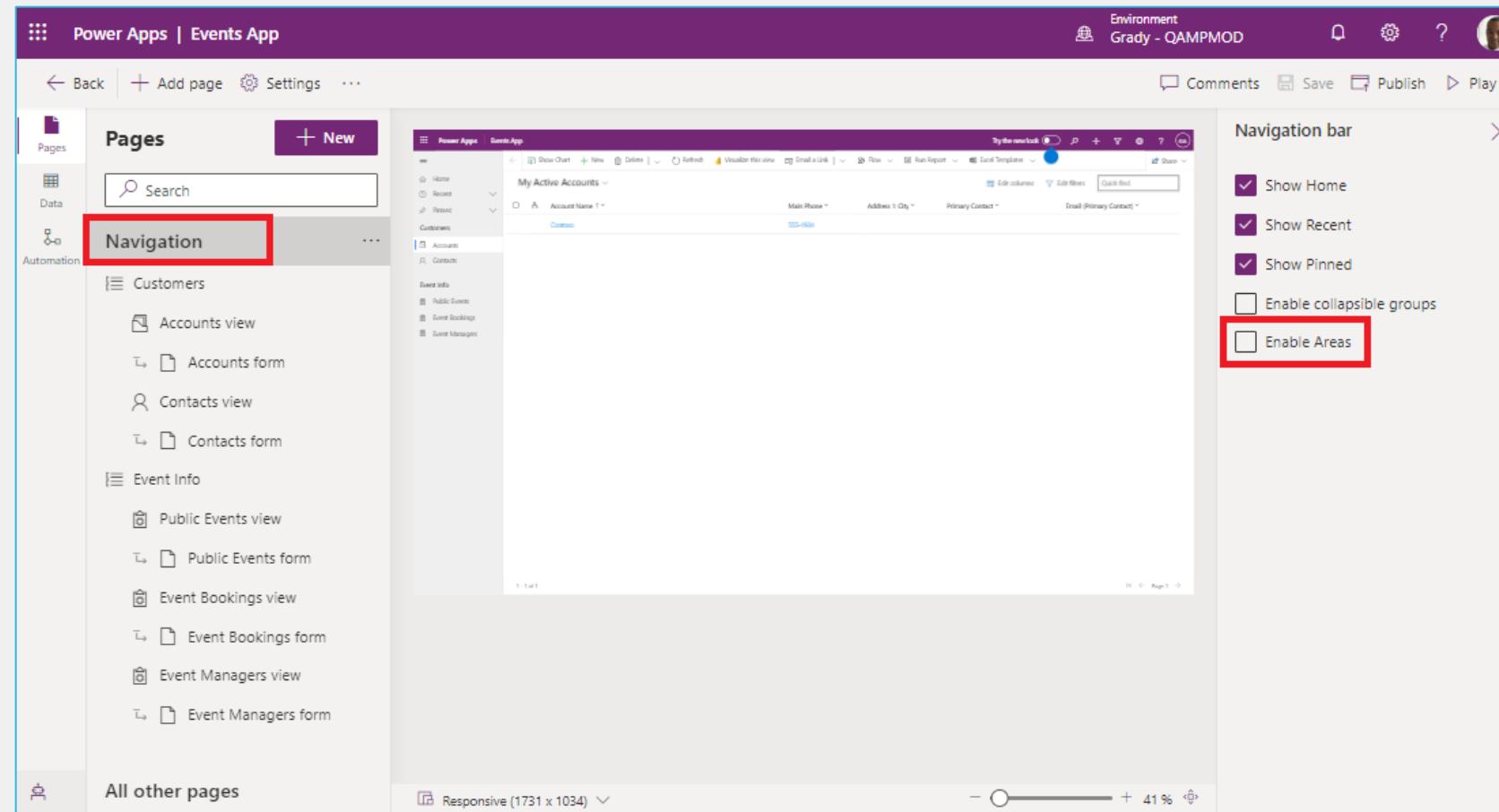
Main Phone: Address: City: Primary Contact: Email (Primary Contact):

Comments Save Publish Play

Environment Grady - QAMPMOD

Navigation bar

- Show Home
- Show Recent
- Show Pinned
- Enable collapsible groups
- Enable Areas



# Groups

Power Apps | Events App

Back | Add page | Settings | ...

Pages **+ New**

Search

**Navigation**

- New group
- Cust** (Custom)
  - Refresh preview
  - Settings
- Contacts view
- Contacts form
- Event Info**
  - Public Events view
  - Public Events form
  - Event Bookings view
  - Event Bookings form
  - Event Managers view
  - Event Managers form
- All other pages

Power Apps Guest App

My Active Accounts

Account Name 1

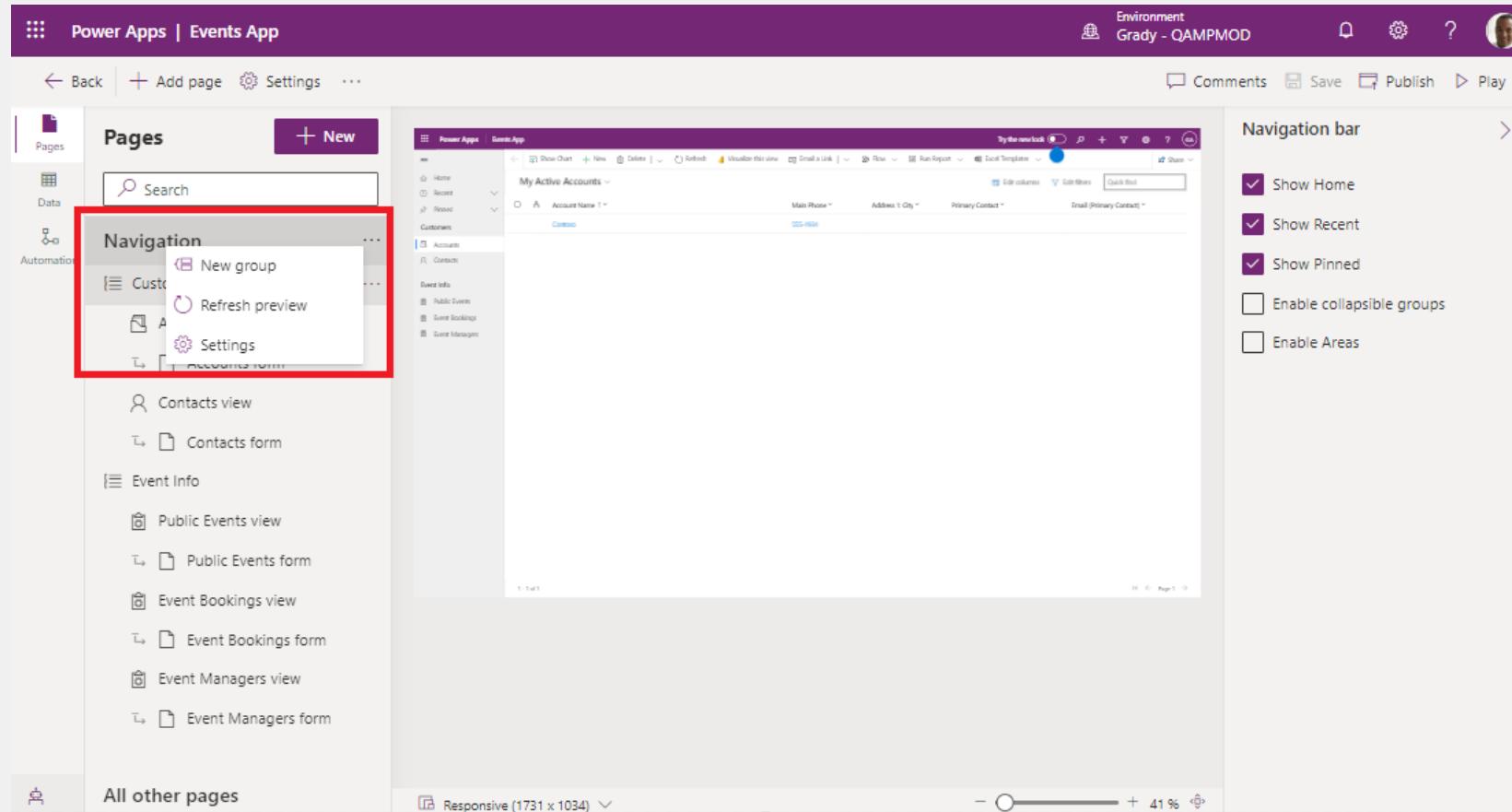
Main Phone Address City Primary Contact Email (Primary Contact)

Comments Save Publish Play

Environment Grady - QAMPMOD

Navigation bar

- Show Home
- Show Recent
- Show Pinned
- Enable collapsible groups
- Enable Areas



# Subarea

Power Apps | Events App

Back | Add page | Settings | ...

Pages **+ New**

Search

Navigation

- Customers
  - Accounts view
  - Accounts form
  - Contacts view
  - Contacts form
- Event Info
  - Public Events view
  - Public Events
  - Event Bookings view
  - Event Bookings
  - Event Managers view
  - Event Managers
- All other pages

Responsive (1731 x 1034)

Power App Events App

By the new look

Comments Save Publish Play

Environment Grady - QAMPMOD

Pages

My Active Accounts

Account Name: Main Phone: Address: City: Primary Contact: Email (Primary Contact):

Event Info

Display options

Title: Event Info

ID: group\_6533e1c8

Advanced settings

New page

Choose content for the page

Dataverse table

Dashboard

URL

Web resource

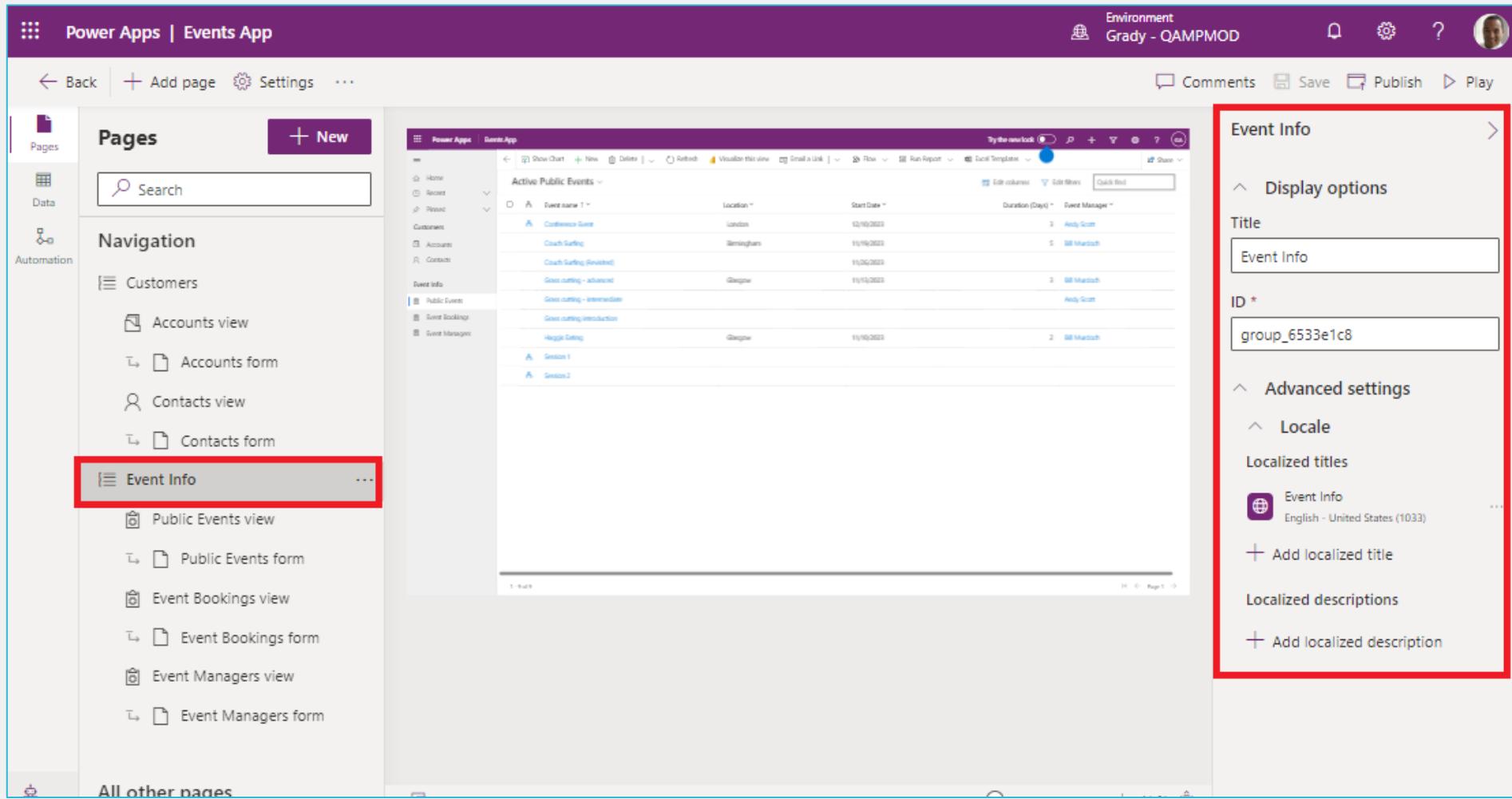
Custom page

This option gives you two pages for each table. You get a view, which displays the rows and columns of the table. You also get a form, which lets people interact with the table by editing existing rows, or by creating new ones.

Next Cancel

# Area / Groups settings

- Select area or group then use properties pane

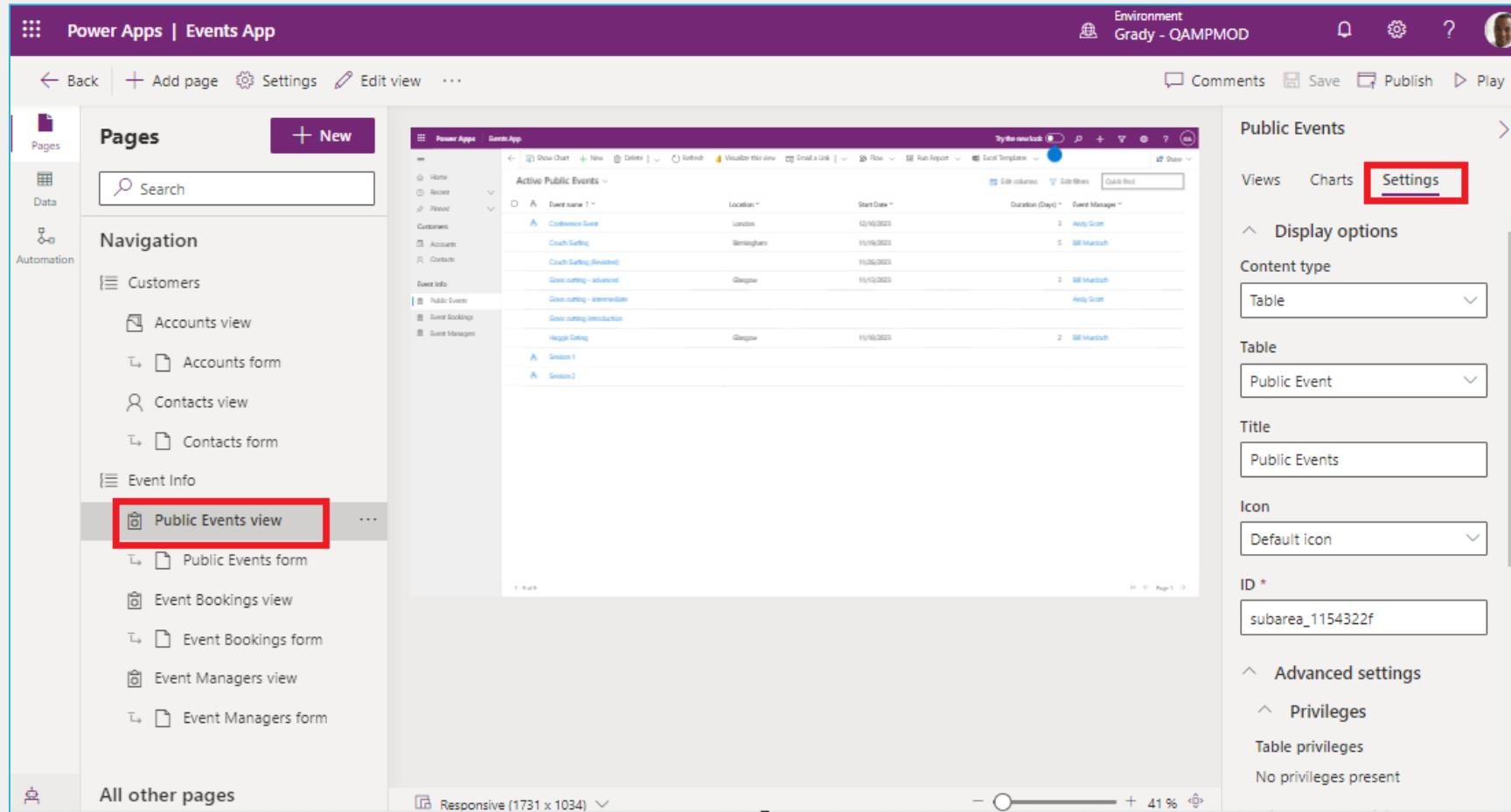


The screenshot shows the Power Apps Events App interface. On the left, the Pages list is displayed with a red box highlighting the 'Event Info' item. The main content area shows a list of 'Active Public Events' with columns for Event name, Location, Start Date, Duration (Days), and Event Manager. The 'Event Info' item in the list has a blue selection bar. On the right, the properties pane is open for the 'Event Info' item, also highlighted with a red box. The properties pane shows the following settings:

- Display options**
  - Title**: Event Info
  - ID \***: group\_6533e1c8
- Advanced settings**
  - Locale**
    - Localized titles**
      - Event Info - English - United States (1033)
    - Add localized title**
  - Localized descriptions**
    - Add localized description**

# Sub-area (Page) properties

- Select page view node
- Select the Settings tab in the properties pane



The screenshot shows the Power Apps Properties pane for an 'Events App'. The left sidebar lists 'Pages', 'Data', and 'Automation'. Under 'Pages', the 'Public Events view' node is selected and highlighted with a red box. The main content area displays a list of 'Active Public Events' with columns for 'Event name', 'Location', 'Start Date', 'Duration (Day)', and 'Event Manager'. The 'Settings' tab is selected in the top right of the properties pane, also highlighted with a red box. The right side of the properties pane shows settings for 'Public Events', including 'Content type' (set to 'Table'), 'Title' (set to 'Public Events'), 'Icon' (set to 'Default icon'), and 'ID' (set to 'subarea\_1154322f').

Event name	Location	Start Date	Duration (Day)	Event Manager
Conference Suite	Birmingham	12/09/2023	5	Andy Scott
Couch Surfing	Birmingham	13/09/2023	5	Bill Murdoch
Couch Surfing (Revised)	Glasgow	13/09/2023	3	Bill Murdoch
Glass cutting - advanced	Glasgow	13/09/2023	3	Andy Scott
Glass cutting - intermediate				Andy Scott
Glass cutting - introduction				Andy Scott
Hedge Cutting	Glasgow	13/09/2023	2	Bill Murdoch
Session 1				
Session 2				

# Controlling Forms and Views

The image displays two screenshots of the Power Apps Events App interface, illustrating the management of forms and views.

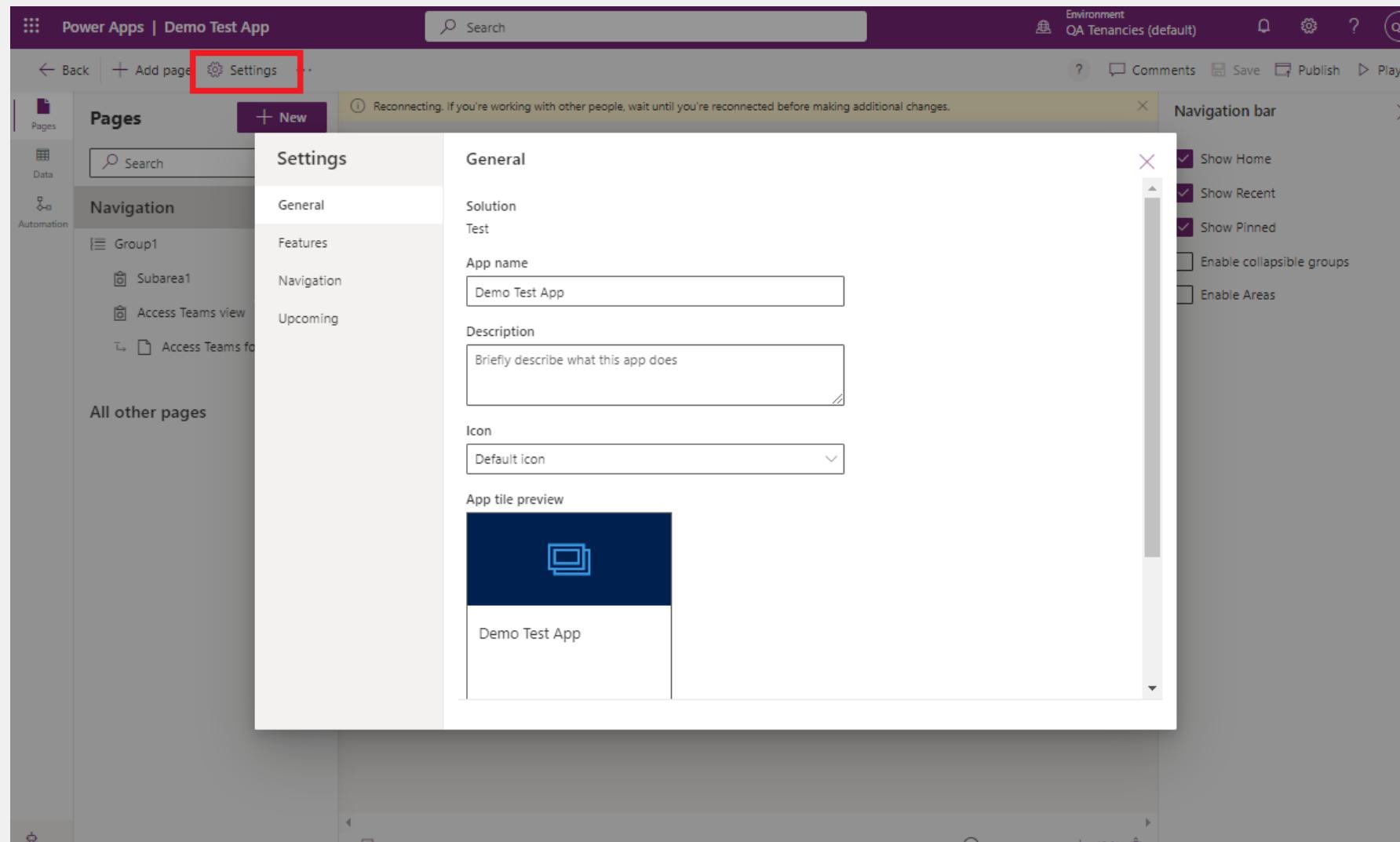
**Left Screenshot (Pages View):**

- Header:** Power Apps | Events App, Environment Grady - QAMPMOD.
- Left Sidebar:** Pages, Data, Automation. Navigation sections: Customers (Accounts view, Contacts view), Event Info (Public Events view, Event Bookings view, Event Managers view), and All other pages.
- Central Content:** Shows a list of "Active Public Events" with columns: Event name, Location, Start Date, Duration (Day), and Event Manager. One event is selected: "Conference Guest" (Location: London, Start Date: 12/05/2023, Duration: 3 days, Event Manager: Andy Scott).
- Right Sidebar:** Public Events, Views, Charts, Settings. Options: In this app, New view, and Action: Public Events.

**Right Screenshot (Forms View):**

- Header:** Power Apps | Events App, Environment Grady - QAMPMOD.
- Left Sidebar:** Pages, Data, Automation. Navigation sections: Customers (Accounts view, Contacts view), Event Info (Public Events view, Event Bookings view, Event Managers view), and All other pages.
- Central Content:** Shows the "New Public Event" form with sections: General (Event name, Event Manager, Location, Duration (Day), Start Date, Parent Event) and Timeline (Search timeline). A "Get started" button is present.
- Right Sidebar:** Public Events forms, In this app, New form. Options: Information (Main Form, H Form, Quick View Form), and other forms like Public Event Booked Information, Public Event quick view form, and Information Card Form. A "Show less" button is available.
- Bottom:** Includes all forms in the app toggle switch (On).

# App settings



The screenshot shows the 'Settings' page for the 'Demo Test App' in the Power Apps portal. The 'General' tab is selected. The 'App name' field contains 'Demo Test App'. The 'Description' field contains 'Briefly describe what this app does'. The 'Icon' dropdown is set to 'Default icon'. The 'App tile preview' shows a dark blue tile with a white icon and the text 'Demo Test App'. On the right, a 'Navigation bar' configuration panel is open, showing checked options for 'Show Home', 'Show Recent', 'Show Pinned', and 'Enable Areas'. The left sidebar shows 'Pages', 'Data', and 'Automation' sections, with 'Navigation' expanded to show 'Group1', 'Subarea1', 'Access Teams view', and 'Access Teams fo'. The bottom left corner has a 'QA' logo.

# Sharing an app

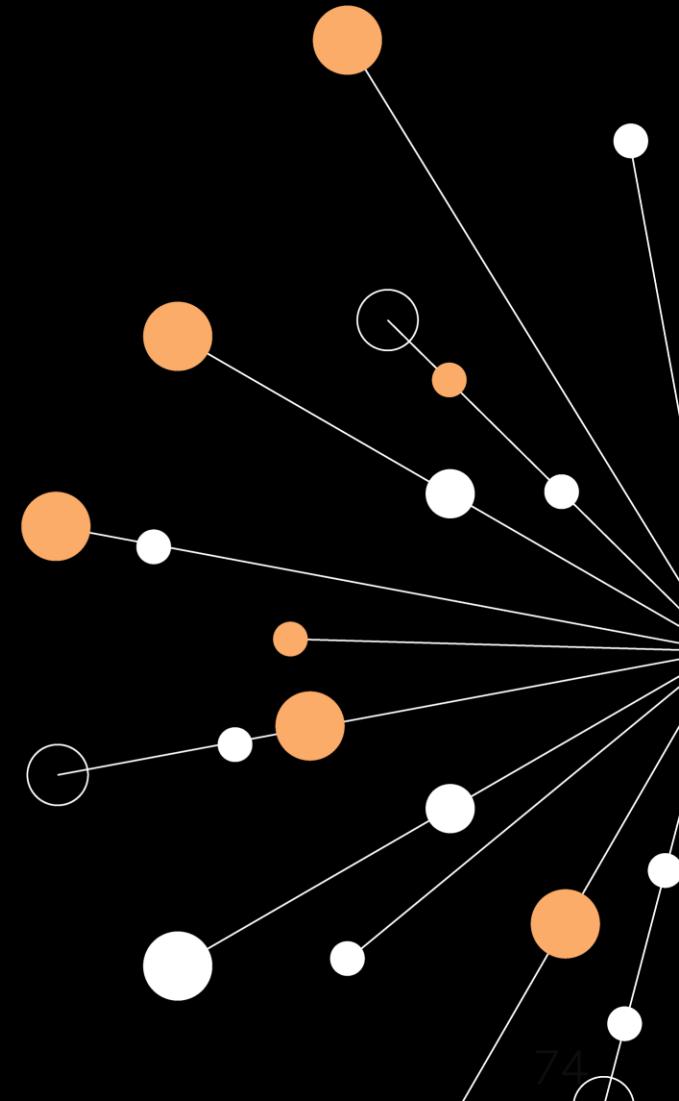
The screenshot shows the Power Apps environment with the following details:

- Left Sidebar:** Objects (All 13), including Apps (1), Cards (0), Chatbots (0), Choices (1), Cloud flows (0), Processes (1), Security roles (2), Site maps (1), and Tables (7).
- Header:** Search, New, Add existing, Edit, Play, Share, Monitor, Turn off, Add to Teams, and a three-dot menu.
- Current Environment:** Grady - QAMPMOD.
- Table View:** Shows a list of objects (Account, BPF Public Events, Contact, Event Booking, Event Manager, Event Task, Events App, Location, Public Event, SE\_Event\_Apps) with columns for Display name, Type, Managed, Last Modified, Owner, and Status.
- Row Selection:** The "Events App" row is selected, highlighted with a blue border.
- Action Bar:** Edit, Play, Share, Monitor, Turn off, Add to Teams, and a three-dot menu.
- Share Dialog:** "Share Events App" dialog is open, titled "Share Events App". It says "Add people and assign security roles so that they can use your app." It shows the "Events App" under "App".
  - People:** A search bar "Enter a name, email address, or group" and a "New" section with "Henrietta Mueller" (selected with a purple checkmark).
  - Dataverse:** A section with "Data" and "Assign a security role" dropdown.
  - Custom and Standard Roles:** A list of checkboxes for "Custom roles" (SE Event Management Leaders, SE Event Agents) and "Standard roles" (System Administrator, System Customizer).
- Buttons:** "Share" and "Cancel" buttons at the bottom of the dialog.

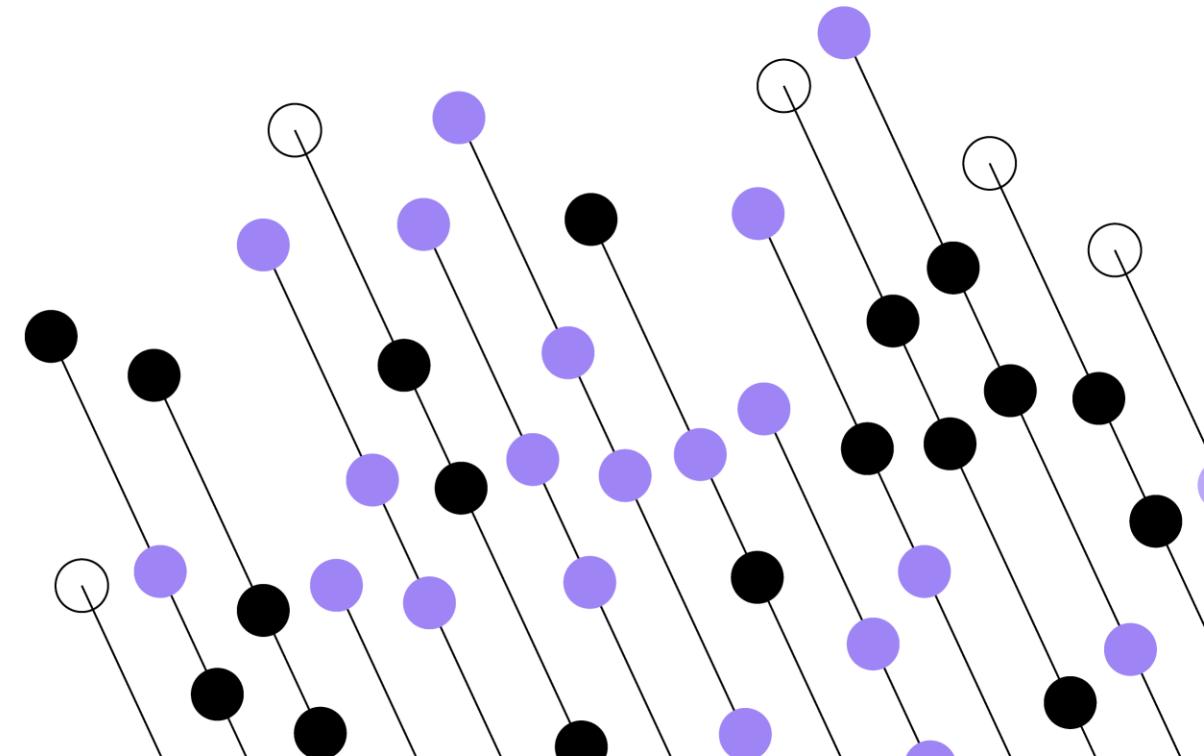
# Lab 5 (Page 81)

- Create a Model-Driven App

1. Create a new Model-Driven App named Events App
  - Create a new grouping named Customers
  - Create a new subareas for Accounts and Contacts
  - Create another grouping named Event Information
  - Create new subareas for Public Events and Event Bookings
2. Save, Publish and Test the new App



# Module 6: Establishing Relationships





Identify the different supported relationship types

- 1 to Many
- Many to Many

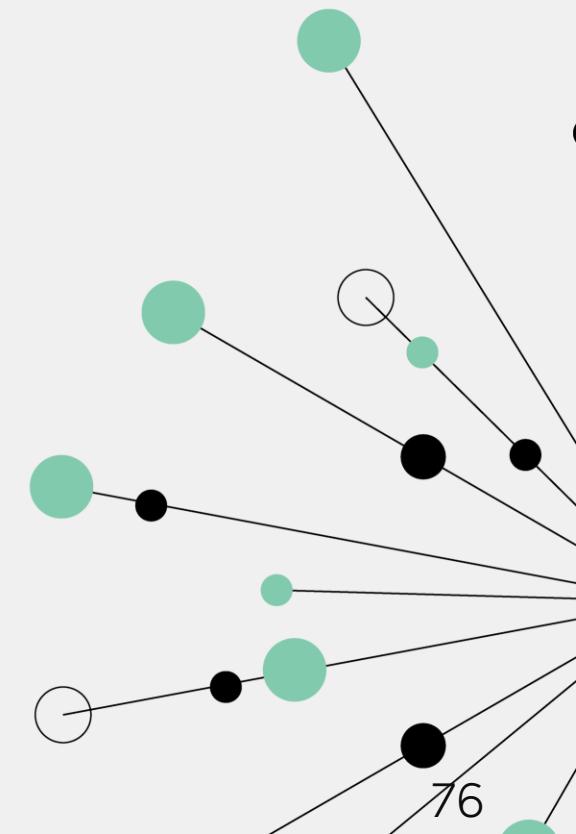
1 to Many Relationship behaviour

- Referential
- Referential restrict delete
- Parental
- Custom

Many to Many Relationship

- Native many to many
- Manual many to many

*Relationships*



# Relationship Introduction

- Allows records in one table to be linked to records in a different table.
- E.g. A person (Contact) works for a company (Account)
- Allows us to look-up and report on related information
- There are many default relationships that get created in Dataverse



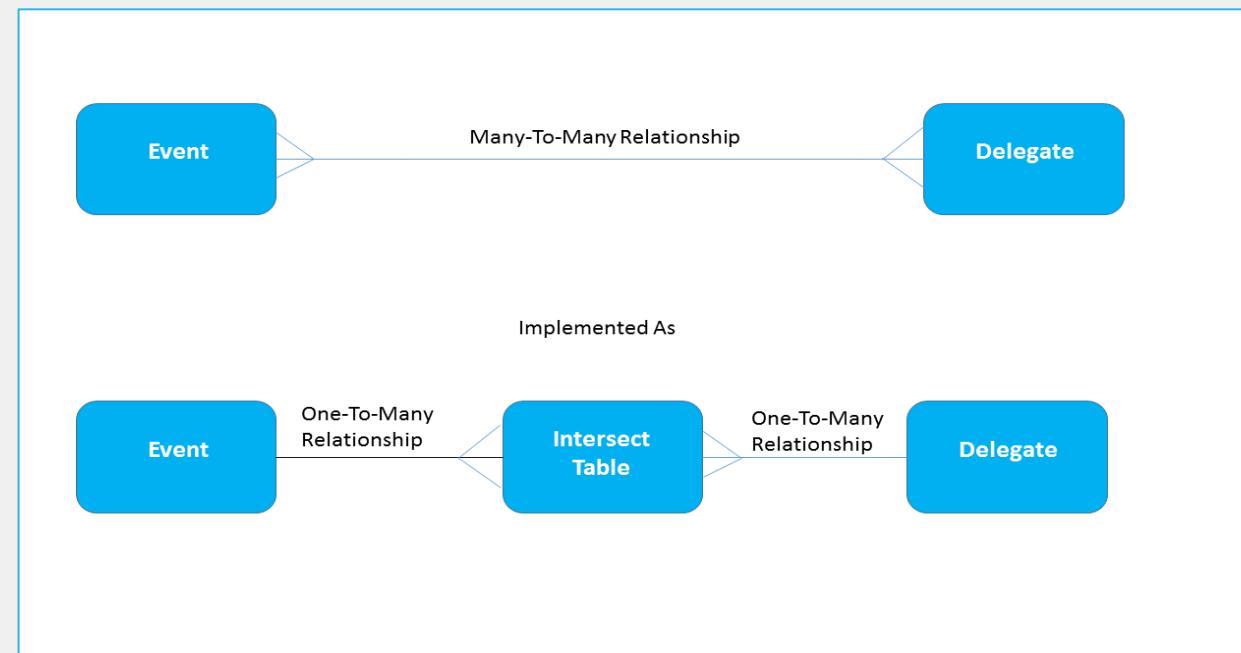
# Relationship Types: One-To-Many

- Aka 1:N and parent-child
- The primary record (parent) can be linked to multiple records (child records). E.g. One account can have multiple contacts.
- On the related (child) table, it will be represented as a lookup column
- If you are in the child table, create it as a Many-to-one relationship



# Relationship Types: Many-To-Many

- The primary record can be linked to multiple related records
- The related records can also be linked to multiple primary records
  - Native - Creates a link table
  - Manual – Manually create a third (intersect) table and create 1:N relationships with it from both the other tables



## Relationship behaviour (1/2)

- What happens to a record when something is changed to a linked record
- Activities covered
- Delete – A record is deleted
- Assign – A new owner is set on the record
- Share – A record is shared with new users
- Unshare – Sharing is removed from some users
- Reparent – Setting or changing the parent of a record in a relationship (E.g. moving a contact from one account to another)



# Relationship behaviour (2/2)

## Parental

- The action performed on the primary record is also performed on the related records

## Referential

- The default
- Actions are not performed on related records
- Delete behaviour
  - Remove Link
  - Restrict (prevent the delete from occurring)

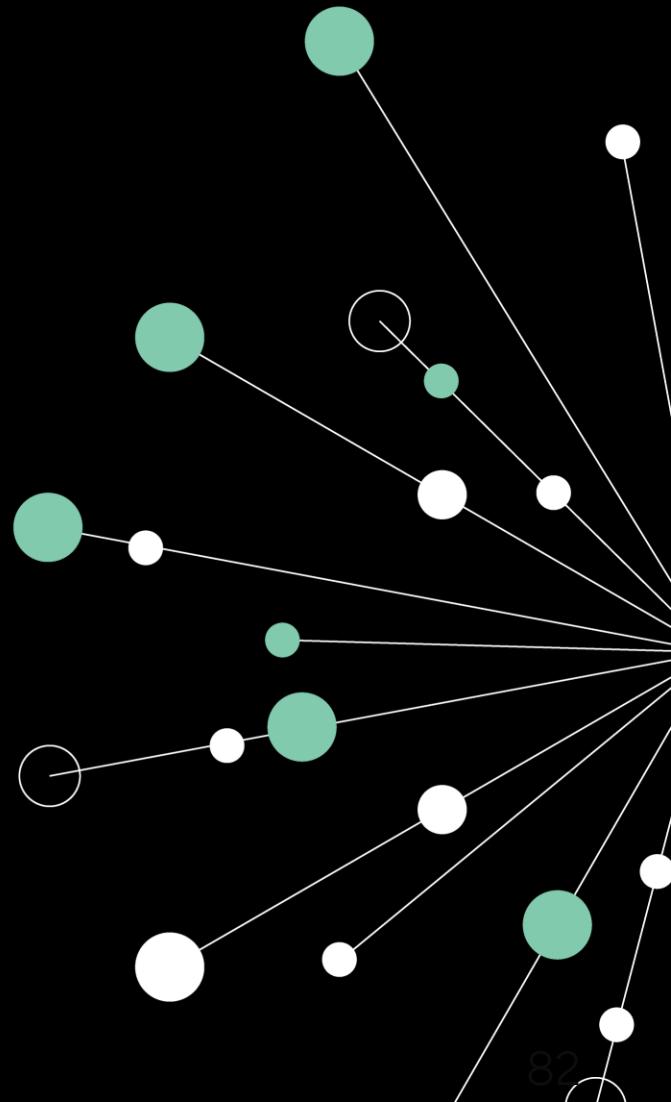
## Custom

- *Delete*
  - Cascade All
  - Remove Link
  - Restrict
- *Assign, Share, Unshare & Reparent*
  - Cascade All
  - Cascade Active
  - Cascade User-Owned
  - Cascade None

# Lab 6a (Page 95)

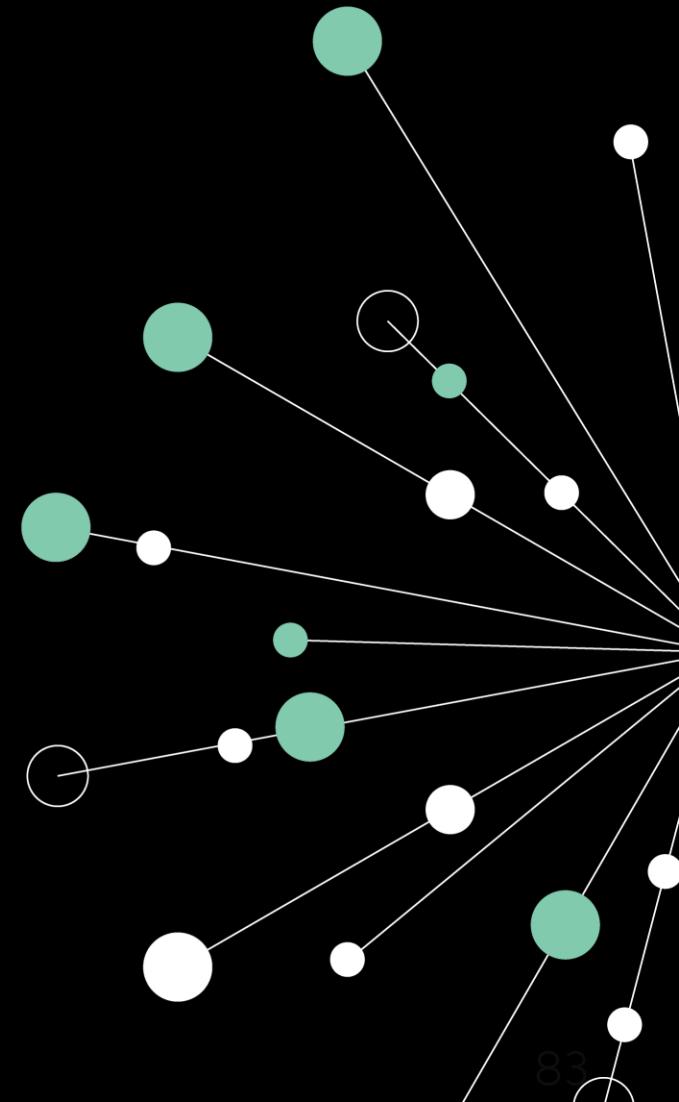
- Create and Modify a 1:N Relationship

1. Create a new table named Event Manager
  - Add columns to the table
2. Create a 1:N relationship between Event Manager and Public Events
3. Change the behaviour of the relationships to restrict deletions

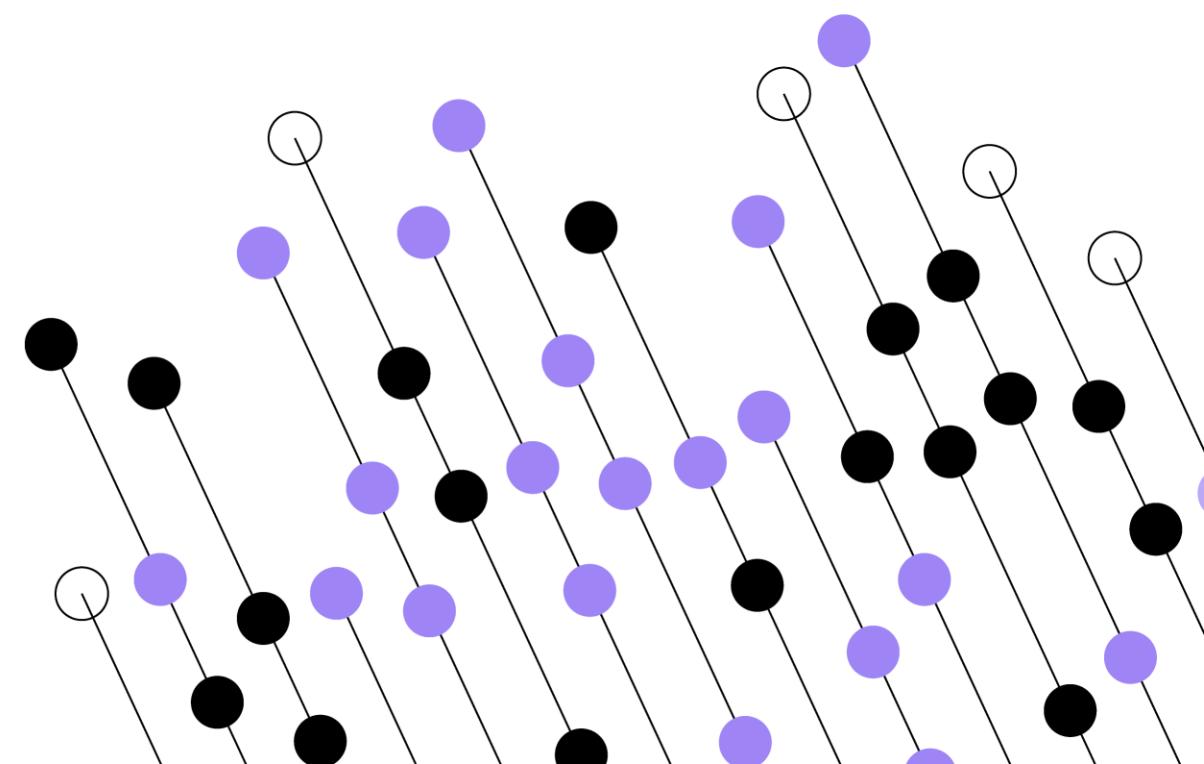


## Lab 6b (Page 100)

- Create a N:N Relationship
1. Create a N:N relationship between Event Booking and Contact
  2. Test the new relationship



# Module 7: Form Customisation





Forms overview

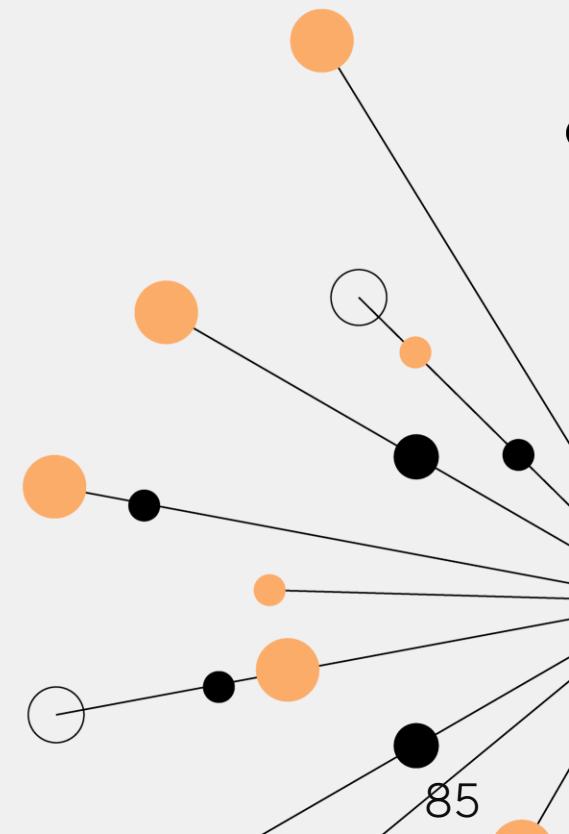
Form types

Form layout

Securing forms

*Forms*

**QA**



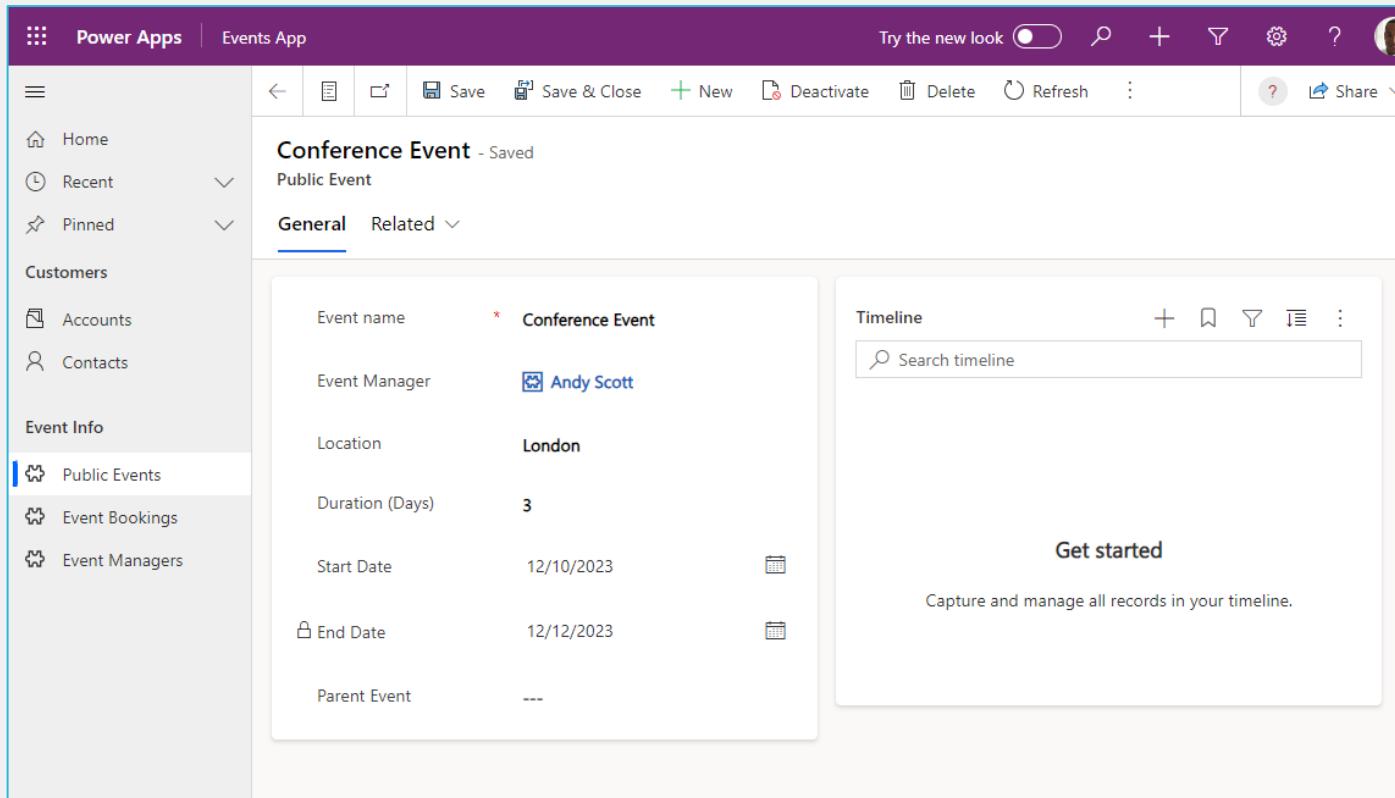
# Forms overview

- Used to capture and display data
- Can be customised
- Form types
  - Main Form
  - Quick View Form
  - Quick Create Form (must be enabled on table)
  - Card Form
- May have multiple forms of each type, can control through app settings or security roles



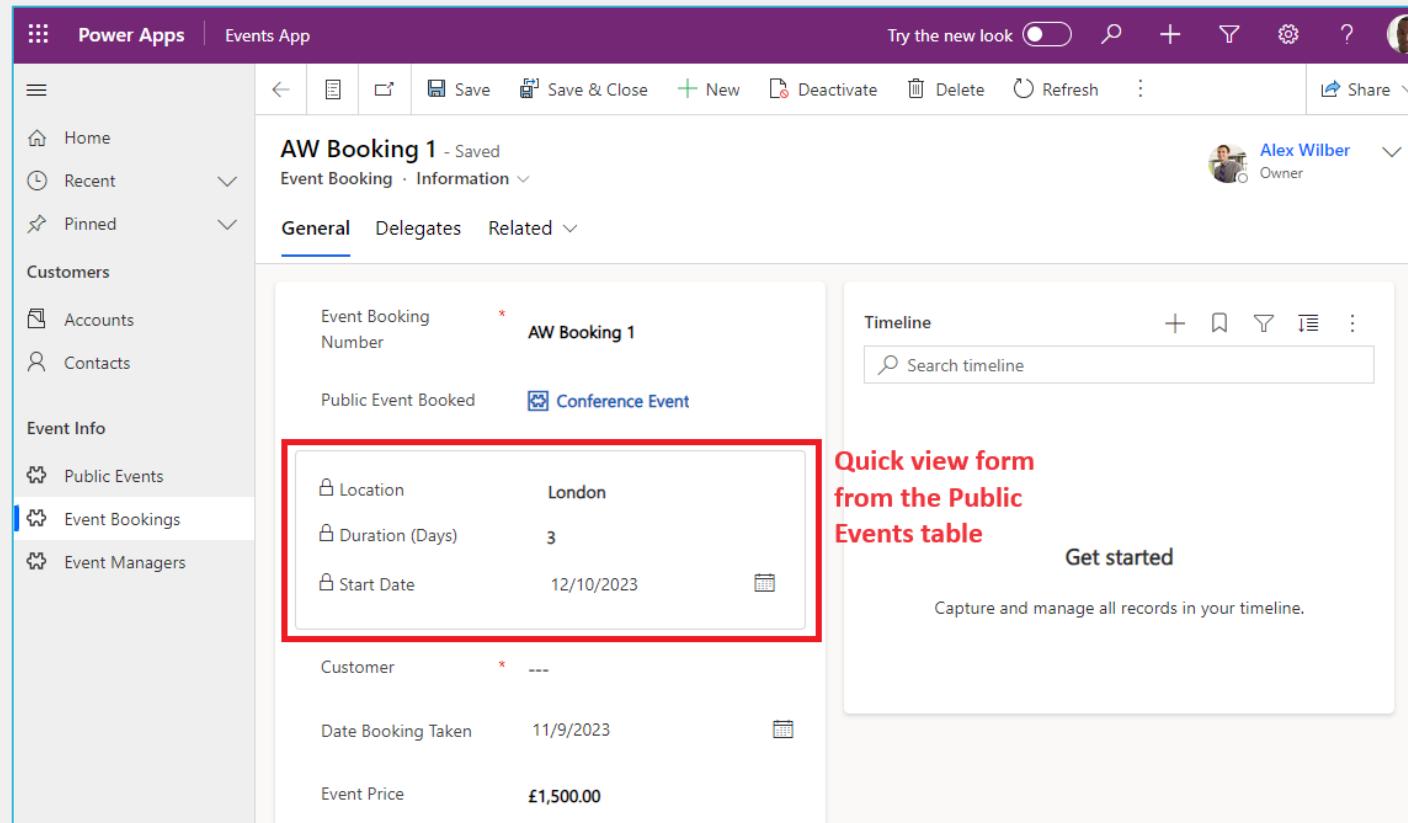
# Main form

- Default user experience when interacting with a record in a model-drive app



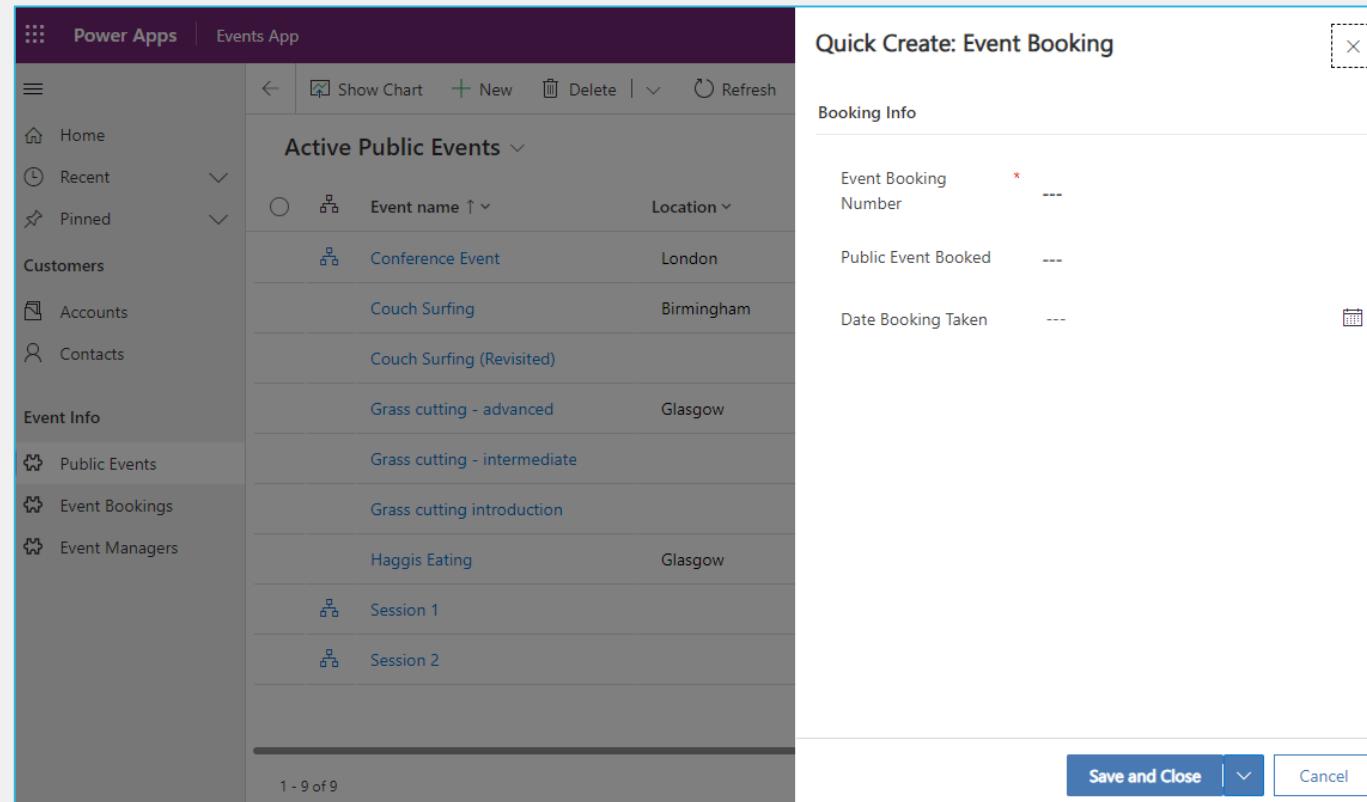
# Quick view form

- Embedded into a main form and show related read-only information



# Quick create form

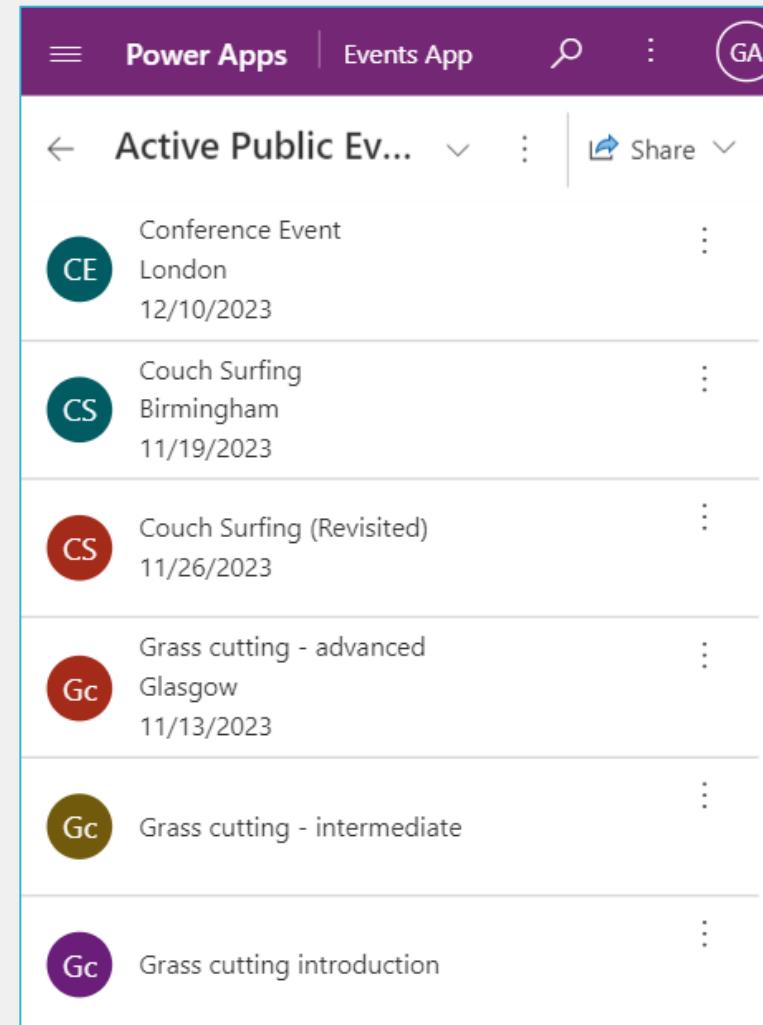
- Simplified version of the main form, used for in-context record creation without having to switch tables.
- Create button on navigation bar
- From a subgrid



The screenshot shows a Power Apps interface for an 'Events App'. On the left, a navigation bar lists 'Home', 'Recent', 'Pinned', 'Customers', 'Accounts', 'Contacts', 'Event Info', 'Public Events', 'Event Bookings', and 'Event Managers'. The 'Event Bookings' item is highlighted. The main area displays a subgrid titled 'Active Public Events' with columns for 'Event name' and 'Location'. The data includes 'Conference Event' (London), 'Couch Surfing' (Birmingham), 'Couch Surfing (Revisited)', 'Grass cutting - advanced' (Glasgow), 'Grass cutting - intermediate', 'Grass cutting introduction', 'Haggis Eating' (Glasgow), 'Session 1', and 'Session 2'. A 'Quick Create: Event Booking' dialog box is open on the right, titled 'Booking Info'. It contains three fields: 'Event Booking Number' (marked with a red asterisk), 'Public Event Booked' (with a dropdown menu), and 'Date Booking Taken' (with a calendar icon). At the bottom of the dialog are 'Save and Close' and 'Cancel' buttons.

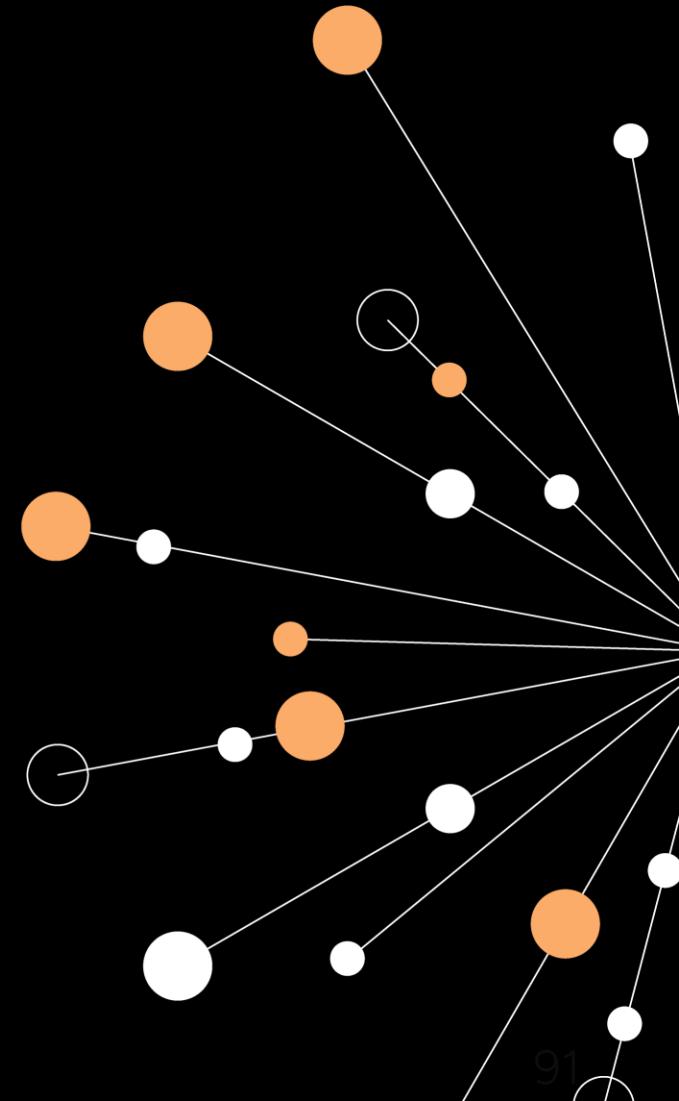
# Card

- Small forms typically used for mobile experiences (instead of view)



## Lab 7a (Page 107)

- Create a Quick Create Form
  1. Create a new Quick Create form in the Event Booking Table
  2. Save, Publish and Test the new form



# Layout of a Form (1/3)

**Header**

AW Booking 1 - Saved  
Event Booking · Information ▾

Alex Wilber Owner

**Body**

General Delegates Related ▾

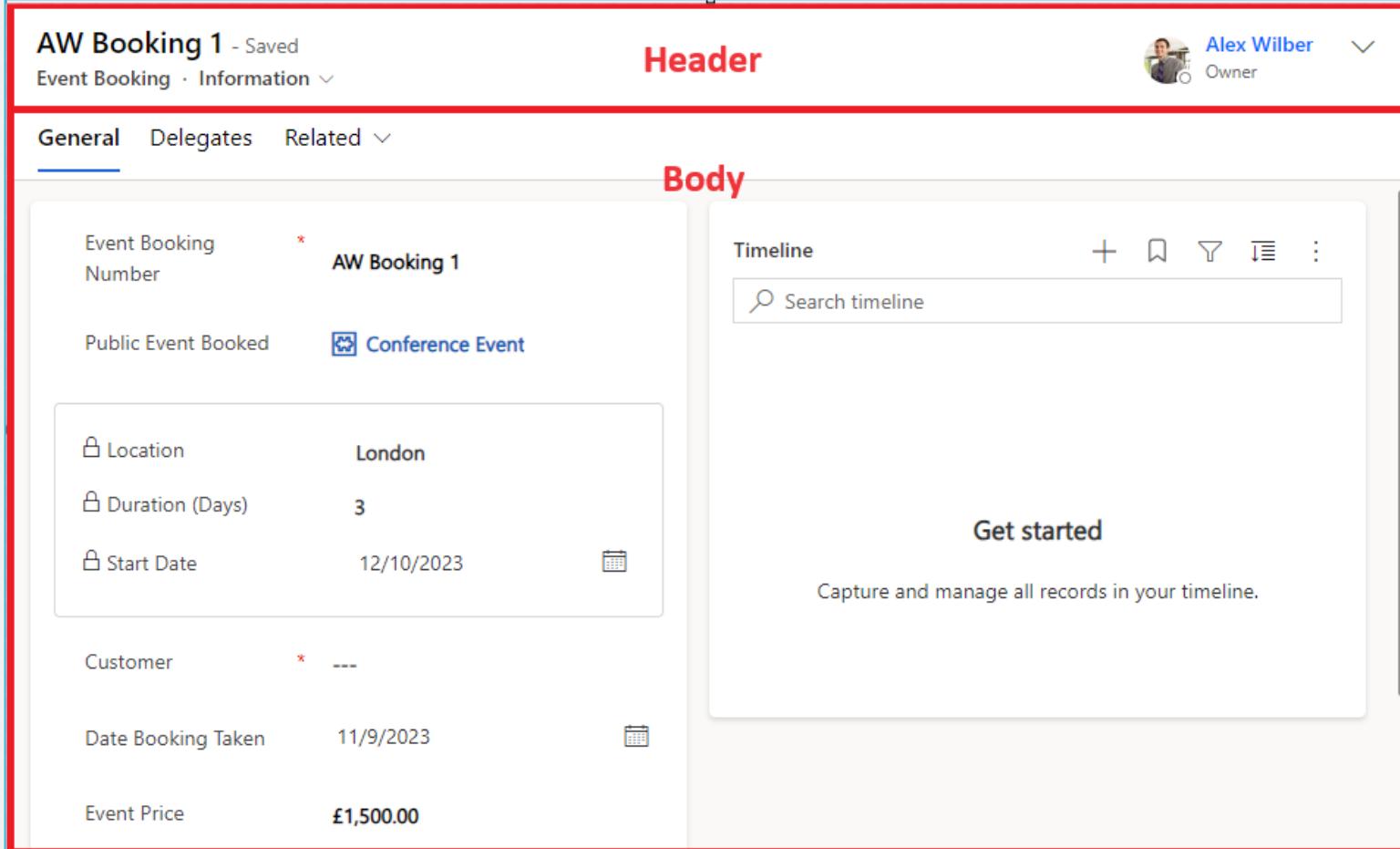
Event Booking Number	AW Booking 1
Public Event Booked	Conference Event
Location	London
Duration (Days)	3
Start Date	12/10/2023
Customer	---
Date Booking Taken	11/9/2023
Event Price	£1,500.00

Timeline

Search timeline

Get started

Capture and manage all records in your timeline.



## Layout of a Form (2/3) – The Header

Shows

- Record name
- Saved state
- Table Name
- Form Name (can be used to switch forms)

Additional fields and web resources (graphics) can be added



# Layout of a Form (3/3) – The body

- Hierarchy
- Tabs
- Sections
- Fields and controls

The screenshot shows the Power Apps Form builder interface. The title bar says "Power Apps | Form". The left sidebar has a "Tree view" section with a search bar and a list of form structure nodes. The "General" node is highlighted with a red box. The "Delegates" node is also highlighted with a red box. A "Timeline Section" node is highlighted with a green box. The main content area shows the "New Event Booking" form. It has three tabs: "General" (selected and highlighted with a red box), "Delegates", and "Related". The "General" tab contains several fields: "Event Booking Number", "Public Event Booked", "Location", "Duration (Days)", "Start Date", "Customer" (which is highlighted with a blue box), "Date Booking Taken", "Event Price", "Discount Amount", and "Total Paid". The "Delegates" tab and "Related" tab are currently empty. On the right side of the form, there is a "Timeline" control, which is highlighted with a green box.

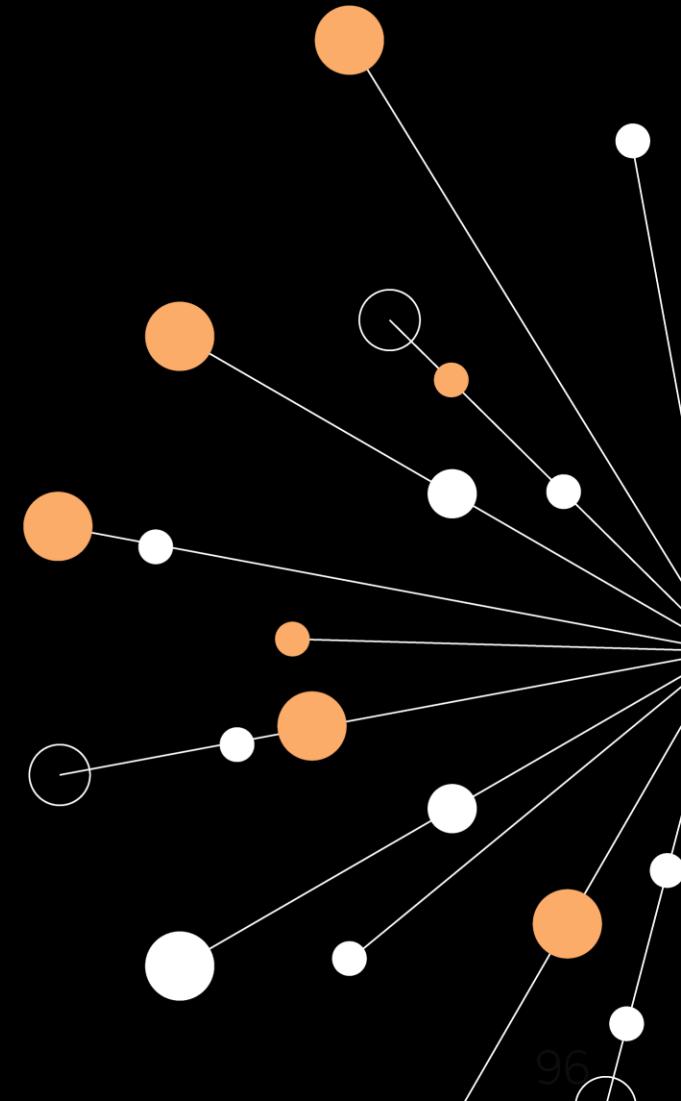
# Fields and controls

- Table columns – Basic information from the table
- Column components – custom ways of interacting with the data (e.g. star ratings). Different ones can be configured for different clients (mobile, web etc)
- Subgrids – to display related records
- Timeline – to interact with activities
- Spacer – filling space to align things



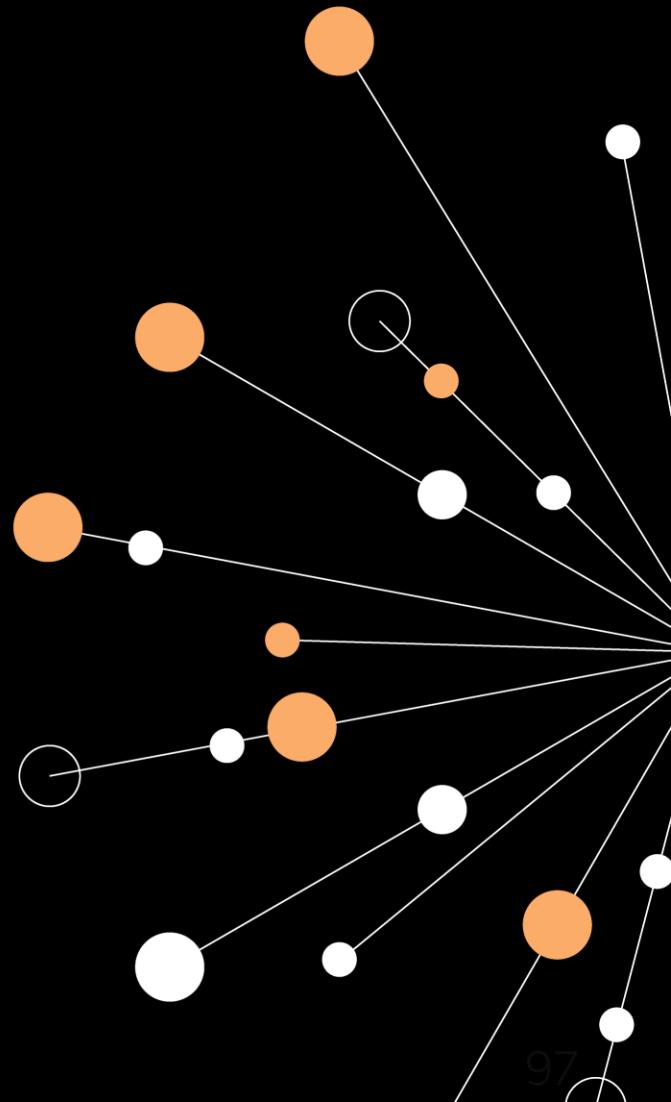
# Lab 7b (Page 122) Also do 7c & 7d

- Form Customisation
1. Modify the main form from public events
    - Change the timeline to not show notes
    - Add custom columns
    - Change the duration column to use a number input
  2. Modify the form from event bookings
    - Add created by column to the header
    - Add custom columns
    - Move the owner column to the header
    - Add a new 1 column-wide tab to the form
    - Insert a subgrid to the new tab
  3. Save, Publish and Test both forms

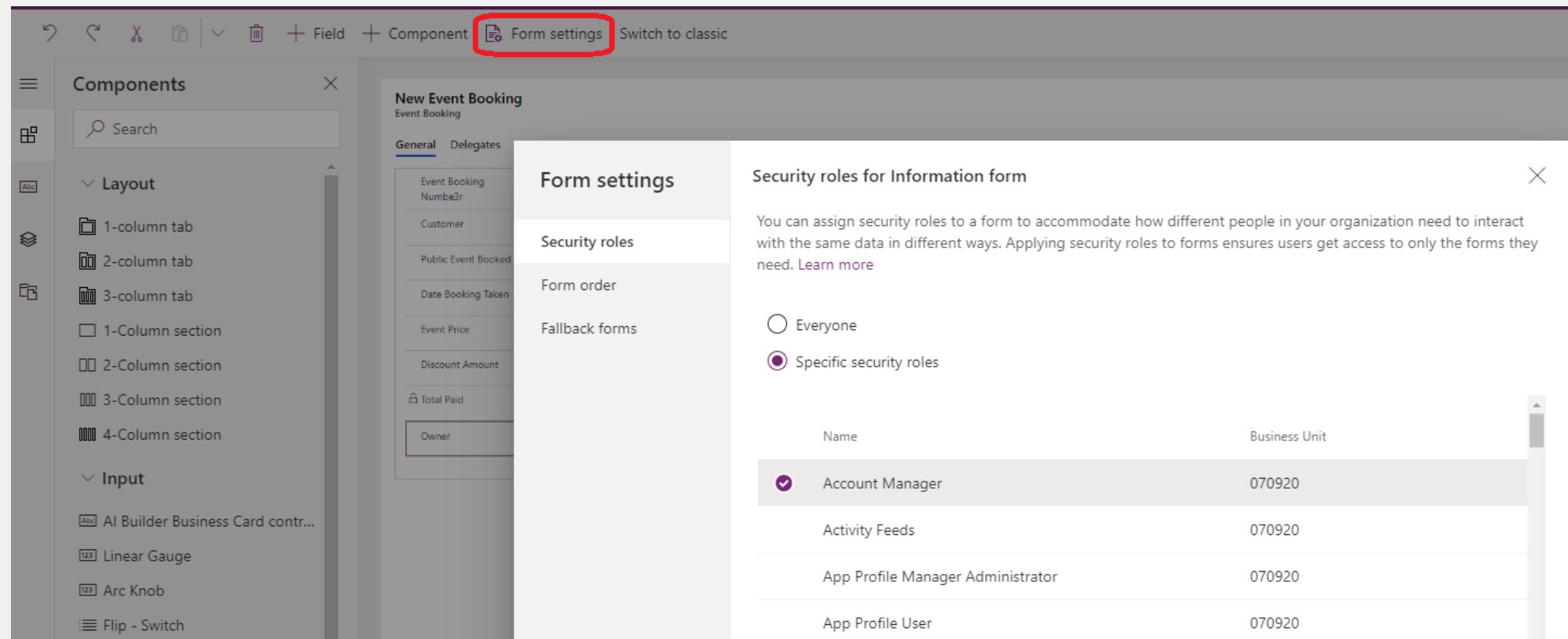


## Lab 7c (page 130)

- Quick View Form
1. Add a new Quick View Form to the Public Event Table
    - Add columns to the form
  2. Modify the Event Bookings Main Form to show the Quick View Form
    - Add a tab to the Form
    - Insert the Quick View Form
  3. Save, Publish and Test the forms



# Securing multiple forms

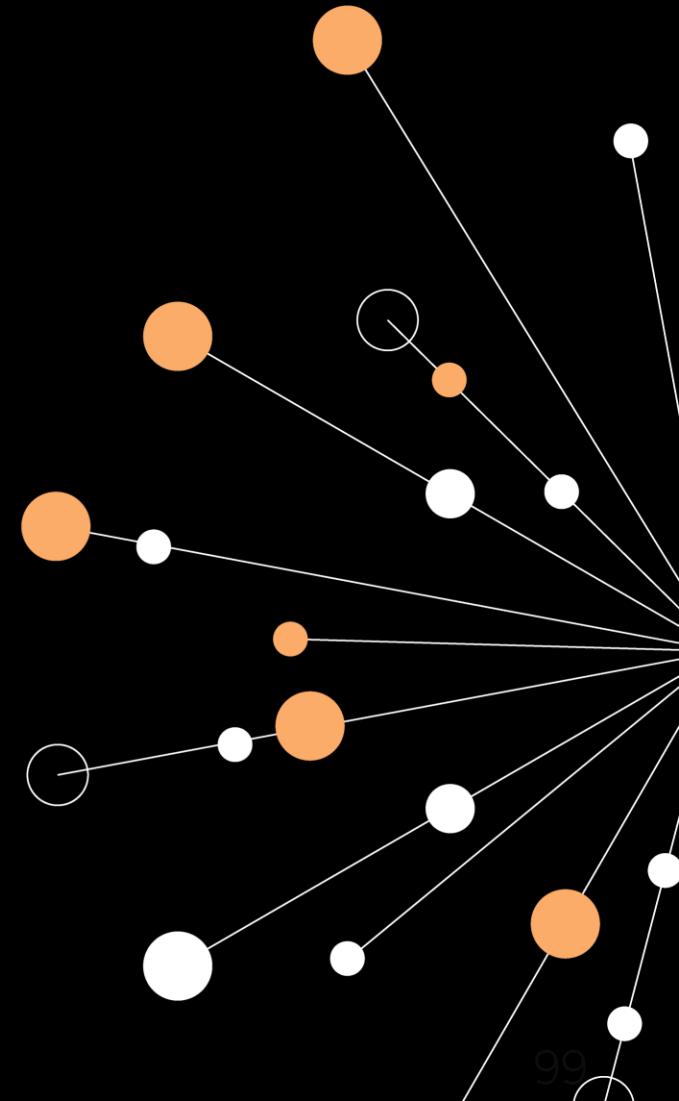


The screenshot shows the 'Form settings' page for a 'New Event Booking' form. The 'Form settings' tab is selected in the top navigation bar, which is highlighted with a red box. The left sidebar contains a 'Components' section with various layout and input components listed. The main content area shows the 'Form settings' page with tabs for 'General' and 'Delegates'. The 'General' tab is selected, showing sections for 'Form settings', 'Security roles', 'Form order', and 'Fallback forms'. The 'Security roles' section is expanded, showing a list of security roles: Event Booking Number, Customer, Public Event Booked, Date Booking Taken, Event Price, Discount Amount, Total Paid, and Owner. The 'Owner' role is highlighted with a purple box. The 'Security roles for Information form' section is displayed, explaining that security roles can be assigned to a form to accommodate different user needs. It includes a 'Learn more' link and two radio button options: 'Everyone' (unchecked) and 'Specific security roles' (checked). A table lists the assigned security roles with their names and business units: Account Manager (070920), Activity Feeds (070920), App Profile Manager Administrator (070920), and App Profile User (070920). The 'Account Manager' role is checked in the table.

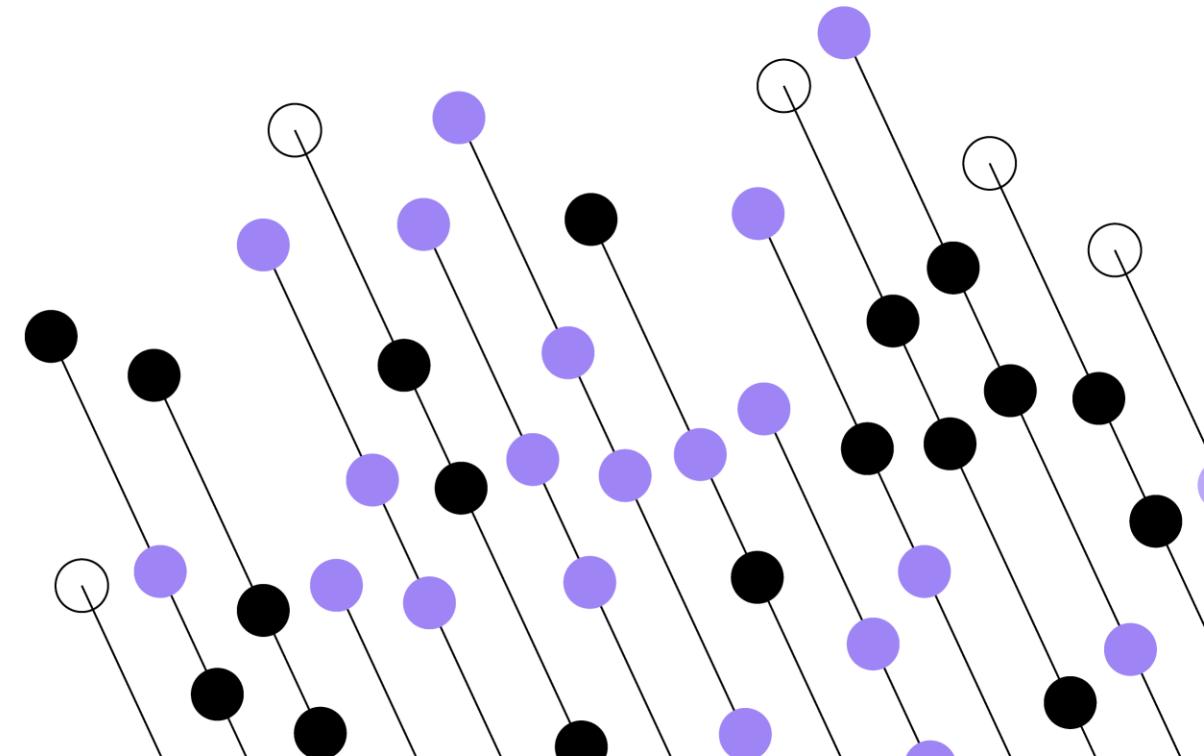
Name	Business Unit
Account Manager	070920
Activity Feeds	070920
App Profile Manager Administrator	070920
App Profile User	070920

## Lab 7d (page 133)

- Securing an Additional Form (do in your own time)
1. Add an additional main form to the Event Booking Table
    - Remove any delegate information from the form
    - Name the form "Event Booking Basics"
  2. Save, Publish and Test the forms



# Module 8: Introduction to Business Rules





- Business Rules introduction
- Conditions
- Actions
- Business Rules Designer

*Business Rules*



# Business Rules Introduction

- Apply conditional logic to the data in the table
- Scope
- Table (Entity)
- All forms
- Specific form
- Business rules are evaluated
- When the form is loaded
- When a value changes in a column included as a condition in the rule



# Conditions

Define the columns (fields) that will cause the rule to be triggered

May have multiple conditions

Type (what we are comparing to)

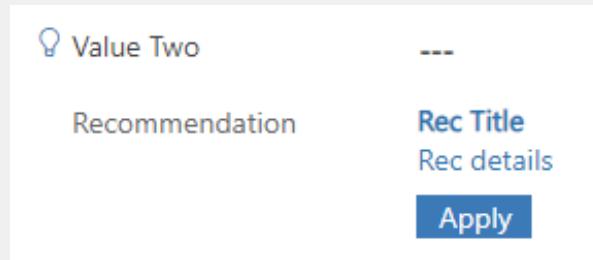
- Field
- Value
- Formula (numeric columns only)

Operators

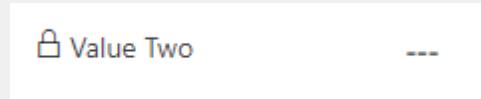
- Equals
- Does not equal
- Is greater than
- Is greater than or equal to
- Is less than
- Is less than or equal to
- Does not contain data
- Contains data

# Actions

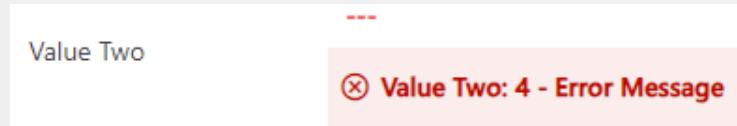
- Recommendation
- Display recommendation text
- Allow a allow to be applied



- Lock / Unlock columns



- Show error message



- Set column value

- Set default value

- Set business required

- Set visibility

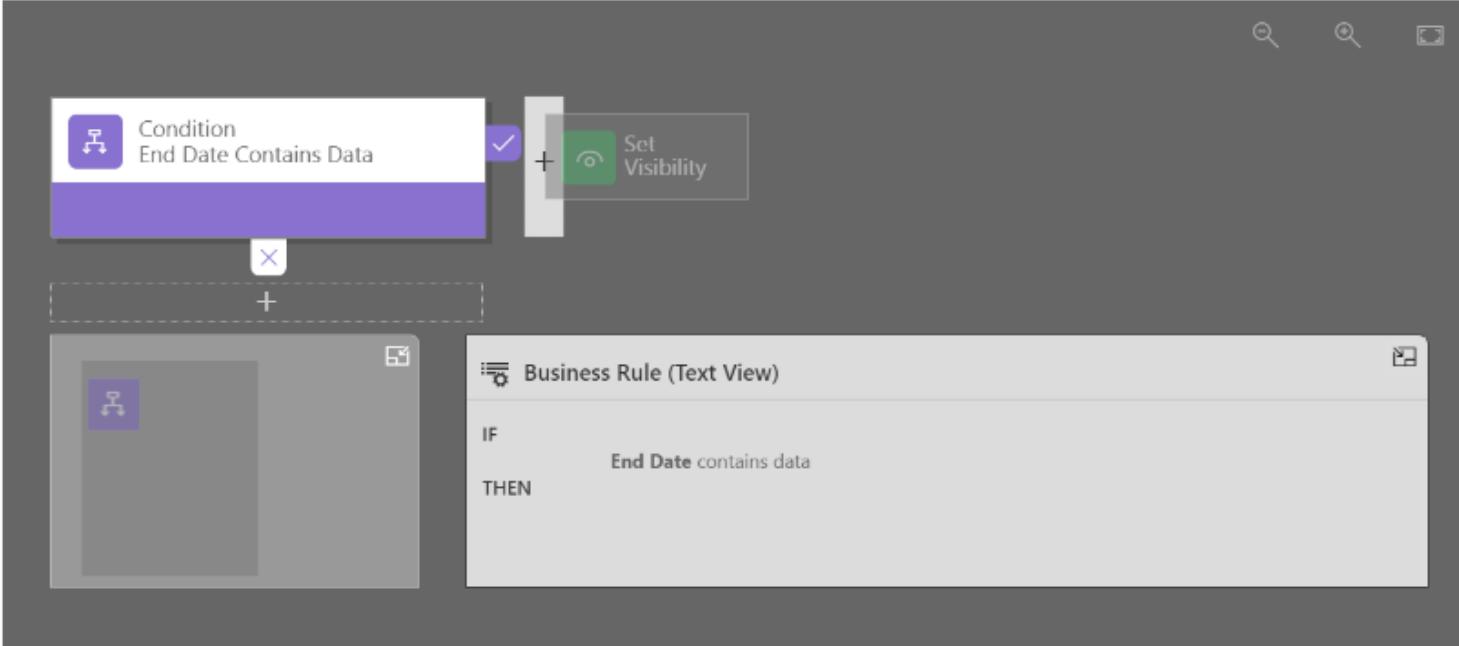
# Business Rule Designer

SAVE VALIDATE BUSINESS RULE: Event

**End Date Visibility**

Click to add description

Add Cut Copy Paste Delete Snapshot



Condition  
End Date Contains Data

Set Visibility

Business Rule (Text View)

IF  
End Date contains data  
THEN

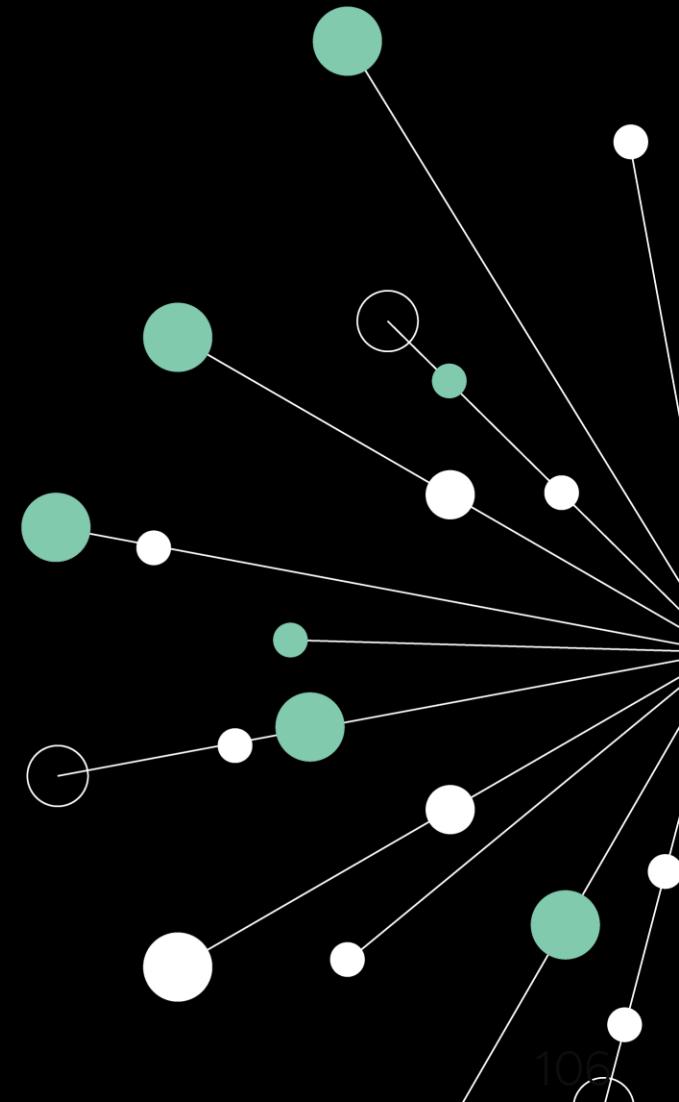
Components Properties

Search components...

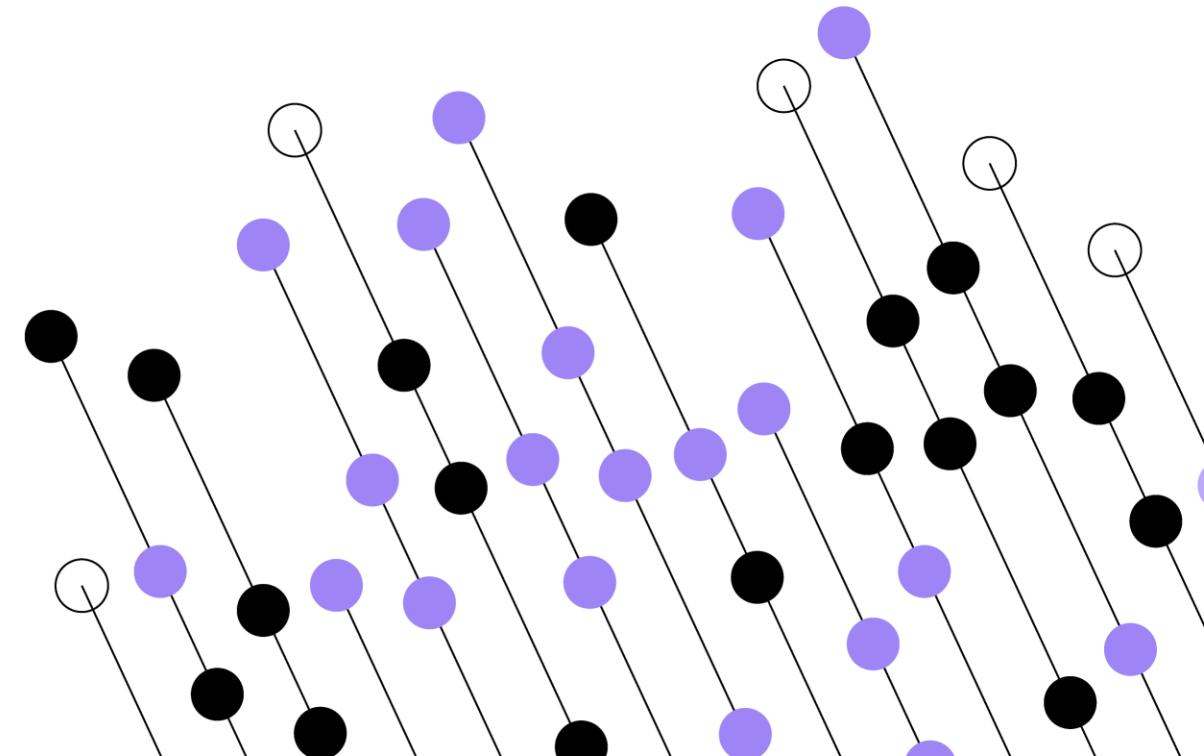
- Show Error Message
- Set Field Value
- Set Default Value
- Set Business Required
- Set Visibility

# Lab 8 (page 143)

- Create a Business Rule
1. Create a Business Rule for the Public Event Table
    - Configure it to set visibility for the end date column to not show until populated
  2. Save, Activate and Test the Rule



# Module 9: Creating, Maintaining & Customising Views





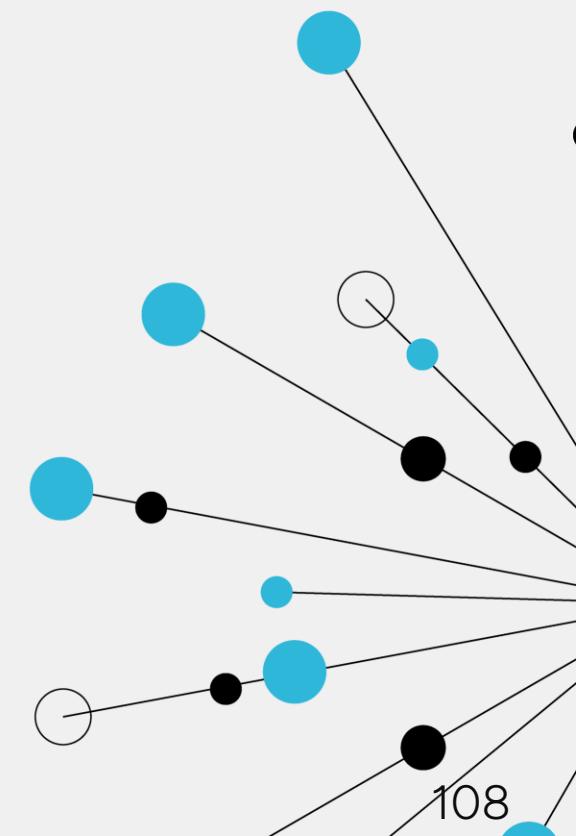
Overview

System views

Public views

Views

QA



# Overview

- An ordered collection of rows from a table
- Determined by an underlying query
- View control
  - Which rows to display
  - Which columns to display
  - The order the rows are displayed
- Types
  - System
  - Personal
  - Public



# System Views

Advanced Find View

Quick Find View

Associated View

Lookup view

Automatically created

Can be edited but not deleted

**A. Datum Corporation - Saved**

Account · Account

\$35,000,000.00 2,000 MOD Administrator

Annual Revenue Number of Employees Owner

Summary Details Files Assets and Locations **Contacts** Related

Show Chart + New Contact Add Existing Contact Refresh

Contact Associated View Search this view

Full Name	Business Phone
Kevin Martin	425-555-0160
Lilly Pyles	557-555-0166

Microsoft Dynamics 365

Jane Howell ?  
QA Ltd

FILE ADVANCED FIND

Query Saved Views Results New Save As Edit Columns Edit Properties Clear Group AND Group OR Details Download Fetch XML View Query Debug

Look for: Cases Use Saved View: [new]

Owner Equals Current User

Status Equals Active

My Active Accounts

Redmond

Account Name	Main Phone	Address 1:	Primary Contact
A. Datum Corporation	425-555-0158	Redmond	Kevin Martin

Dynamics 365 Customer Service Hub

CASE Need service for

All Accounts Contacts Resolve

A. Datum vlaurian@adatum.com

Adventure Works Adrian@adventure-works.com

Alpine Ski House Cathan@alpineskihouse.com

Case Title Case Number Subject Customer Origin Email

New Change View

# Creating Public Views

The screenshot shows the Microsoft Dynamics 365 Events App interface. The left sidebar displays a navigation tree with 'Events App' at the top, followed by 'Inactive Public Events' (which is expanded), 'System Views', 'Active Public Events' (with 'Default' selected), and 'Inactive Public Events'. A button 'Set current view as my default' is also present. The main area shows a table of data with columns: Main Phone, Address 1: ..., Primary Contact, and Email (Primary Co...). The 'Table columns' pane on the left lists various account-related fields. A 'View column' dialog box is open, showing the 'Account' column selected. The 'Active Accounts' pane on the right shows a list of accounts, with 'Account Name' being edited. A 'Filter by ...' section at the bottom includes a 'Status is 'Active'' filter and a 'Edit filters ...' button.

Main Phone	Address 1: ...	Primary Contact	Email (Primary Co...)
425-555-0158	Redmond	Kevin Martin	kevin@adatum.com
281-555-0157	Dallas	Cacilia Viera	cacilia@alpinetech.com
100	Lynnwood	Haroun Stormonth	haroun@fabrikam.com
614-555-0121	Columbus	Heriberto Nathan	heriberto@nathan.com
1234556			
619-555-0127	San Francisco	Alex Baker	alex@treyres.com

**Table columns**

- Account
- (Deprecated) Process Stage
- Account Number
- Account Rating
- Address 1
- Address 1: Address Type
- Address 1: Country/Region
- Address 1: County
- Address 1: Fax
- Address 1: Freight Terms
- Address 1: Latitude
- Address 1: Longitude
- Address 1: Name

**View column**

- Account
- (Deprecated) Process Stage
- Account Number
- Account Rating
- Address 1
- Address 1: Address Type
- Address 1: Country/Region

**Active Accounts**

- Account Name

**Filter by ...**

Status is 'Active'

Edit filters ...

# Lab 9 (page 159)

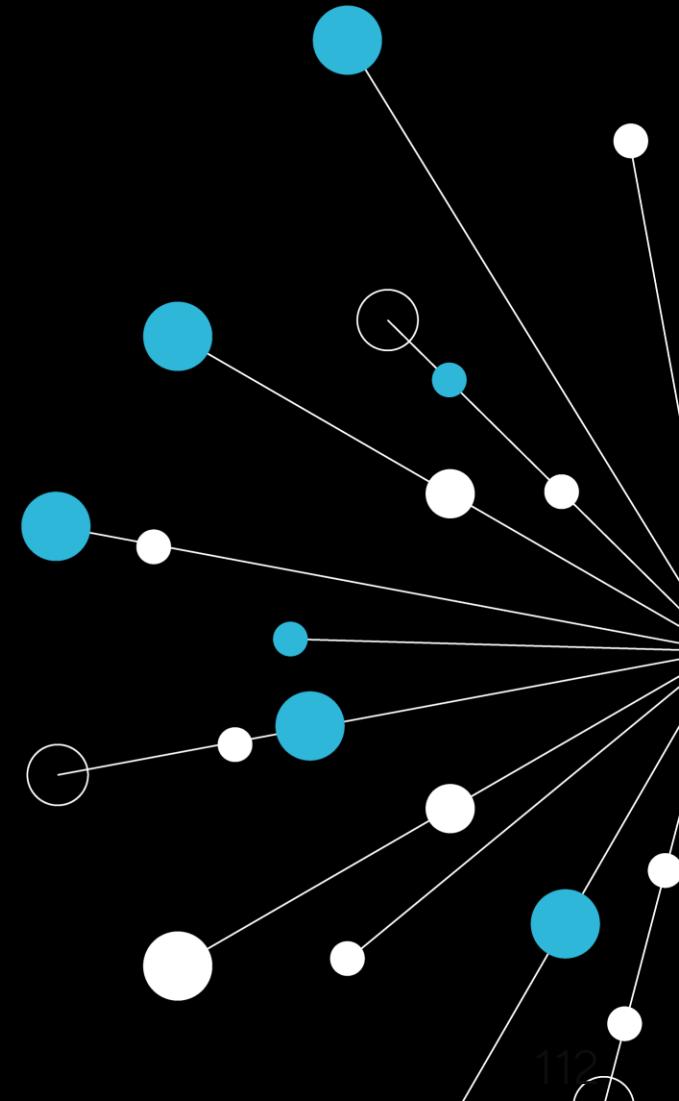
- Modify the Quick Find View and Create a New Public View

1. Edit the Quick Find View

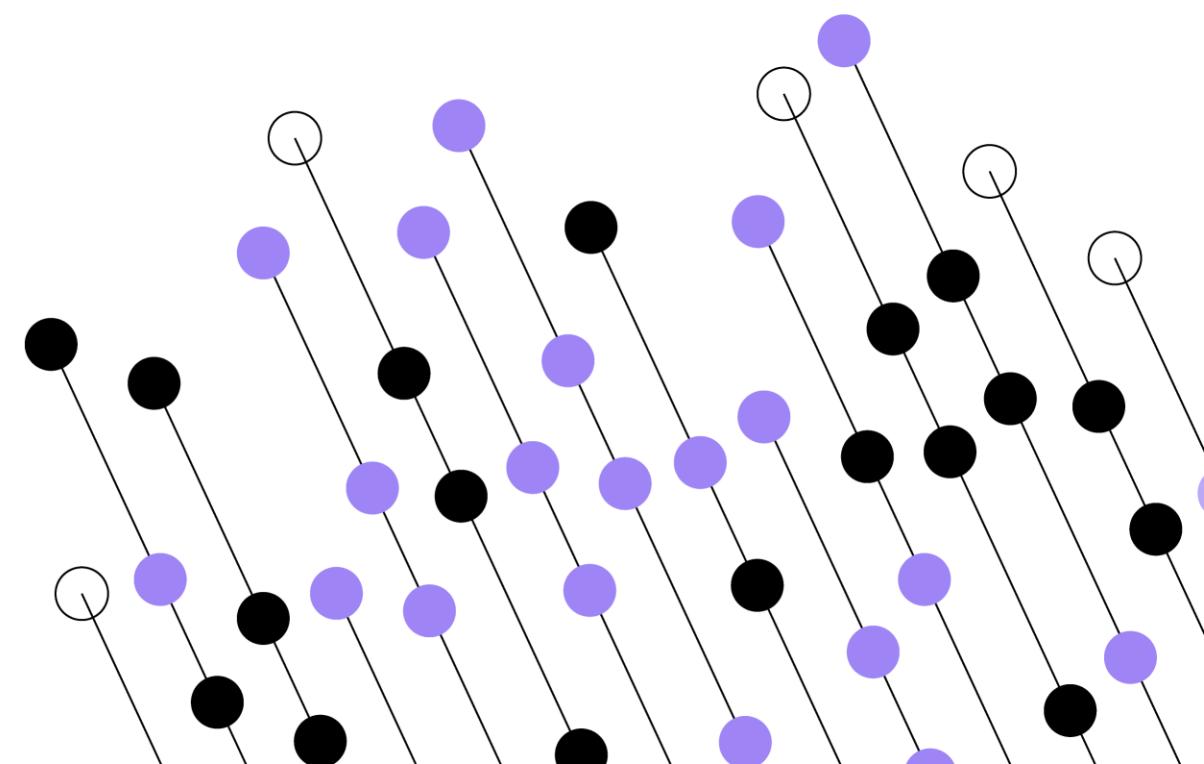
- Add the Customer, Event Booked and Date Booked Column
- Order the columns appropriately
- Save and publish the View

2. Create a new Public View

- Edit the Active Event Booking view
- Filter to show the last 7 days worth of Events
- Save and Publish the view



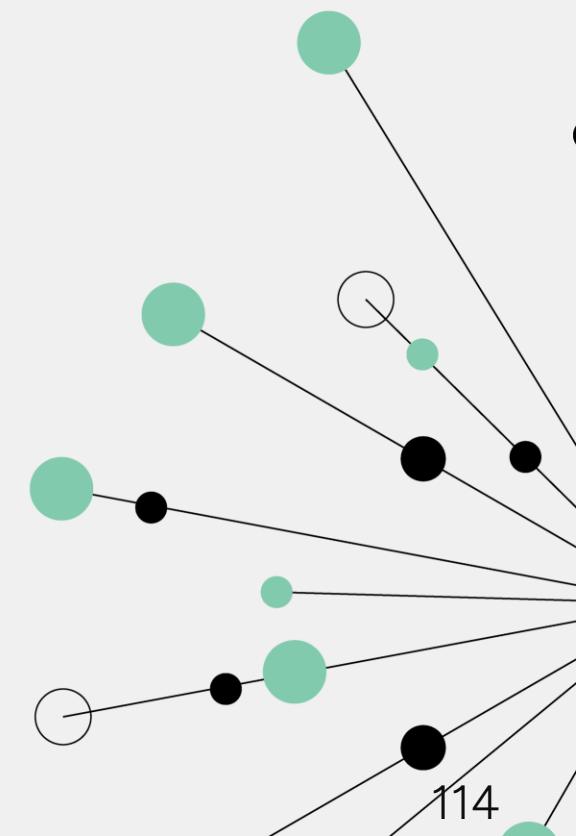
# Module 10: Advanced Model-Driven App Components





## Page Components Model-Driven App Requirements

*Advanced app components*



# Model-Driven App Requirements

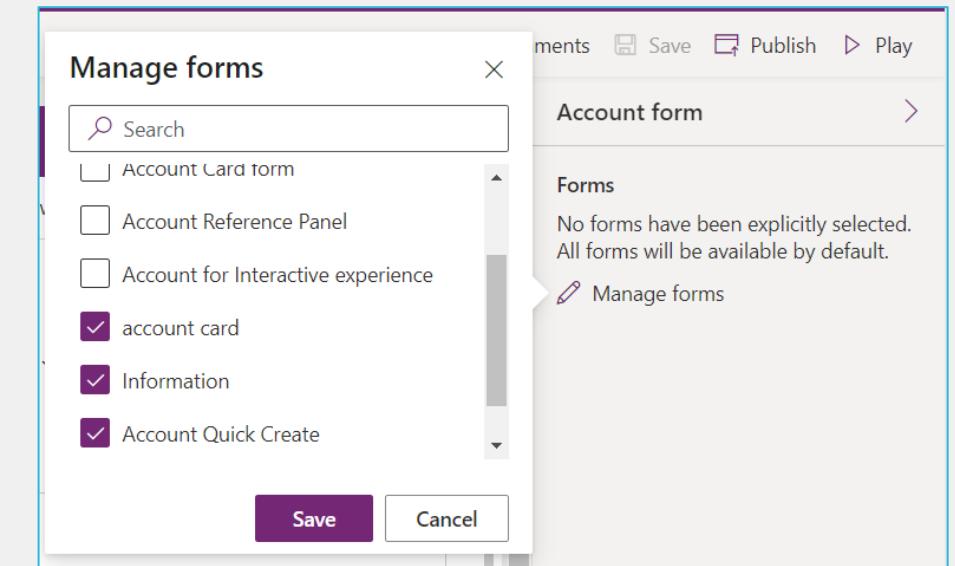
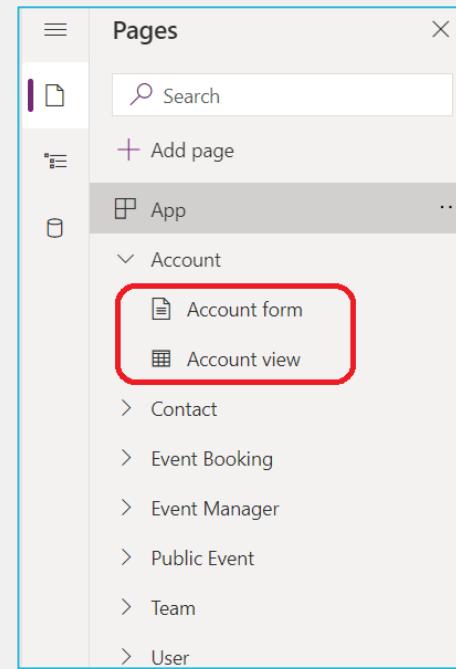
Below are the requirements needed to build Model-driven Apps:

- Microsoft Power Apps License
- Capacity to create a Microsoft Power Platform environment
- A Microsoft Power Platform environment
- A Dataverse database within the environment
- Privileges for the maker to work as a system customiser or environment maker in the environment where the model-driven app is to be built
- At least one table
- At least one column within the table\*
- At least one table view to display the records\*
- At least one table form to enter data\*

\*this will be created by default when a table is created

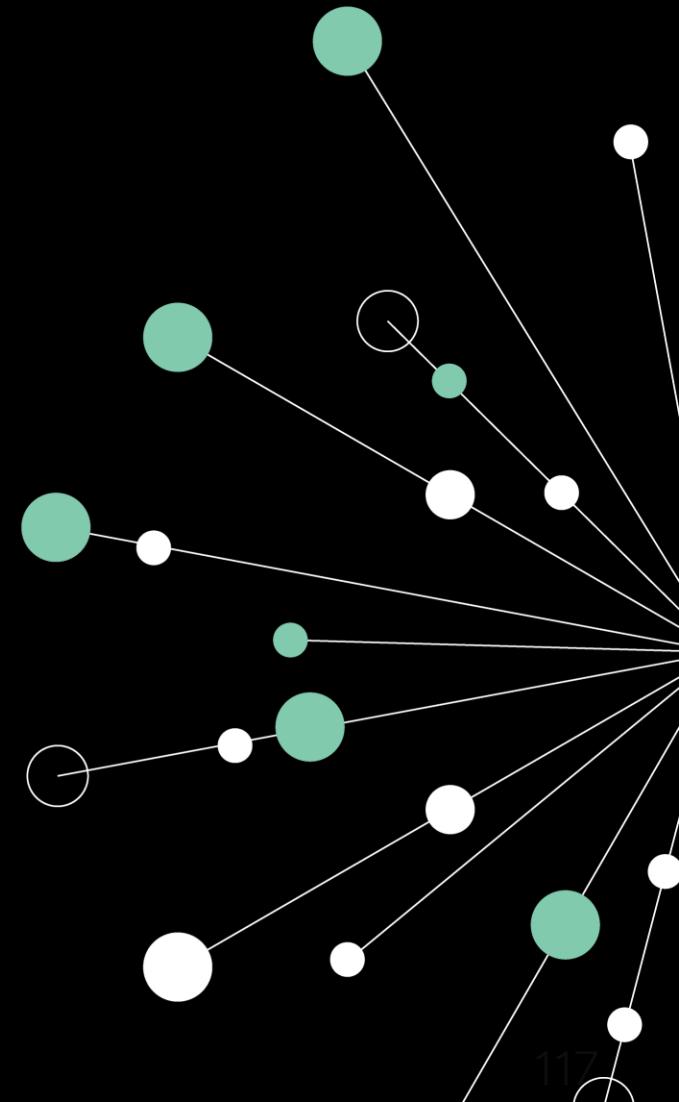
# Page components

- Control which forms and views from the table are available to the app
- By default, all are available

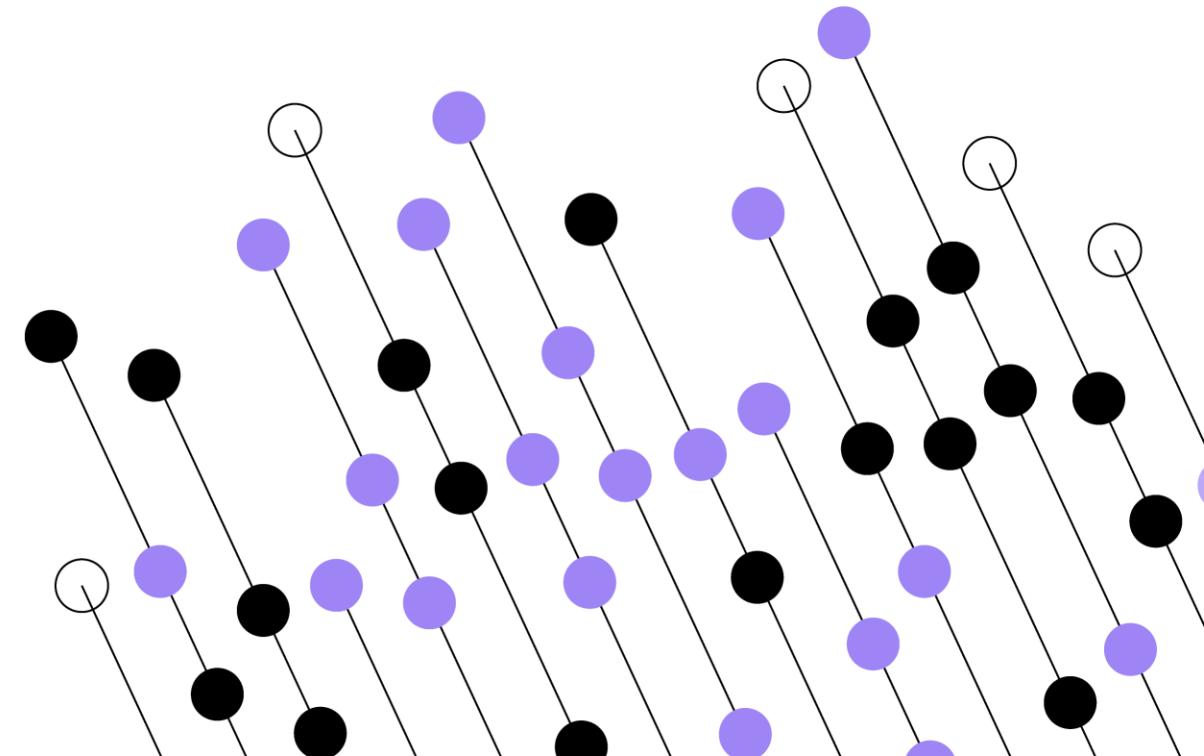


# Lab 10 (page 170)

- Enhance your Model-Driven App
1. Edit the Model-Driven App to restrict the Account App to certain forms and views



# Module 11 - Business Process Flows





## BPF Overview

## BPF Components

## BPF Permissions

*Business Process Flows (BPF)*



# BPF Overview

- Guide the user stage by stage through a business process
- Can trigger workflows (on entry/exit of stage)
- Can add a cloud flow (Power Automate) as a step



# BPF Components

## Stages

- Logic grouping of steps, actions and flows
- Associated with a table
- If a new stage is associated with a different table, the tables must have 1:N relationship

## Data Steps

- Columns that should be completed at this stage.
- Can be marked as required within the stage

## Workflows and Flows

- Trigger a workflow (deprecated) or Power Automate flow

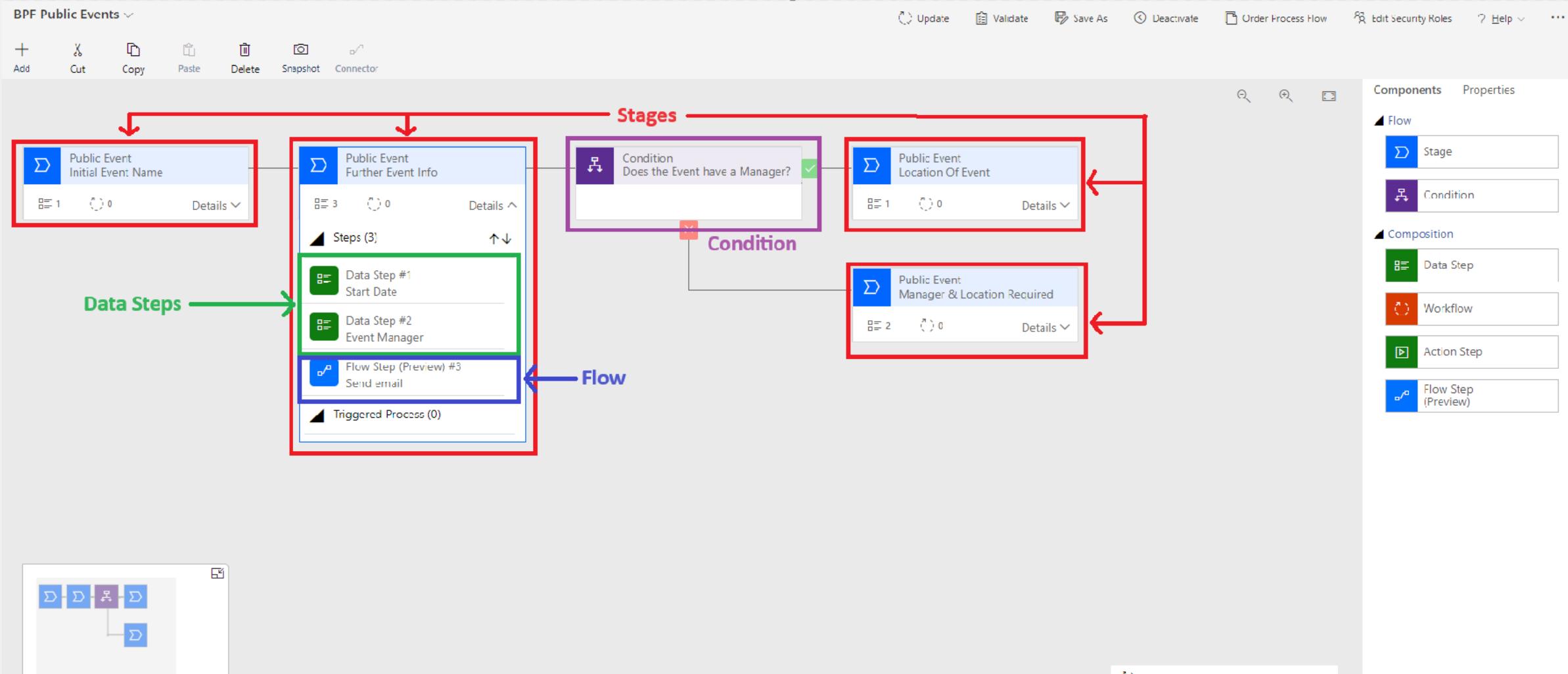
## Action Steps

- Call a custom action created in Dataverse

## Conditions

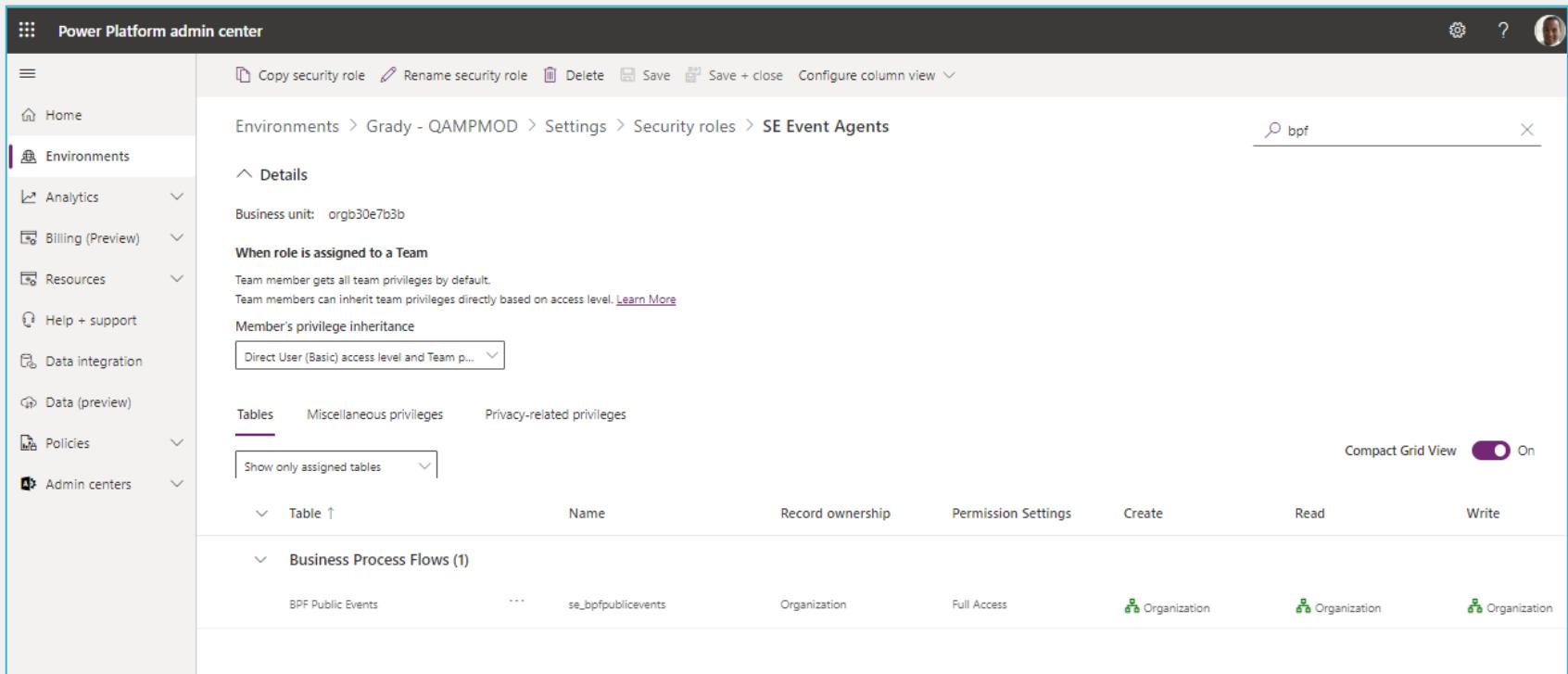
- Provides branching logic

# BPF Components



# BPF Permissions

- Table is created with same name as flow
- Assign permissions to the table to allow users to run the flow
- Flow is dependent on the table
- Table should be added to the solution before attempting to export the solution

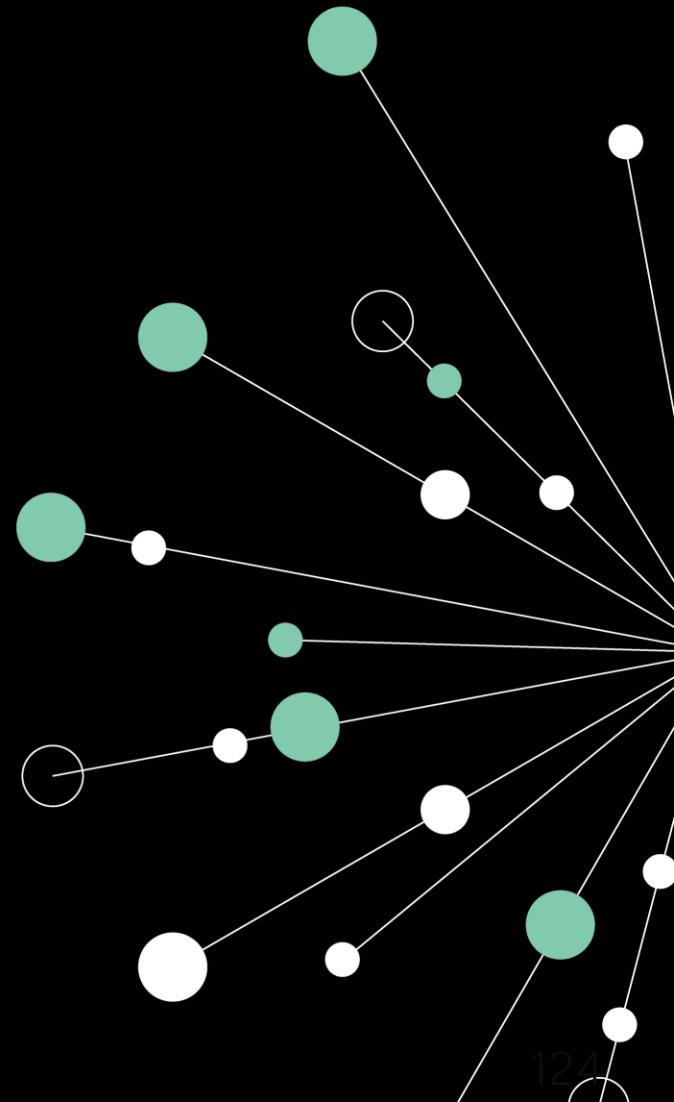


The screenshot shows the Power Platform admin center interface. The left sidebar is a navigation menu with sections like Home, Environments, Analytics, Billing (Preview), Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main content area is titled 'Environments > Grady - QAMPMOD > Settings > Security roles > SE Event Agents'. A search bar at the top right contains the text 'bpf'. The 'Details' section shows 'Business unit: orgb30e7b3b'. Under 'When role is assigned to a Team', it says 'Team member gets all team privileges by default.' and 'Team members can inherit team privileges directly based on access level.' A dropdown menu for 'Member's privilege inheritance' is set to 'Direct User (Basic) access level and Team p...'. Below this, there are tabs for 'Tables', 'Miscellaneous privileges', and 'Privacy-related privileges', with 'Tables' being the active tab. A dropdown menu for 'Show only assigned tables' is open. The table view shows one entry: 'Business Process Flows (1)' with a sub-row 'BPF Public Events'. The columns are 'Table ↑', 'Name', 'Record ownership', 'Permission Settings', 'Create', 'Read', and 'Write'. The 'Record ownership' column shows 'Organization', the 'Permission Settings' column shows 'Full Access', and the 'Create', 'Read', and 'Write' columns show 'Organization' with a green checkmark icon.

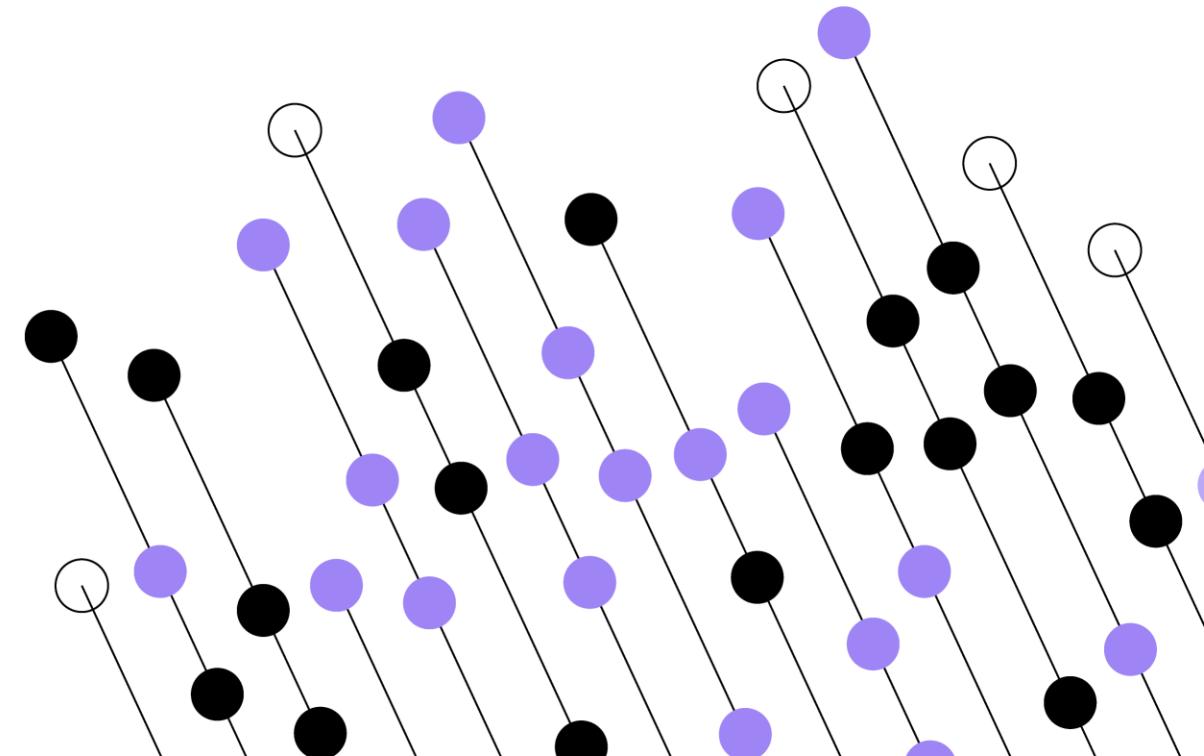
Table ↑	Name	Record ownership	Permission Settings	Create	Read	Write
BPF Public Events	se_bpfpublievents	Organization	Full Access	Organization	Organization	Organization

# Lab 11 (page 182)

- Create a Business Process Flow
1. Add a business process flow with a condition to the event
  2. Test to check that the business process flow works as expected.



# Module 12: Security Model: User Management





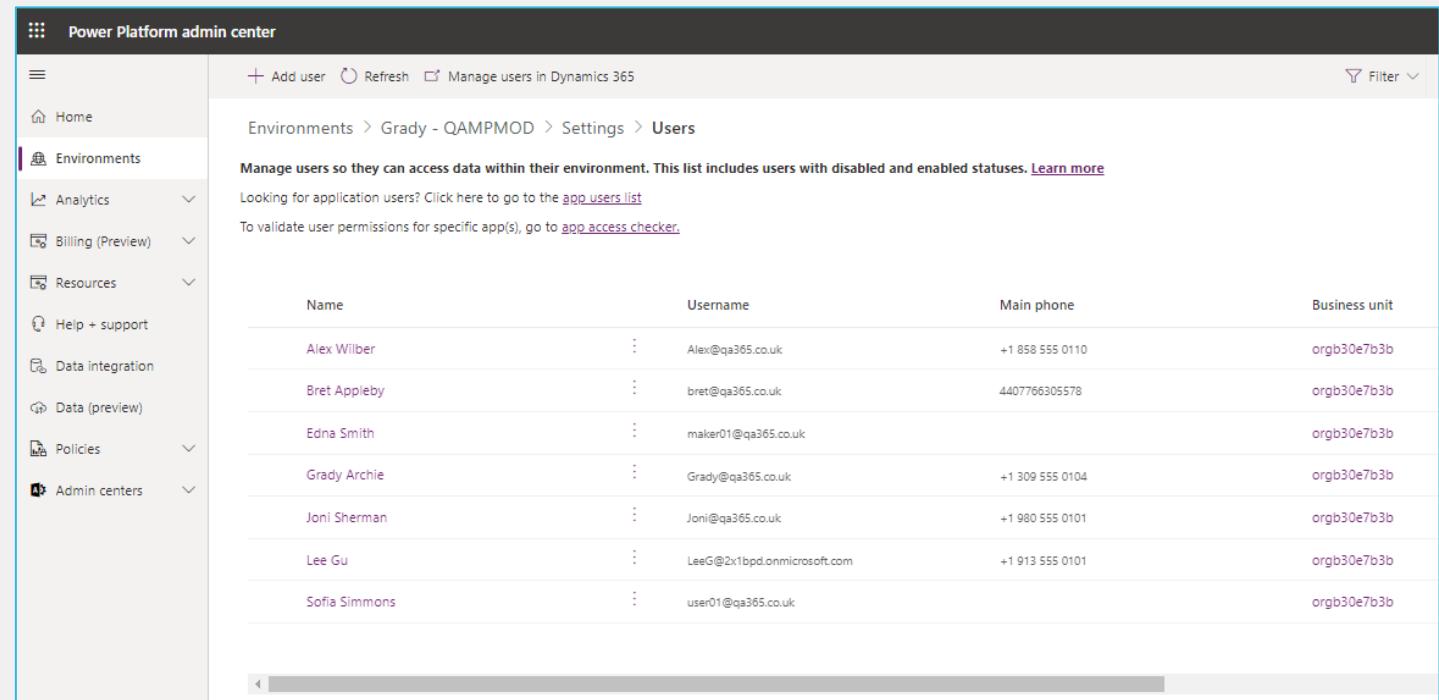
- Adding Users – overview
- Requirements for adding users
- Ways a user can be added to an environment
- Settings after adding a user

Users



# Adding Users - Overview

- Before a user can access resources in the environment, they must be added to that environment
- Adding a user does not grant any rights to resources in the environment.
- Once added to the environment can be given roles or added to teams (which can grant rights)

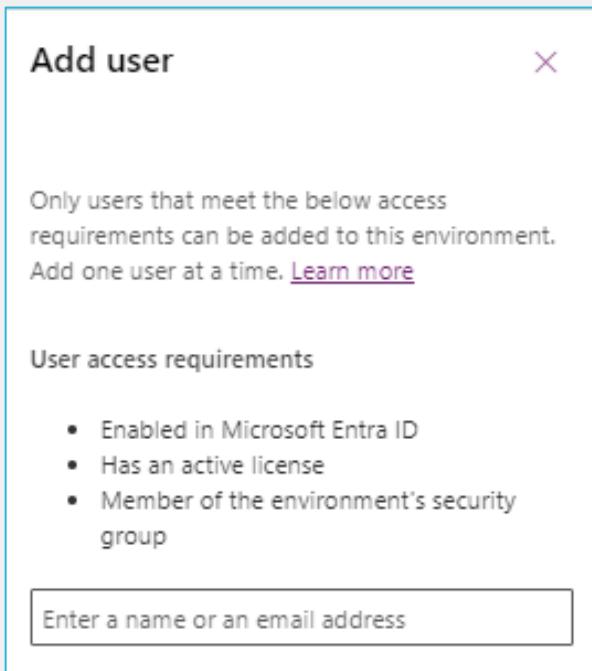


The screenshot shows the Power Platform admin center interface. The left sidebar includes links for Home, Environments (selected), Analytics, Billing (Preview), Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main content area is titled 'Users' and shows a list of users with the following columns: Name, Username, Main phone, and Business unit. The users listed are:

Name	Username	Main phone	Business unit
Alex Wilber	Alex@qa365.co.uk	+1 858 555 0110	orgb30e7b3b
Bret Appleby	bret@qa365.co.uk	4407766305578	orgb30e7b3b
Edna Smith	maker01@qa365.co.uk		orgb30e7b3b
Grady Archie	Grady@qa365.co.uk	+1 309 555 0104	orgb30e7b3b
Joni Sherman	Joni@qa365.co.uk	+1 980 555 0101	orgb30e7b3b
Lee Gu	LeeG@2x1bpd.onmicrosoft.com	+1 913 555 0101	orgb30e7b3b
Sofia Simmons	user01@qa365.co.uk		orgb30e7b3b

# Requirements for adding users

- The user must:
- Be enabled in Microsoft Entra ID
- Have an active license
- Be a member of the environment's security group (if one specified)



# Ways a user can be added to an Environment

## Automatically

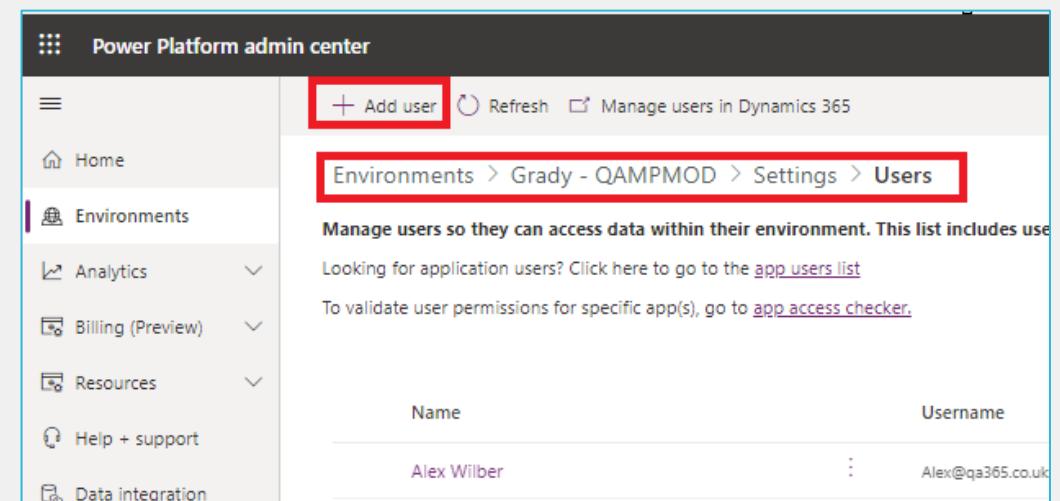
- Done on a schedule
- Can take a long time (especially if membership not controlled through a security group)

## Just-in-time

- Users added automatically as they access the environment (usually through a URL to an app)

## Manually

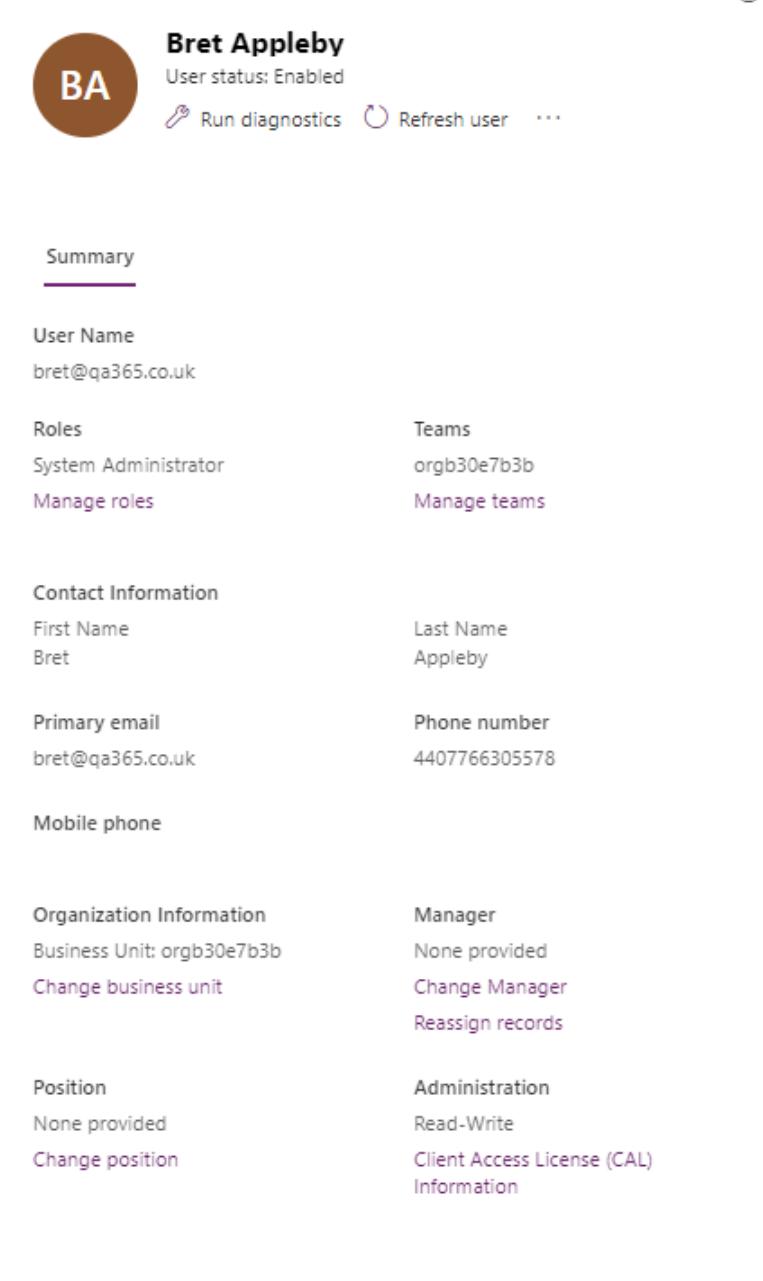
- Using the Power Platform Admin center



The screenshot shows the Power Platform Admin center interface. The left sidebar has a 'Environments' section with a dropdown menu. The main content area is titled 'Environments > Grady - QAMPMOD > Settings > Users'. It includes a sub-instruction: 'Manage users so they can access data within their environment. This list includes users from the environment and any other environments they have access to.' Below this, there's a note: 'Looking for application users? Click here to go to the [app users list](#). To validate user permissions for specific app(s), go to [app access checker](#).' A table lists a single user: Name: Alex Wilber, Username: Alex@qa365.co.uk. The 'Add user' button and the 'Manage users in Dynamics 365' link are highlighted with red boxes.

# Settings after Adding a User

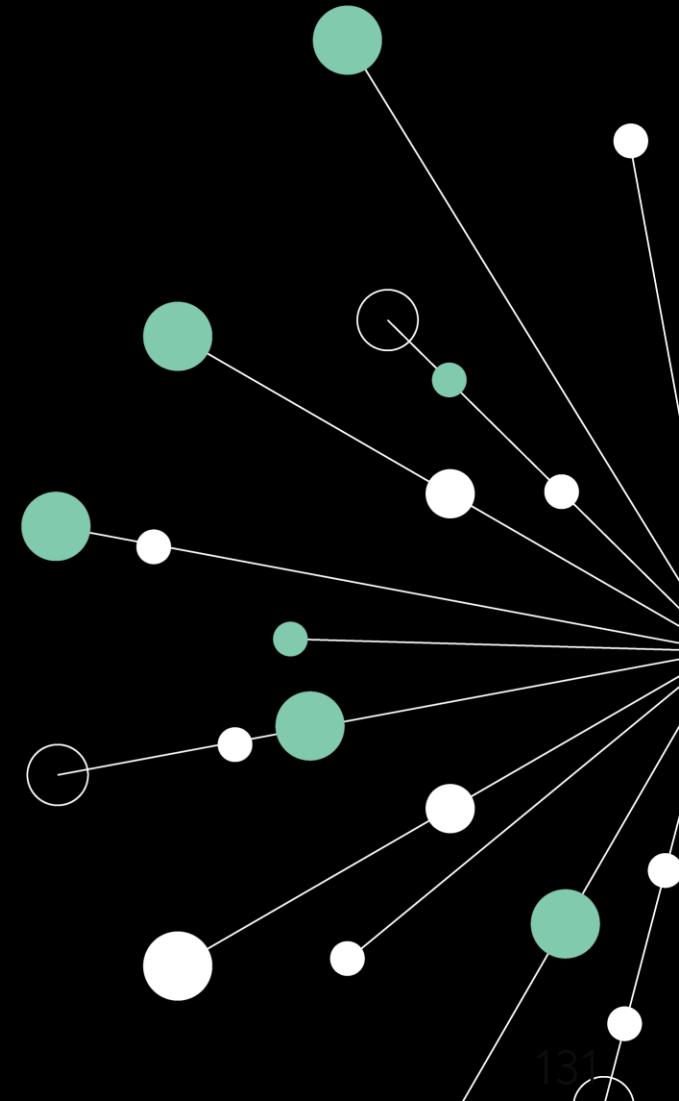
- After the user is added, the following settings can be configured.
- Roles – Common way to assign permissions
- Teams – Additional way to assign permissions
- Business Unit – Change place in the hierarchy
- Manager – Should be in same or parent business unit



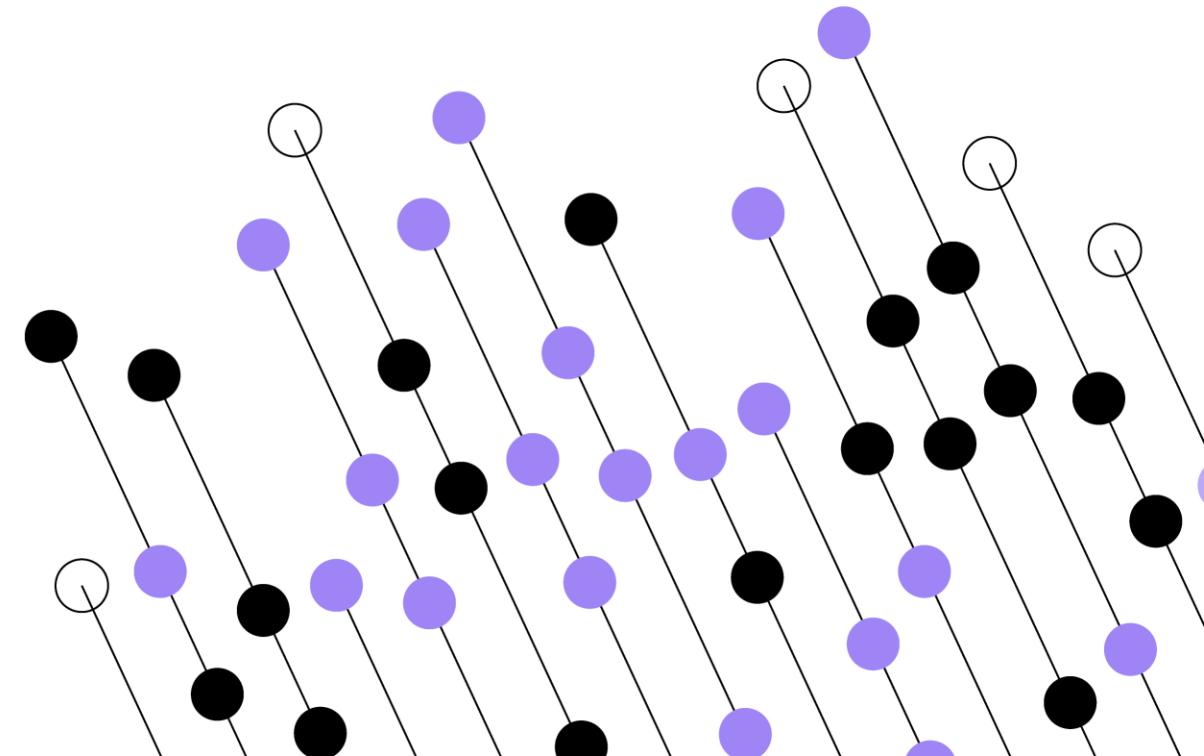
The screenshot shows the 'User Settings' page for a user named Bret Appleby. The top navigation bar includes a profile picture with the letters 'BA', the user's name 'Bret Appleby', 'User status: Enabled', and three action buttons: 'Run diagnostics', 'Refresh user', and a three-dot menu. The page is divided into several sections: 'Summary' (User Name: bret@qa365.co.uk), 'Roles' (System Administrator, Manage roles), 'Teams' (orgb30e7b3b, Manage teams), 'Contact Information' (First Name: Bret, Last Name: Appleby), 'Primary email' (bret@qa365.co.uk), 'Phone number' (4407766305578), 'Mobile phone' (empty), 'Organization Information' (Business Unit: orgb30e7b3b, Change business unit), 'Manager' (Manager: None provided, Change Manager, Reassign records), 'Position' (Position: None provided, Change position), and 'Client Access License (CAL) Information' (Administration: Read-Write, Client Access License (CAL) Information).

# Lab 12 (page 191)

- Adding Users
1. Using the Power Platform Admin Center add four new users
  2. Ensure all users are given a Microsoft Power Apps Developer license and an Office 365 E5 license



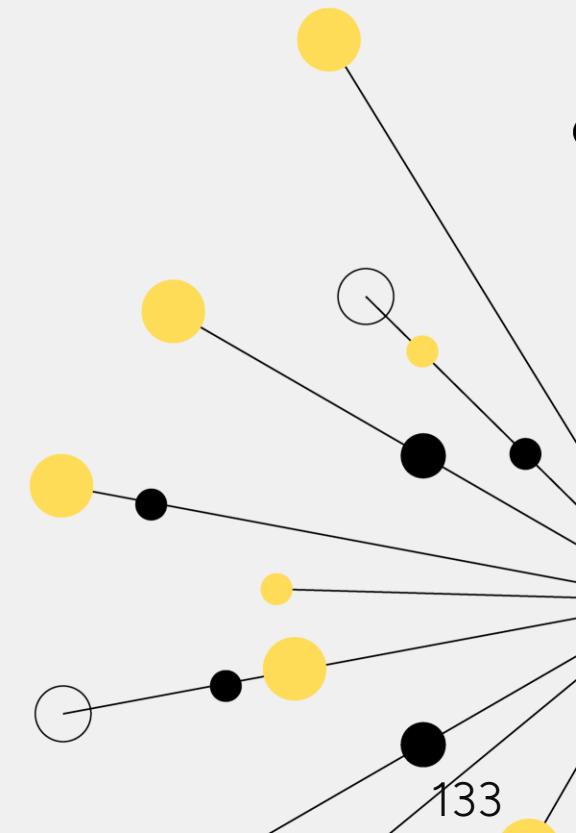
# Module 13: Security Model: Business Units





- The Building blocks of Dataverse security
- Business Unit overview
- Business Unit hierarchy
- Creating Business Units
- Enable, disable and delete business units
- Moving Users & Teams between Business Units

*Business Units*



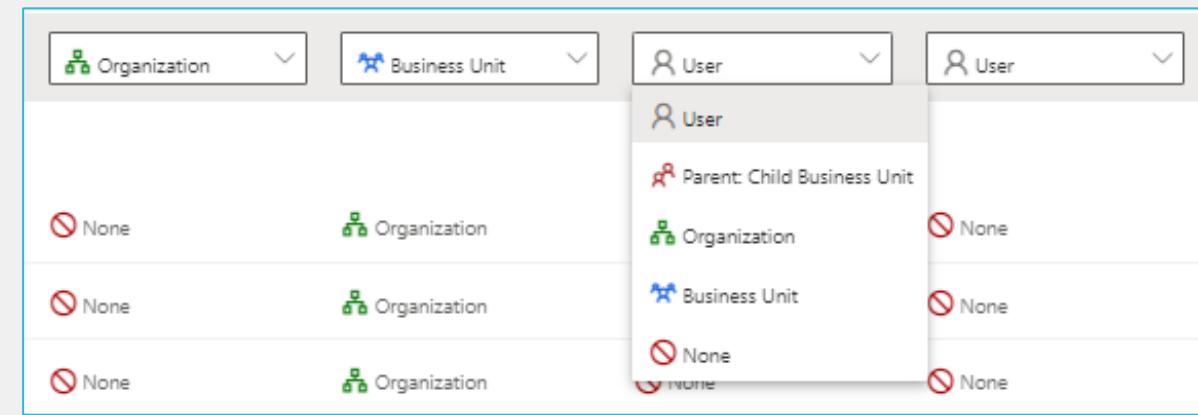
# The building blocks of Dataverse security

- Business Units
- Security Roles
- Teams



# Business Unit overview

- A Business Unit is a container which can contain
  - Users
  - Teams
  - Records owned by those Users and Teams
- Business Units can be set up in a hierarchy
- Permissions can be set on tables to only display records from the users Business Unit (or their Business Unit and child Business Units)



# Business Unit Hierarchy

By default, will only have one (the root) Business Unit.

- Automatically created
- Has name of the organisation (e.g. orgb30e7b3b)
- Can not be deleted
- Can not be disabled
- Will initially contain all users added to the environment

Can create additional Business Units

- New Business Units must have a parent – therefore forming a hierarchy

Create new business unit X

General

Name \*

Division

Parent business unit \*

Website

Main phone

Other phone

Email

Fax

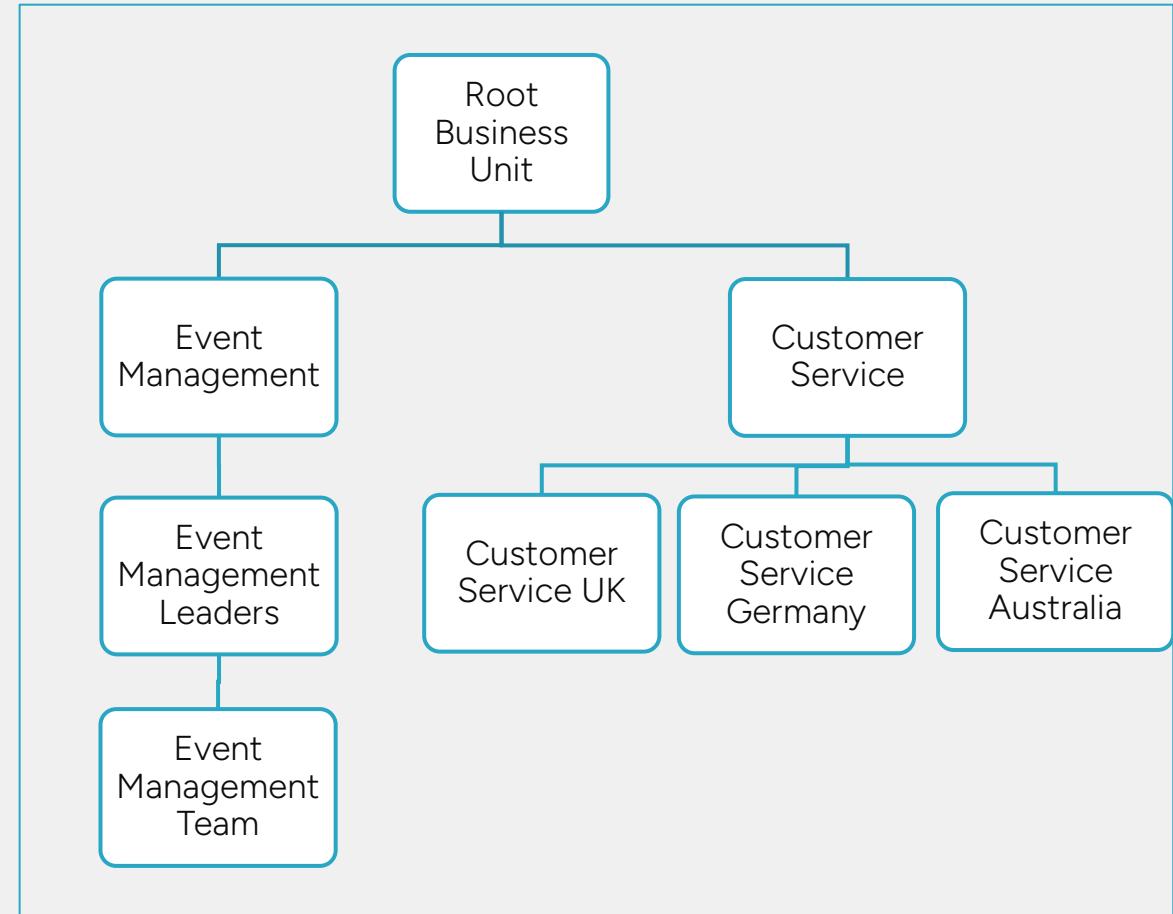
Addresses

# Creating Business Units

Environments > Grady - QAMPMOD > Settings > **Business Units**

Use business units with security roles to control data access so people see just the right information they need to do their jobs. Each business unit should map to your divisions. [Learn More](#)

Active Business Units			
Name ↑	Main Phone	Website	Parent Business
customer service	...		orgb30e7b3b
customer service australia	...		customer service
customer service uk	...		customer service
<input checked="" type="radio"/> event management	...	orgb30e7b3b	
event management leaders	...		event management
event management team	...		event management leaders
orgb30e7b3b	...		



# Enable, disable and delete Business Units

A Business Unit may be disabled

- Also disables child Business Units
- Also disables users

Enabling a Business unit does not enable users in that Business Unit

To access Dataverse, the user must be enabled and in an enabled Business Unit

A disabled, empty Business Unit (no child Business Units, Users or Teams other than the default team) may be deleted



# Moving Users & Teams between Business Units

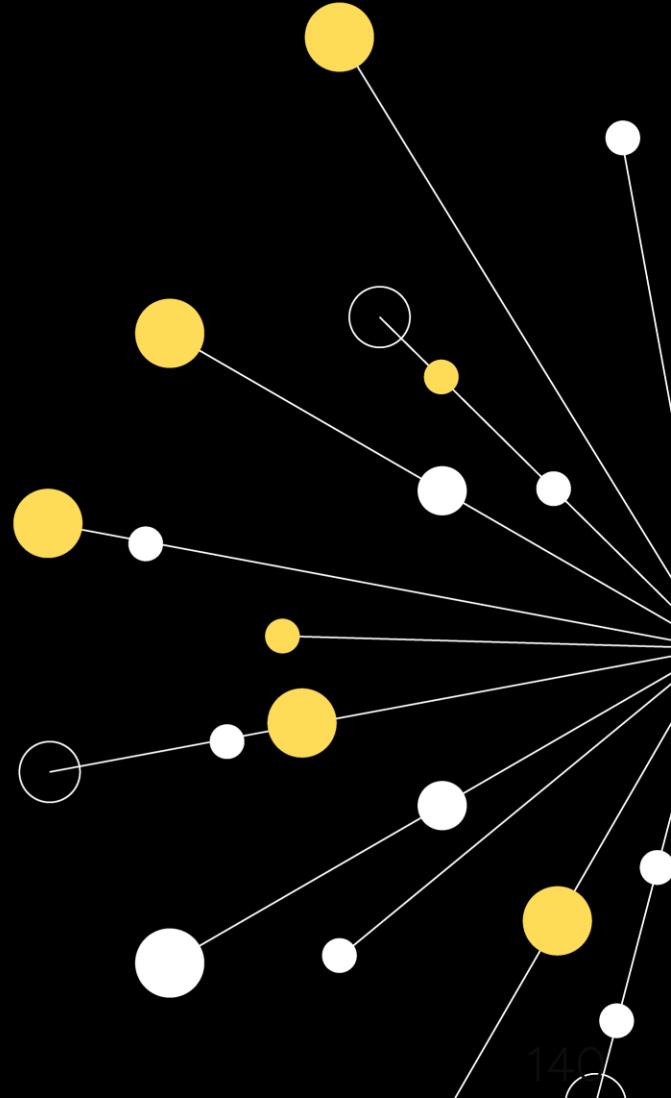
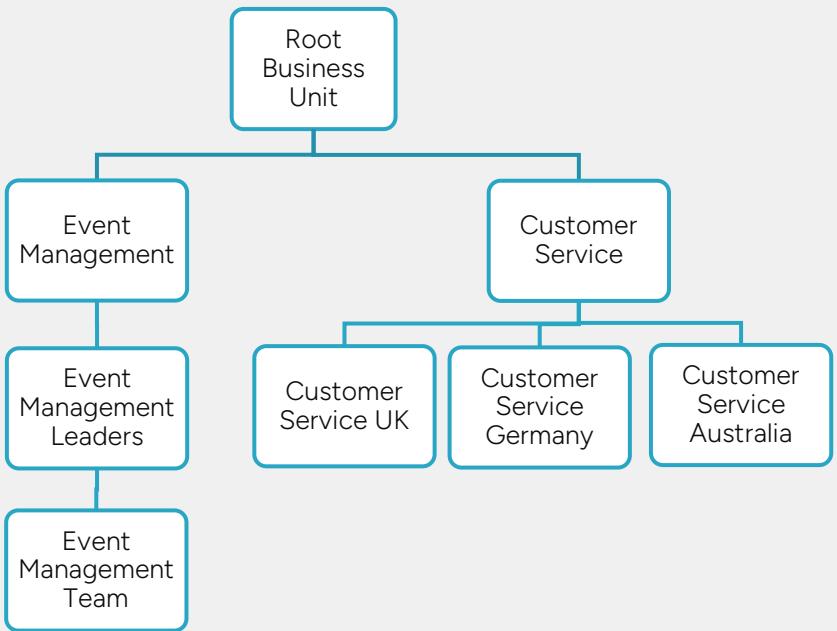
- All security roles are removed
- Must be reassigned after the move



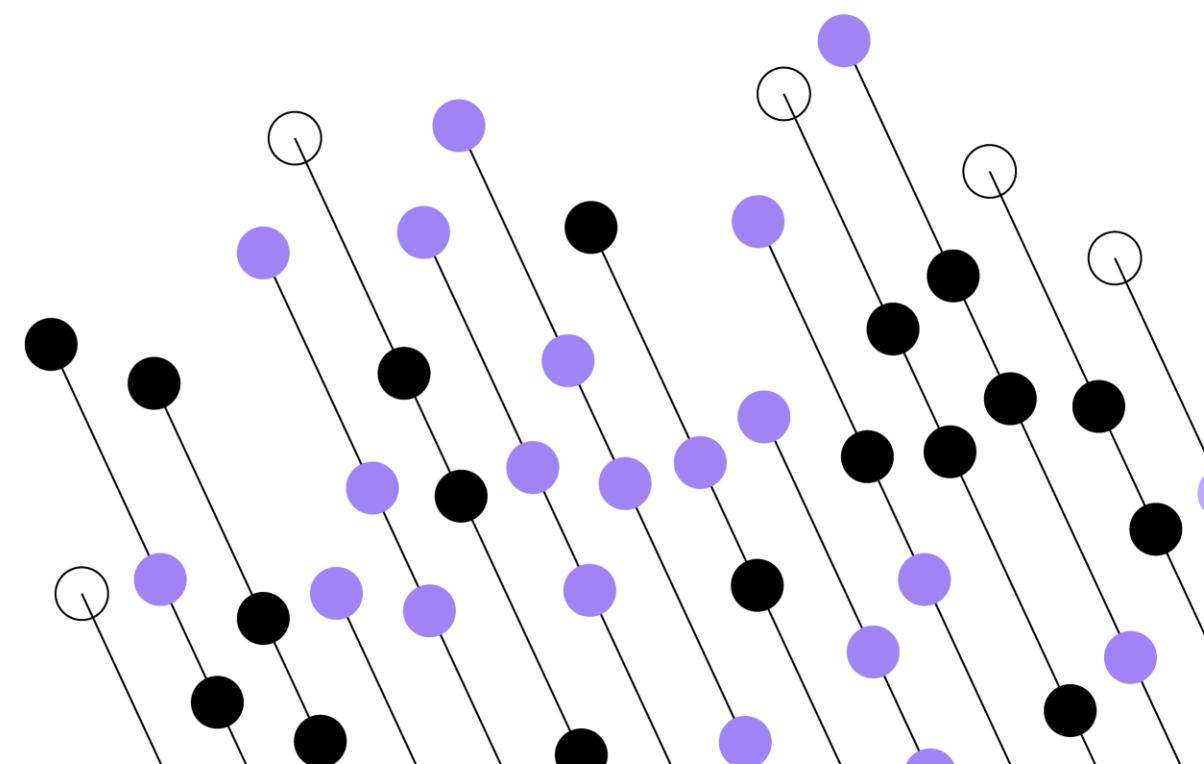
# Lab 13 (page 200)

- Creating Business Unit Structure

1. Create two child Business Units below the Root Business Units
2. Create child Business Units below the newly created Business Units to create a hierarchical structure in the picture



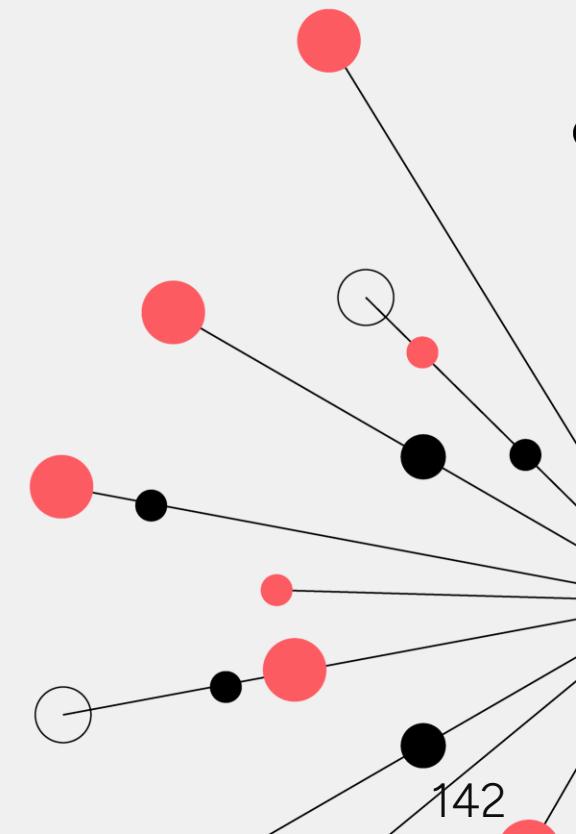
# Module 14: Security Model: Security Roles





- The building blocks of Dataverse security
- Security Roles overview
- Default security roles
- Special roles
- Privileges and Access levels
- Copy and modify security roles

*Security Roles*



# The building blocks of Dataverse security

- Business Units
- Security Roles
- Teams



# Security Roles overview

## Security roles

- Are a collection of privileges
- Can be associated with users, and Dataverse teams

Users can be assigned multiple roles (directly or indirectly), and permissions are cumulative

Security roles are created in a Business Unit

- Child Business Units inherit a read-only copy of the security roles
- Updating the originating security role will automatically update the inherited child security roles.

Users and teams can only be assigned roles from their Business unit

Recommended that all roles are created in the root Business Unit

- Roles created in the root Business Unit may be added to solutions

# Default Security Roles

- A number of default security roles exist
- It is recommended that these are copied before changes are made and assigned to Users and Teams

Power Platform admin center

Home Environments Analytics Billing (Preview) Settings Resources Help + support Data integration Data (preview) Policies Admin centers

+ New role □ Go to legacy 📈 Audit report

Environments > QA Tenancies (default) > Settings > Security roles

Manage security roles within this environment so that people can access their data. [Learn more](#)

Display only parent security roles  On

Role ↑	Business unit	Managed	Modified on	
AIB Roles	...	orgcd69274c	Yes	11/09/2023 10:44 PM
AIB SML Roles	...	orgcd69274c	Yes	11/09/2023 10:45 PM
App Deployment Orchestration Role	...	orgcd69274c	Yes	11/03/2023 10:59 PM
App Opener	...	orgcd69274c	Yes	11/03/2023 10:46 PM
Approvals Administrator	...	orgcd69274c	Yes	11/04/2023 5:40 PM
Approvals User	...	orgcd69274c	Yes	11/04/2023 5:40 PM
Async ingestion	...	orgcd69274c	Yes	11/04/2023 1:47 AM
Basic User	...	orgcd69274c	Yes	11/09/2023 10:45 PM
BizQAAp	...	orgcd69274c	Yes	11/04/2023 1:50 AM
Bot Author	...	orgcd69274c	Yes	11/03/2023 11:19 PM
Bot Contributor	...	orgcd69274c	Yes	11/03/2023 11:19 PM
Bot Transcript Viewer	...	orgcd69274c	Yes	11/03/2023 11:19 PM



# Special Roles

## System Administrator

- Highest level role
- Full permissions
- Automatically granted full permissions to new custom tables
- At least one user must have this role

## System Customizer

- User level access to system tables (including accounts and contacts)

<b>System Administrator</b>	<b>System Customiser</b>
Organisation level access to all system (Out of Box) tables	User level access to all system tables
May not be customised	May be customised
No restriction to any table	Restricted access (Create/Delete) to Plugin assembly, SDK Message Processing Steps, Service endpoints, Web resource, System Job, Calendar, Business Closer, Business Unit, Currency, Security Role, Team, User Impersonation, Override Created On, Enable/Disable User, Audit Partition, Bulk Delete

# Privileges and Access Levels

Privileges describe actions that a user can take:

Create Read Write Delete Assign  
Append AppendTo Share

Access levels define the 'scope' of the privilege.

Five Access Levels:

 None

 User

 Business Unit

 Parent Child Business Unit

 Organisation

Miscellaneous Privileges:

 None

 Organisation

# Privileges and Access Levels

Privilege	Description
Create	The user can create records of the Table
Read	The user can read records of the Table
Write	The user can update data for records of the Table
Delete	The user can delete records of the Table
Append	The user can attach this Table to other records
Append To	The user can attach other records to this Table
Assign	The user can make other Users or Teams the owner of this Table
Share	The user can share records of the Table with other Users or Teams

Access Level	Description
None	The user does not have the privilege
User	The user has the privilege for the records they own, and for the records that are shared with the user (either directly or through Team Membership)
Business Unit	The user has the privilege on all records that are owned by members of his or her Business Unit. However, the user does not have the permission on records that are owned by members of child Business Units
Parent: Child Business Unit	The user has the privilege on all records that are owned by members of his or her Business Unit, and all records owned by members of child Business Units to any depth
Organisation	The user has the privilege on all records in the organisation

# Copy and Modify Security Roles (Legacy)

Environments > JH Practice > Settings > Security roles

Manage security roles within this environment so that people can access their data. [Learn more](#)

Business unit

Role ↑	More actions
AIB Roles	...
AIB SML Roles	...
Basic User	<input type="button" value="Copy"/>
BizQAAApp	<input type="button" value="Copy"/>
Bot Author	...
Bot Contributor	...

http://lon-srv1:5555/?id=%7b62992014-F8DD-E411-80E5-00155D010201%7d - Security Role: Sales Mana - Internet Explorer

File Save and Close Actions Help

Working on solution: Default Solution

Security Role: Sales Manager

Details Core Records Marketing Sales Service Business Management Service Management Customization Custom Entities

Sync Attribute Mapping Profile

Team	User	User Settings
CRM for mobile	CRM for phones express	
Document Generation	Export to Excel	
Go Offline in Outlook	Mail Merge	
Print	Sync to Outlook	

Privacy Related Privileges

Enabling these privileges will allow users to extract customer data from Microsoft Dynamics CRM. For more information, review the corresponding user documentation.

CRM for mobile	CRM for phones express
Document Generation	Export to Excel
Go Offline in Outlook	Mail Merge
Print	Sync to Outlook

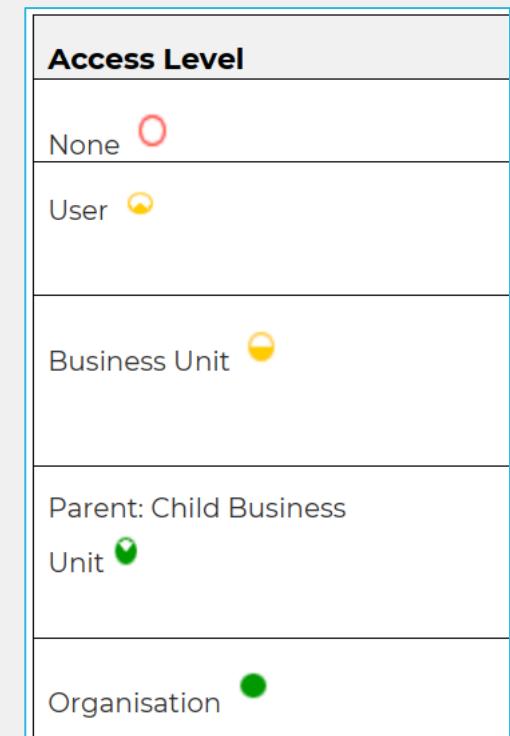
Miscellaneous Privileges

Action	Privilege
Act on Behalf of Another User	None Selected
Assign manager for a user	User
Assign Territory to User	Business Unit
Change Hierarchy Security Settings	Parent: Child Business Units
Enable or Disable Business Unit	Organization
Language Settings	
Override Created on or Created by for Records during Data Import	
Read License Info	
Reparent team	
Send Email as Another User	
Update Business Closures	

Key

None Selected User Business Unit Parent: Child Business Units Organization

Activate Windows Go to System in Control Panel 100% 100%



# Copy and Modify Security Roles (Modern)

Environments > JH Practice > Settings > Security roles

Manage security roles within this environment so that people can access their data. [Learn more](#)

Business unit
orgd8ca67e2

Role ↑ More actions

AIB Roles	...
AIB SML Roles	...
Basic User	...
BizQAAApp	Copy
Bot Author	Copy
Bot Contributor	Delete

Power Platform admin center

Environments > QA Tenancies (default) > Settings > Security roles > HR Role

Details

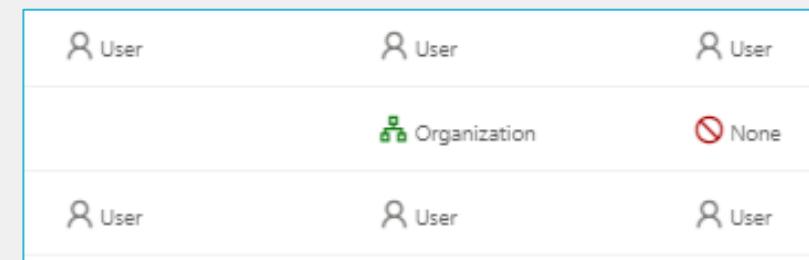
Business unit: orgcd69274c

When role is assigned to a Team

Team member gets all team privileges by default.  
Team members can inherit team privileges directly based on access level. [Learn More](#)

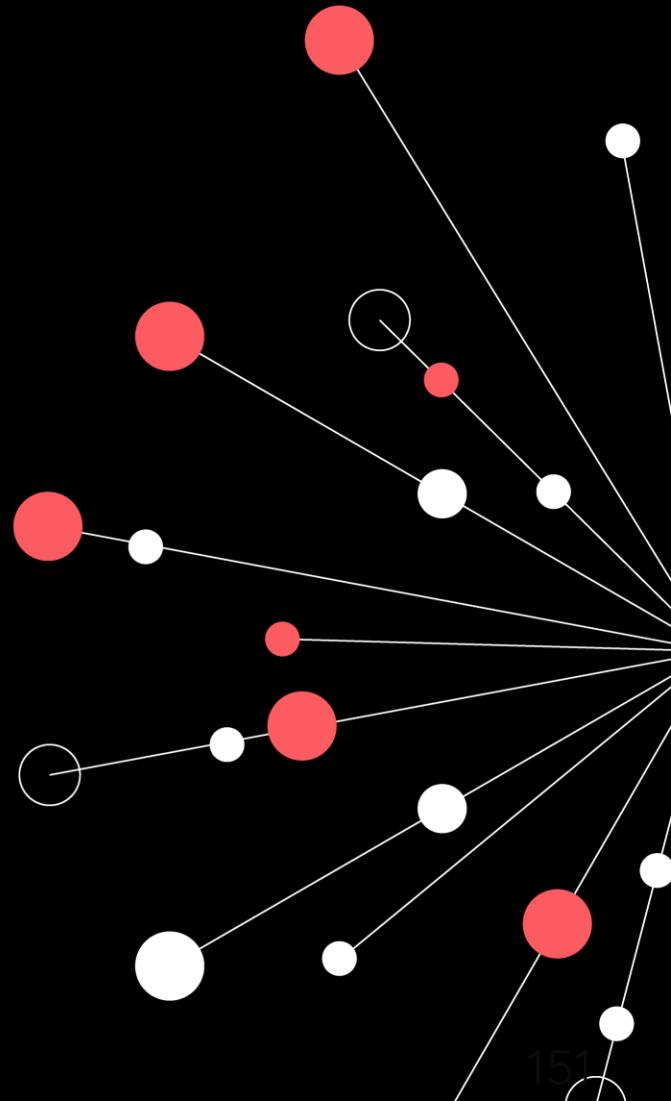
Member's privilege inheritance: Direct User (Basic) access level and Team privilege inheritance

Table	Name	Record ownership	Permission Settings	Create	Read	Write	Delete	Append	Append to	Assign
Business Management (17)										
Business Unit	businessunit	Business Unit	Reference	None	Organization	None	None	None	None	None
Channel Property Group	channelpropertygroup	Organization	Custom	None	Organization	None	None	Organization	Organization	Organization
Currency	transactioncurrency	Organization	Custom	None	Organization	None	None	Organization	Organization	Organization
Document Template	documenttemplate	Organization	Reference	None	Organization	None	None	None	None	None
Email Server Profile	emailserverprofile	User or Team	Custom	None	Organization	None	None	None	Organization	None
Goal	goal	User or Team	Custom	None	User	None	None	None	None	None
Goal Metric	metric	Organization	Reference	None	Organization	None	None	None	None	None
Mailbox	mailbox	User or Team	Custom	None	User	User	None	User	None	None
Mailbox Auto Tracking Folder	mailbotrackingfolder	User or Team	Custom	User	User	User	User	User	User	None
Organization	organization	Organization	Reference	Organization	None	None	None	None	None	None
Personal Document Template	personaldocumenttemplate	User or Team	Custom	User	User	User	User	User	User	User
Position	position	Organization	Reference	None	Organization	None	None	None	None	None

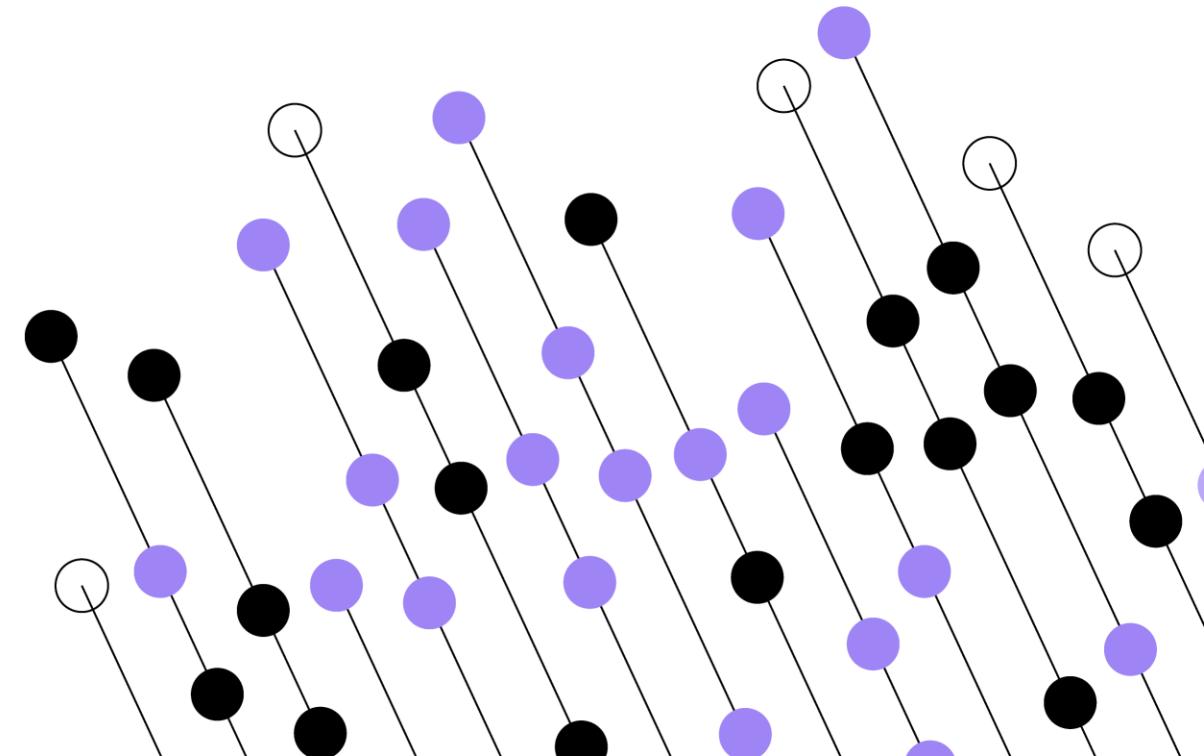


# Lab 14 (page 212)

- Configure Security Roles
1. Copy the Basic Users role twice to create two new roles
  2. Add the roles to your solution
  3. Modify the roles to include privileges listed in the lab
  4. Add users (Andrea & Dave) to the Event Management Leaders and Event Management Team roles



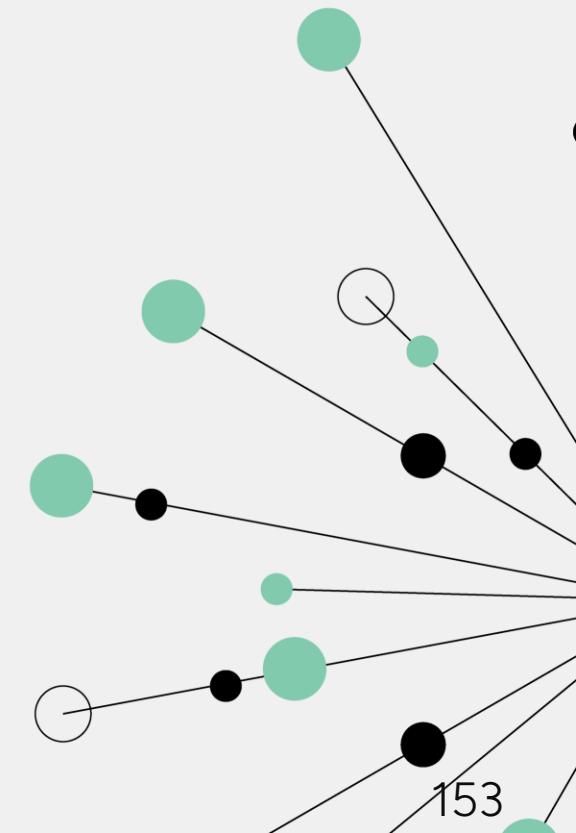
# Module 15: Security Model: Teams





- The building blocks of Dataverse security
- Teams overview
- Team Types
- Owner Teams
- Microsoft Entra ID Teams
- Access Teams
- Creating and Managing Teams

Teams



# The building blocks of Dataverse security

- Business Units
- Security Roles
- Teams



# Teams overview

- Teams can assist in assigning permissions
- Users can be added to Teams
- Security roles can be assigned to teams\* – the team members will inherit these permissions



\* Not Access Teams

# Team types

- Owner
- Access
- Microsoft Entra ID Security Group
- Microsoft Entra ID Office Group

New team X

Team name \*  
A demo Team

Description  
Add a team description

Business unit \*  
orgcd69274c

Administrator \*  
QA Admin X

Team type \* (i)

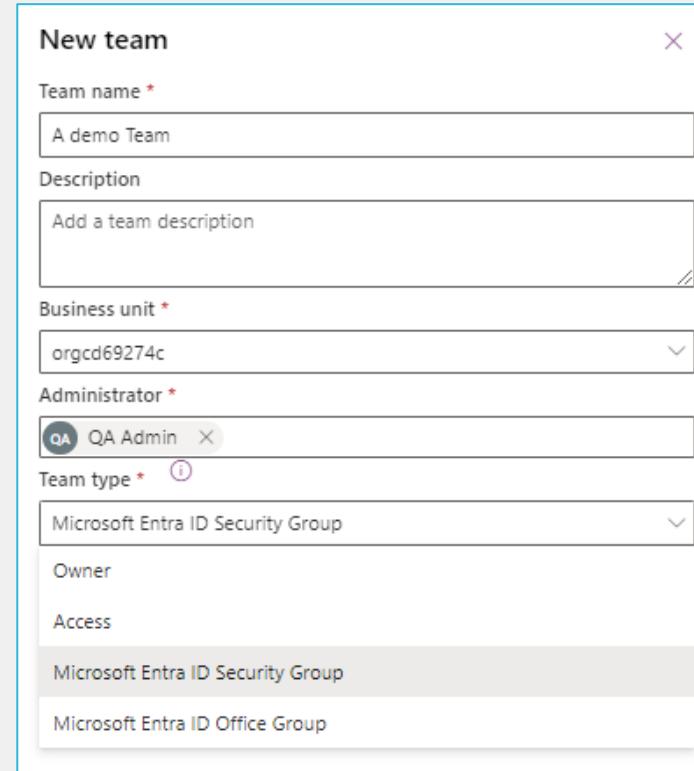
Microsoft Entra ID Security Group ▼

Owner

Access

Microsoft Entra ID Security Group

Microsoft Entra ID Office Group



# Owner Teams

Are assigned Security roles

Can be used for querying and reporting (e.g. view of all records owned by a team)

## Default Teams

- One in each Business Unit (with the same name)
- May not be deleted
- May not change membership

## Created Owner Teams

- May contain users from anywhere in the organization



# Microsoft Entra ID Teams

Membership is controlled by the selected Microsoft Entra ID Security or Microsoft 365 group

Can restrict membership to

- Members and Guests
- Members
- Owners
- Guests

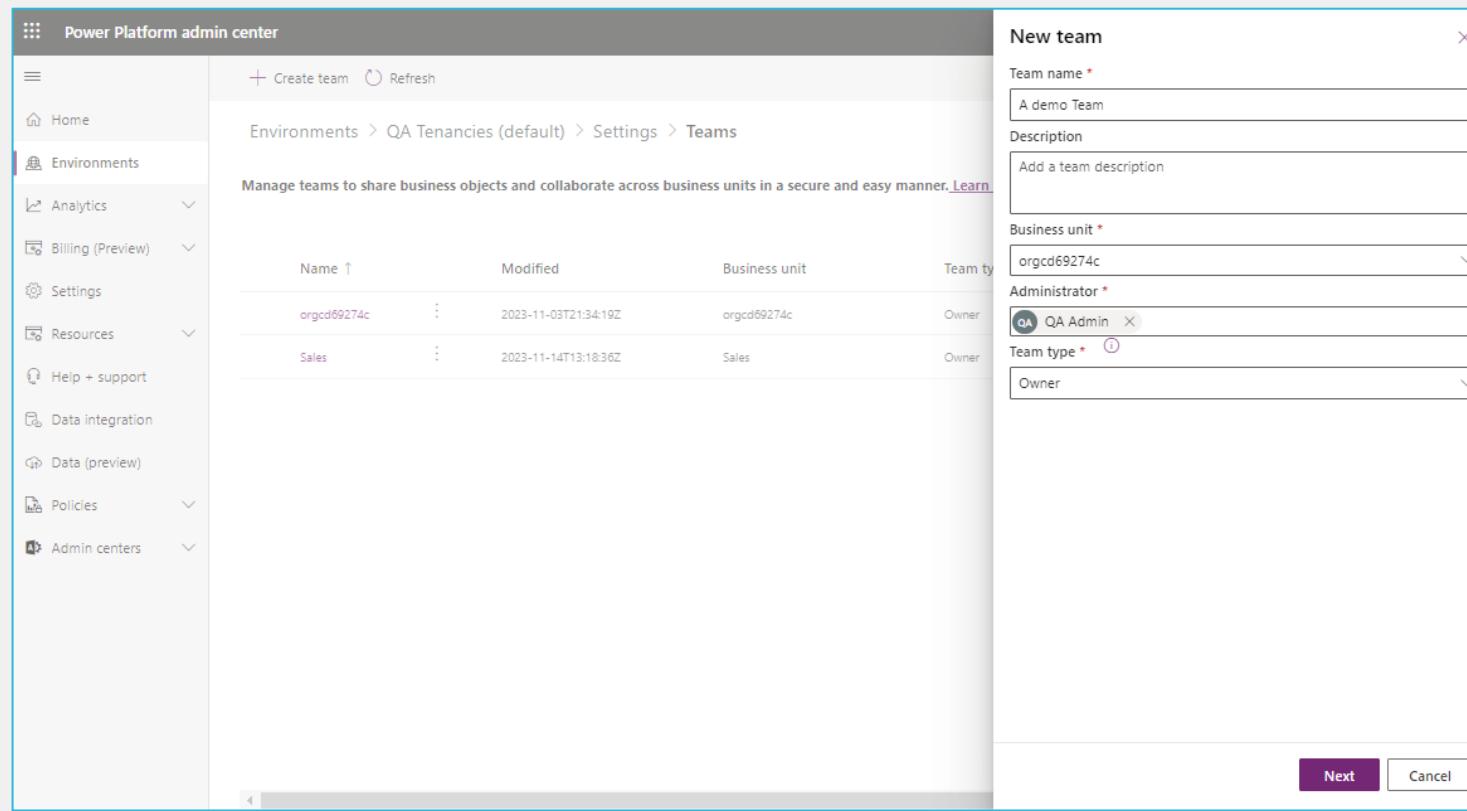


# Access Teams

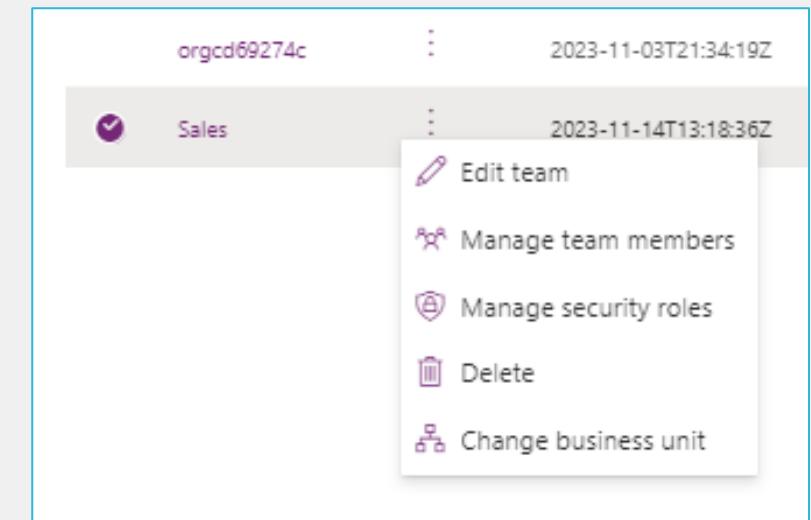
- Does not own records
- Does not have security roles assigned
- If a record is shared with the team, the team members are granted access rights to the record



# Creating and Managing Teams



The screenshot shows the Power Platform admin center interface. On the left, the navigation menu includes Home, Environments, Analytics, Billing (Preview), Settings, Resources, Help + support, Data integration, Data (preview), Policies, and Admin centers. The main content area shows the 'Environments > QA Tenancies (default) > Settings > Teams' path. A table lists existing teams: 'orgcd69274c' (Modified: 2023-11-03T21:34:19Z, Business unit: orgcd69274c, Owner: QA Admin, Team type: Owner) and 'Sales' (Modified: 2023-11-14T13:18:36Z, Business unit: Sales, Owner: Owner). A 'Create team' button is visible. A 'New team' dialog box is open, prompting for 'Team name' (A demo Team), 'Description' (Add a team description), 'Business unit' (orgcd69274c), 'Administrator' (QA Admin), and 'Team type' (Owner). Buttons for 'Next' and 'Cancel' are at the bottom.

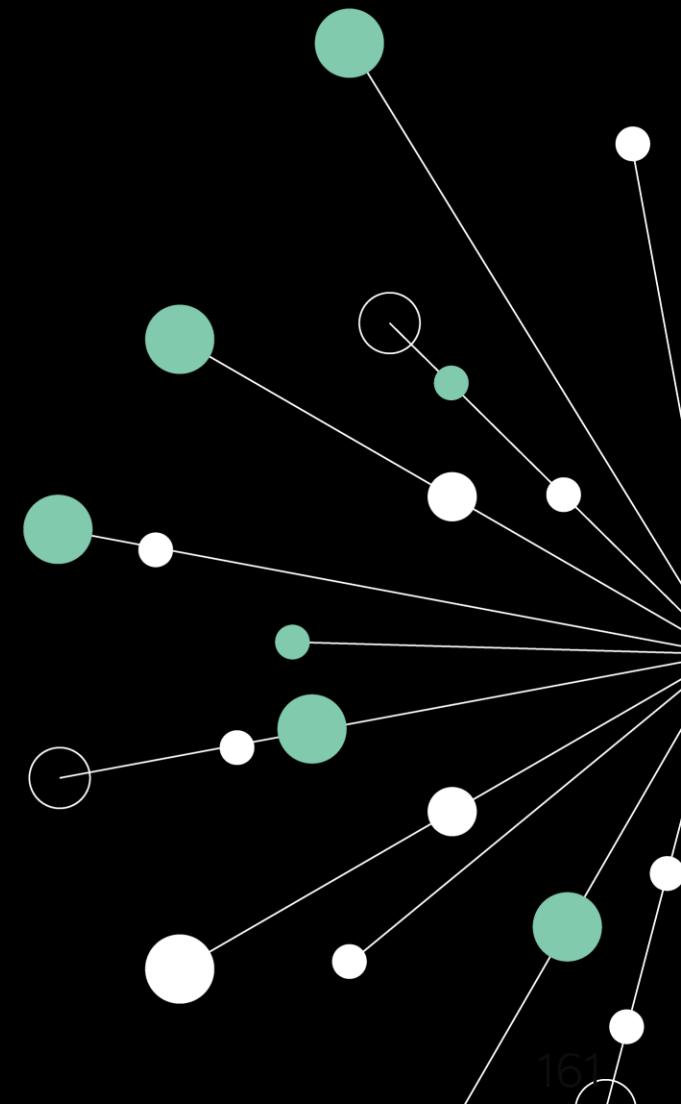


The screenshot shows a context menu for a team named 'Sales'. The menu items are: 'Edit team' (with a pencil icon), 'Manage team members' (with a person icon), 'Manage security roles' (with a key icon), 'Delete' (with a trash bin icon), and 'Change business unit' (with a location pin icon). The menu is displayed over a list of teams, with 'Sales' being the selected item.

# Lab 15 (page 226)

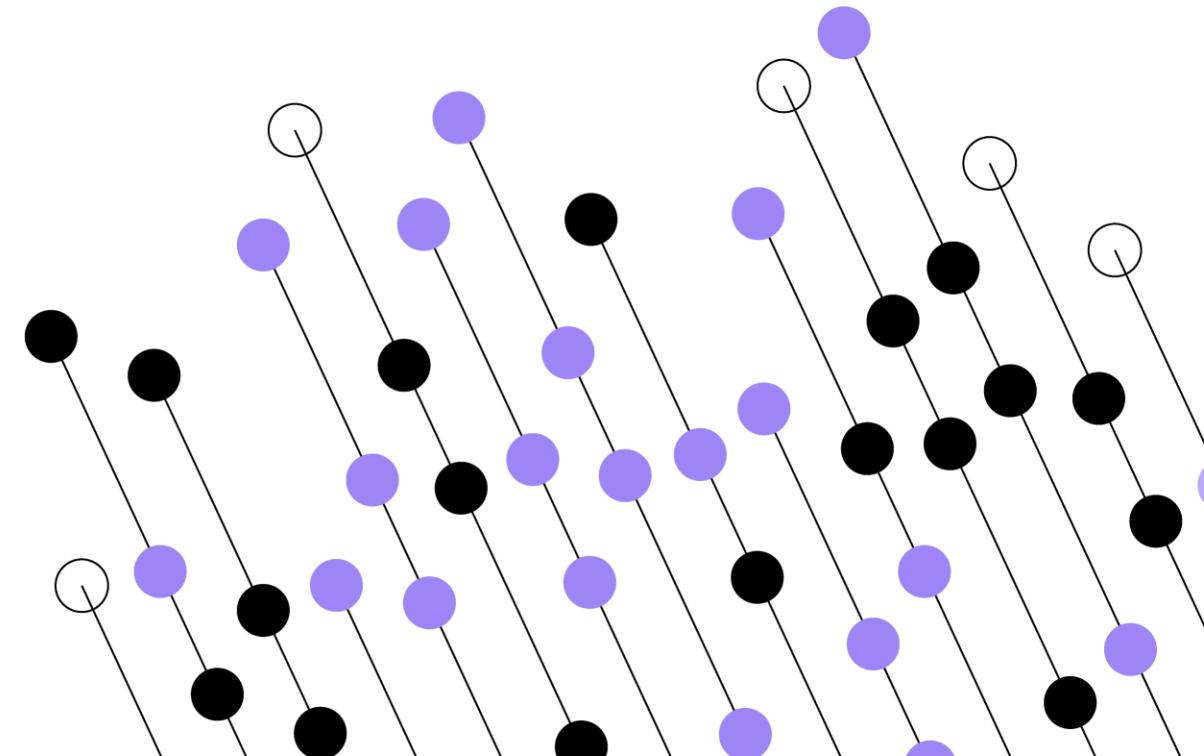
## Managing and Creating Teams

1. Create a new team in the Event Management Leaders Business Unit called Event Collaboration Team
2. Add users to the Team
3. Test the team permissions



# Module 16: Putting it all together

Solution Management





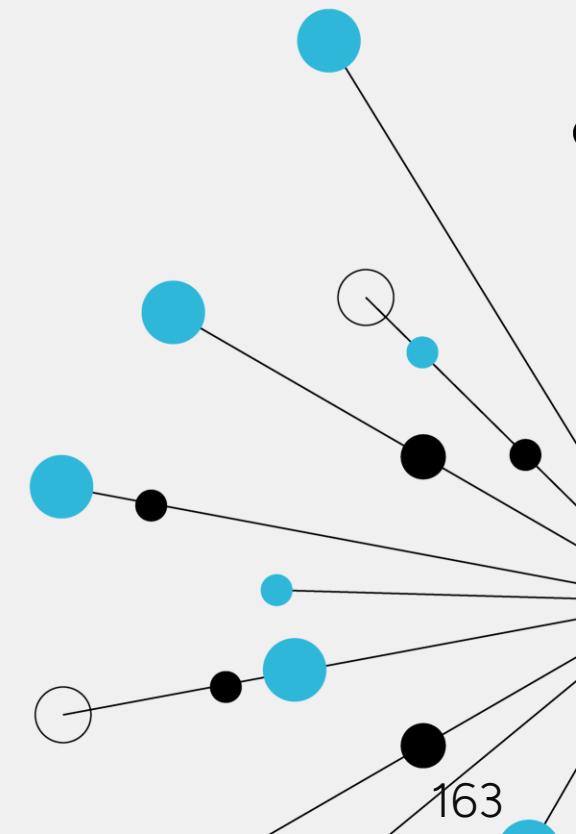
## Solution Management

- Managed vs Unmanaged Solutions
- Managed Properties
- Moving solutions from Development > Test > Production

## Ongoing Solution Maintenance

- Patching
- Cloning Solutions

*Putting it all together*



# Solution version numbers

<major>.<minor>.<build>.<revision>

Exporting a solution increases the <revision> number

History								
Start time ↓	End time ↓	Version	Publisher	Operation	Suboperati...	Result	Error code	
10/11/2023, 08:15	10/11/2023, 08:15	1.0.0.19	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 14:42	09/11/2023, 14:42	1.0.0.18	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 14:37	09/11/2023, 14:37	1.0.0.17	SEEvents	Export	None	<span>Failure</span>	80060376	
09/11/2023, 14:01	09/11/2023, 14:01	1.0.0.16	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 13:47	09/11/2023, 13:48	1.0.0.15	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 13:36	09/11/2023, 13:36	1.0.0.13	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 12:13	09/11/2023, 12:13	1.0.0.13	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 12:03	09/11/2023, 12:04	1.0.0.12	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 11:40	09/11/2023, 11:40	1.0.0.11	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 11:12	09/11/2023, 11:12	1.0.0.10	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 11:03	09/11/2023, 11:04	1.0.0.9	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 10:21	09/11/2023, 10:21	1.0.0.8	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 10:14	09/11/2023, 10:14	1.0.0.6	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 09:58	09/11/2023, 09:58	1.0.0.6	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 09:46	09/11/2023, 09:46	1.0.0.5	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 09:42	09/11/2023, 09:42	1.0.0.4	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 09:30	09/11/2023, 09:31	1.0.0.3	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 09:12	09/11/2023, 09:13	1.0.0.2	SEEvents	Export	None	<span>Success</span>	-	
09/11/2023, 08:30	09/11/2023, 08:30	1.0.0.1	SEEvents	Export	None	<span>Success</span>	-	

# Exporting Solutions

Exported Solutions are compressed files in .zip Format.

- Filename by default is: Solution Name + Version.
- Contains XML, XAML, .DLL, images and other files.

Warns if dependent components are missing.

Managed Solutions are for distributing customisations, such as ISV add-ons.

Internal developments usually use Unmanaged.

Default Solution may be exported but is always Unmanaged and not recommended.



# Importing Solutions

Updates components already in the system

Adds new components

Dependent components must already be in the target system or be included in the Solution

Managed Solution keeps components

- Solution may be removed to delete all components.

Unmanaged Solution deletion will not uninstall components

- Writes changes into the Default Solution
- Can be removed but changes remain in the system



# Managed vs Unmanaged Solutions

- Managed Solution – A completed solution intended to be distributed and installed
- Unmanaged – Allows modifications

Managed Solution	Unmanaged Solution
Most elements may not be customised. It is possible to set granular levels (Managed Properties) of rights to alter elements of the Solution such as create views, create forms etc.	All the elements or components in the Solution may be customised without any restriction.
Solution may not be exported By deleting the Managed Solution, all the components in the solution will also be uninstalled.	Solution may be exported If a user deletes the solution, the components still exist in the Default Solution. Tables, Columns and Web Resources may be removed manually.
A Managed Solution may be overridden by another new version of a Managed Solution.	

# Updating Managed Solutions

Upgrade – Default option, upgrades your Solution to the latest version and rolls up all previous patches in one step.

Stage for Upgrade – upgrades your Solution but defers the deletion of the previous version and any related patches until you apply the Solution upgrade later.

Good if you want both old and new Solutions in the system to do some data migration before you complete the Solution upgrade.

- Update – This option replaces your Solution with this version. Components that are not in the newer Solution won't be deleted and remain in the system. This option typically finishes in less time than the upgrade method.

Managed

Publisher  
Contoso Inc

Current version installed  
1.0.0.3

Version contained in the update  
1.0.0.4

Patch  
No

---

[Advanced settings ^](#)

Solution action [Learn more](#)

Upgrade

Upgrades your solution to the latest version. Any objects not present in the newest solution will be deleted.

Stage for upgrade

Upgrades your solution to the higher version, but defers the deletion of the previous version and any related patches until you apply an upgrade later.

Update

# Managed Properties

**Managed Properties** ×

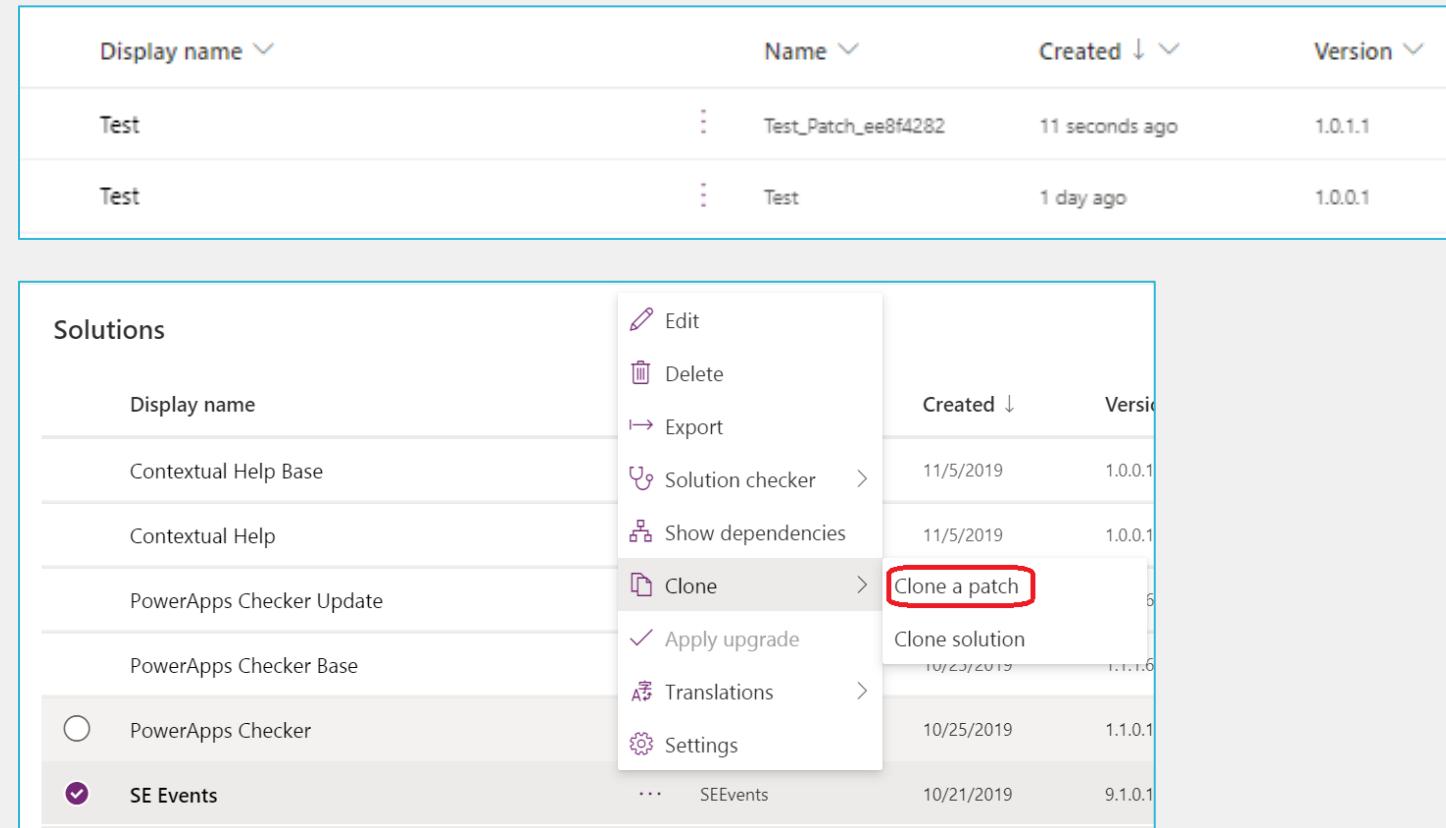
The following properties will take effect only after the component is exported and imported as part of a managed solution.

- Allow customizations
- Display name can be modified
- Can change additional properties
- New forms can be created
- New charts can be created
- New views can be created
- Can change hierarchical relationship
- Can change tracking be enabled
- Can enable sync to external search index



# Patching a solution

- If you make a small change (e.g. add a column) and export, all assets in the solution will be exported
- A patch allows changes to be isolated from the rest of the solution (allowing it to contain only the changes)
- Patches are applied to existing solutions
- Parent solution becomes read-only
- Creating a patch increases the <build> number in the solution version.



The image shows two screenshots illustrating the process of creating a patch. The top screenshot is a table of solutions, showing two entries: 'Test' (Name: Test\_Patch\_ee8f4282, Created: 11 seconds ago, Version: 1.0.1.1) and another 'Test' entry (Name: Test, Created: 1 day ago, Version: 1.0.0.1). The bottom screenshot shows a list of solutions with a context menu open over the 'Test' solution. The menu includes options like 'Edit', 'Delete', 'Export', 'Solution checker', 'Show dependencies', 'Clone' (which is highlighted with a red box), 'Apply upgrade', 'Translations', and 'Settings'. The 'Clone' option is specifically labeled 'Clone a patch'.

Display name	Name	Created	Version
Test	Test_Patch_ee8f4282	11 seconds ago	1.0.1.1
Test	Test	1 day ago	1.0.0.1

Display name	Created	Version
Contextual Help Base	11/5/2019	1.0.0.1
Contextual Help	11/5/2019	1.0.0.1
PowerApps Checker Update		
PowerApps Checker Base		
PowerApps Checker	10/25/2019	1.1.0.1
SE Events	10/21/2019	9.1.0.1

# Clone a solution

- Merges original solution and patched into one entity
- Increases <minor> number in the solution version

Display name	Name	Created	Version
Test	Test	1 day ago	1.1.0.0
Parent Child Flows	ParentChildFlows	6 days ago	1.0.0.0

Solutions

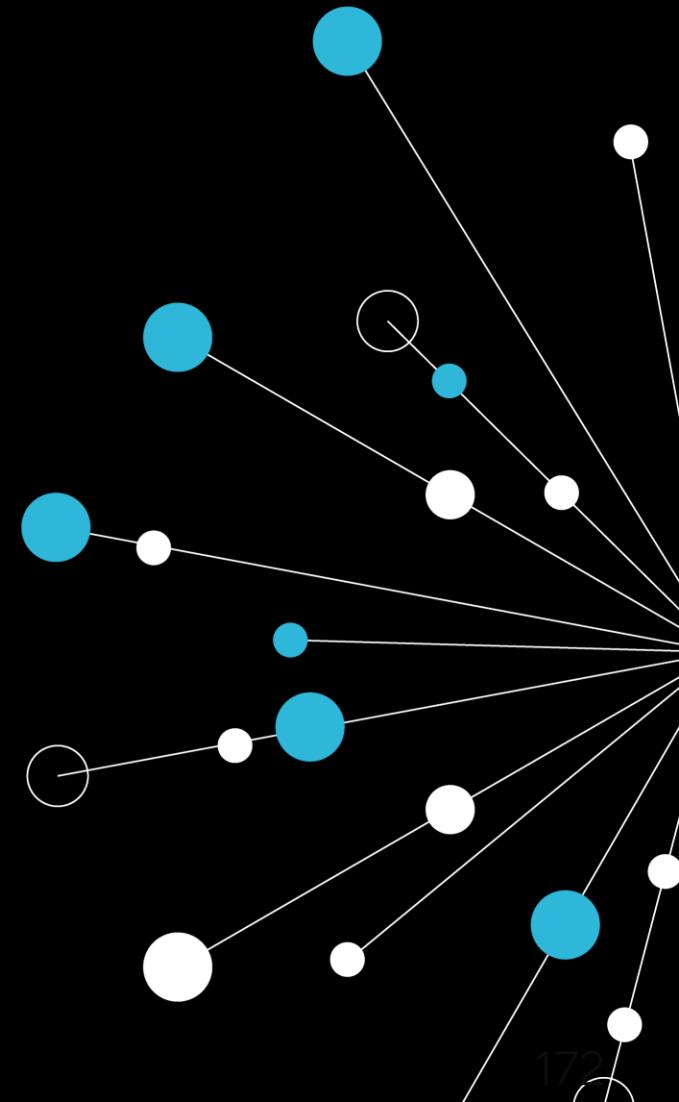
Display name	Created	Version
msdyn_CSConfiguration	9/7/2020	1.0.0.34
msdyn_CustomerServiceWorkspace	9/7/2020	1.0.0.38
msdyn_CSIntelligence	9/7/2020	1.0.0.28
Smart assist	Clone a patch	462
Productivity Pane Component	Clone solution	9.2.1.378
App profile manager	9/7/2020	10.0.0.88
SE Events	9/7/2020	9.1.0.1
Entity records routing	9/6/2020	9.1.20054.100

More options

- Edit
- Delete
- Export
- Solution checker
- Show dependencies
- See history
- Clone
- Apply upgrade
- Translations
- Settings

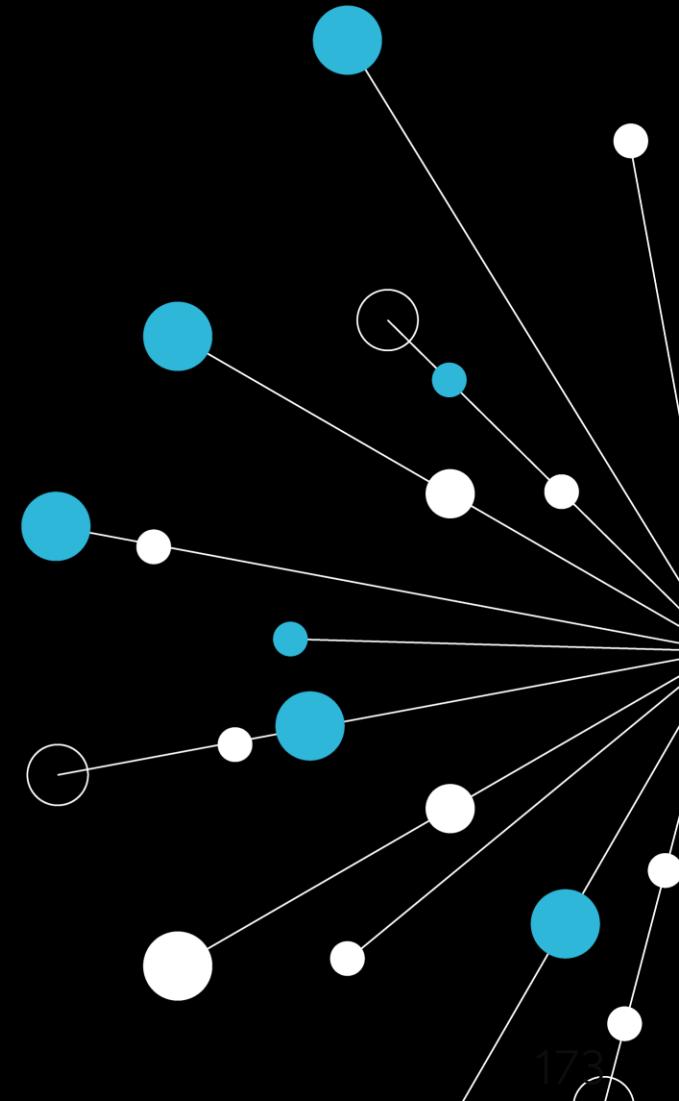
# Lab 16a (page 235)

- Solution Patching
1. Clone a patch on the SE Events Solution
  2. Add a new Activity Table called Event Task to the Patch
  3. Save and Publish the Patch
  4. Test that the new Event Task is visible within the Model-Driven App



## Lab 16b (page 238)

- Import a Managed Solution (do in your own time)
- 1. Clone the SE Events Solution
- 2. Check the Managed Properties of the Public Event, Event Bookings and Event Manager tables
- 3. Publish all Customisations
- 4. Export the Solution twice; once as Unmanaged and once as Managed
- 5. Create a new Test Environment
- 6. Import the Managed Solution into the new Test Environment
- 7. Try to modify the imported solution
- 



# Thank you!

End of Training Session

Please fill out Evaluation form

Any final questions?

