

Unified Development Experience for Finance & Operations

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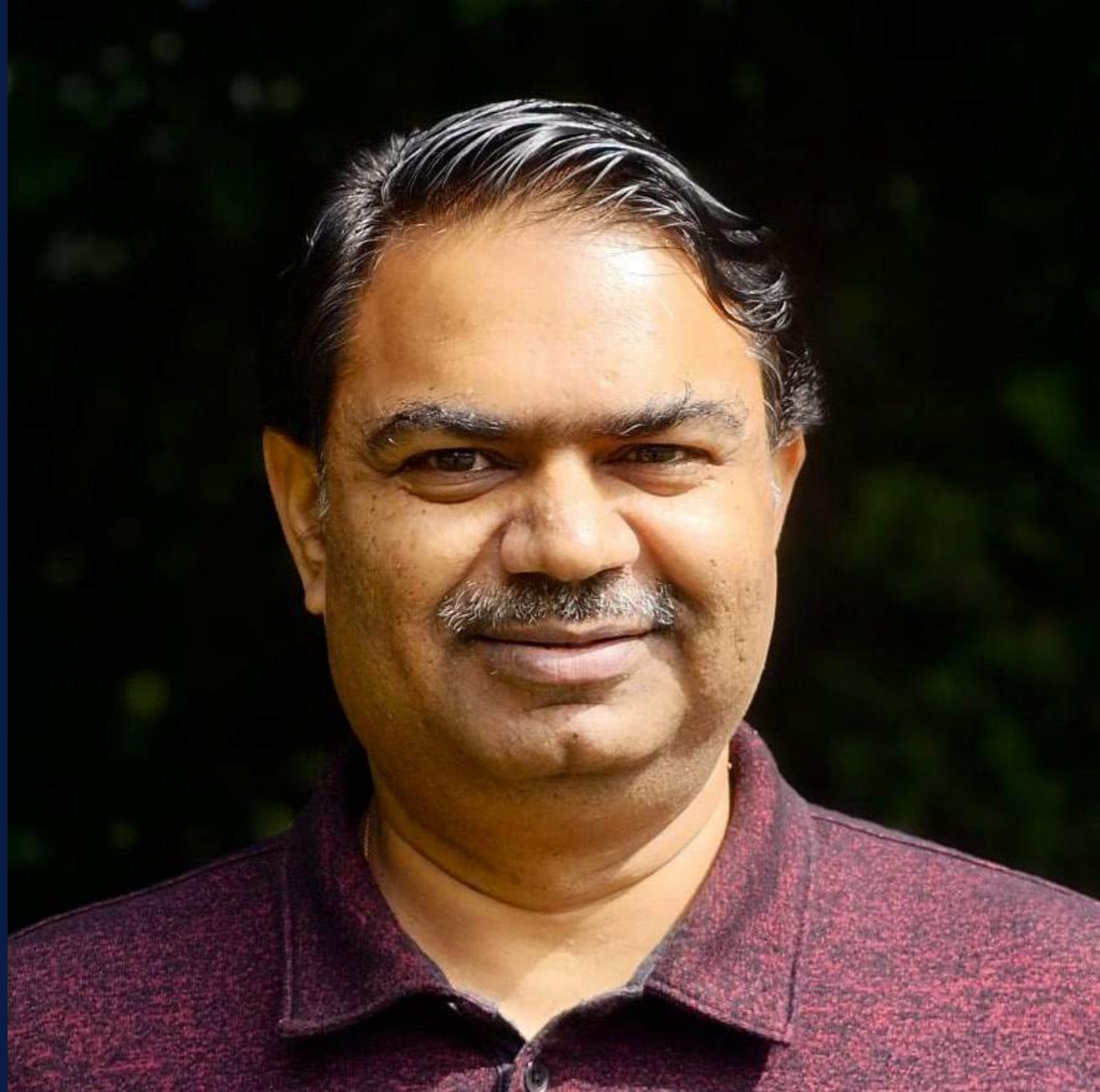


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TechTalk Series

- *Session 1 - Unified Admin Experience* (YouTube [Link](#))
- *Session 2 – Unified Development Experience*
- Session 3 – Unified Dev ALM

Agenda

Objectives | Why UDE

Unified Developer Environment | Provisioning

Developer workstation | Install VS, Dev Tools

Write, deploy, debug, and test X++ code

Write, deploy, and debug Dataverse Plugins

SQL Access | F&O, Dataverse

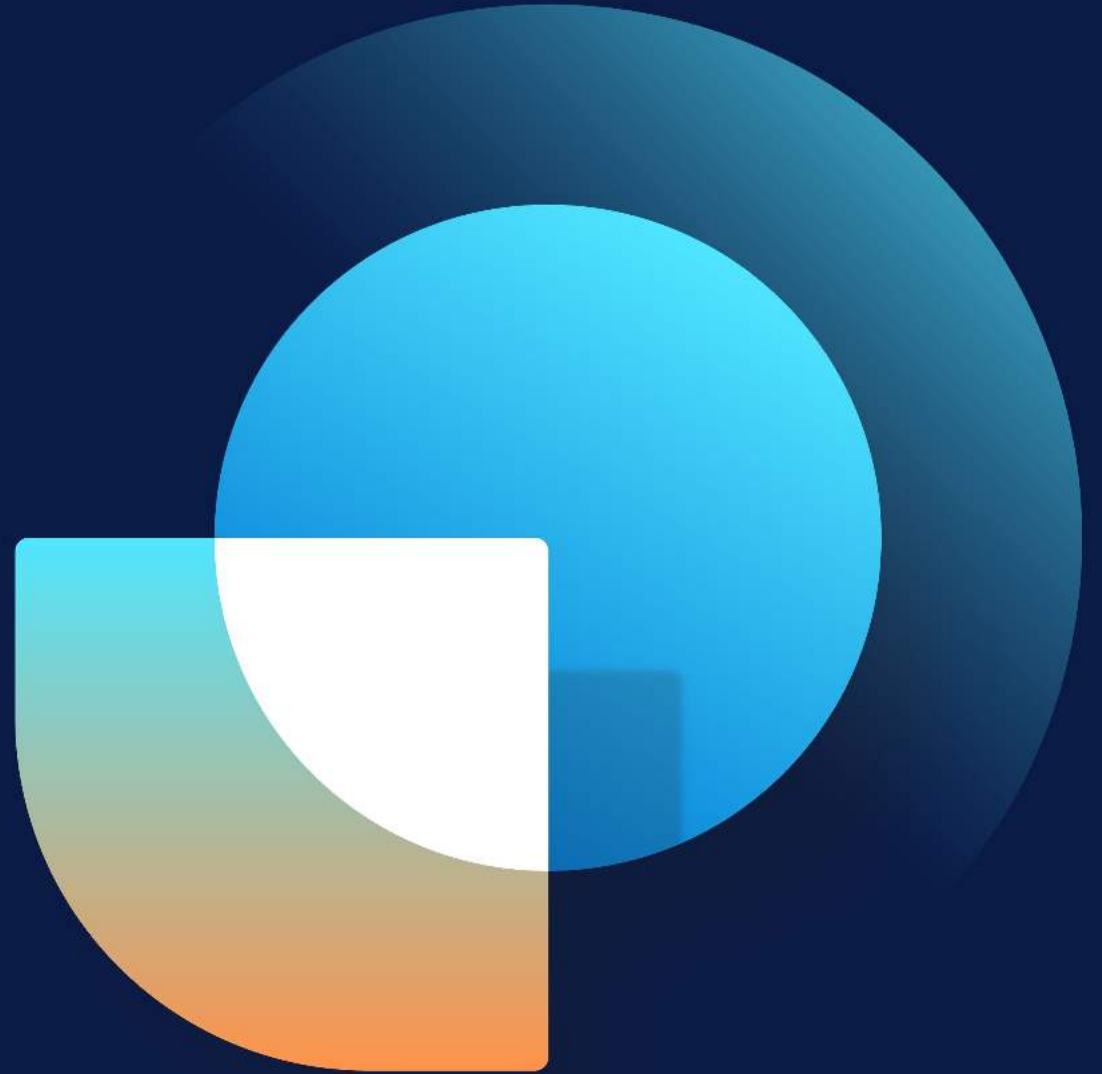
Trace Parser | F&O

Resources

Q&A

Objectives

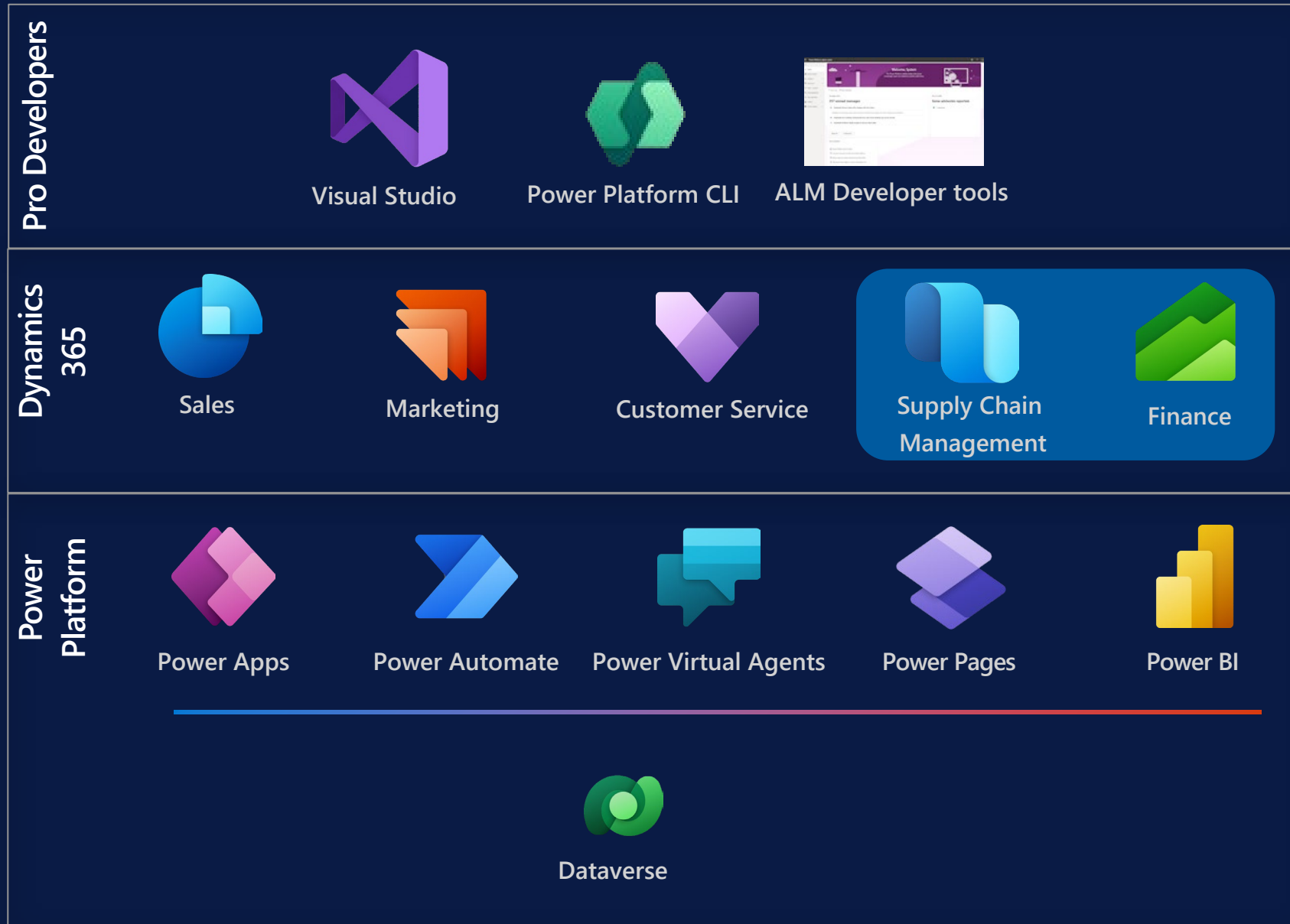
Peter



What problems is UDE solving?

- The barrier for developers to leverage the strengths from each platform was too high
- X++ development was local, and Power Platform & Dataverse runs in online environment
- Developing / testing / debugging that spanned X++ and DV was extremely challenging
- Setting up the environment was complex and needed to be managed by individual Engineers – Each team had different ways of doing this.

Reducing developer friction between F&O and CE applications



Unified Development Experience Benefits



**Faster innovation
using common tools
for unified Dynamics
solution
development**



**Better business
outcomes with
turnkey integrations
and common
capabilities to activate
data**



**Workloads are
managed more easily
with a single simplified
administration
experience**

**Increased developer
productivity**

**Faster dev
environment setup**

**Faster troubleshooting
of production issues**

**Secure / more
compliant
environments**

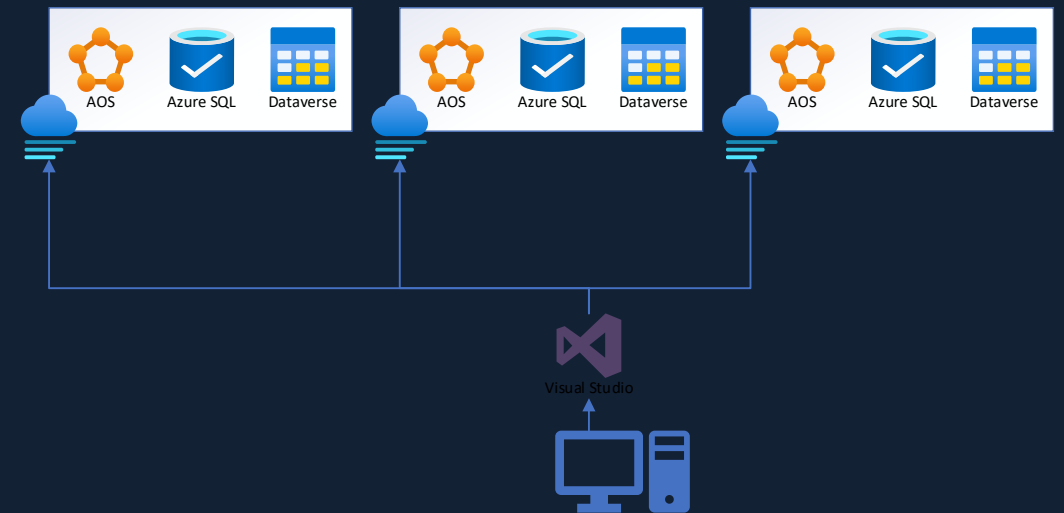
Reduction of TCO

Unified Development Experience

Available Now!



- “Stripped down” Tier2 SaaS environment
- Single AOS for Interactive & Batch loads
- Same ALM and ELM capabilities
- Local Visual Studio with connection(s) to cloud environment(s)
- Incremental X++ package updates into existing environment
- Remote Debugging directly from local Visual Studio
- Remote Unit Test execution directly from local Visual Studio
- SQL Access from Visual Studio



Unified Developer Environment | Provisioning

Saurabh





Validate Role, License, Capacity

Visit M365 Admin Center for Role and License

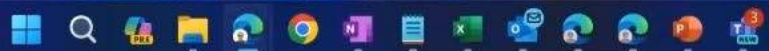
Visit Capacity report in Power Platform Admin Center

Deploy

- Open PowerShell in Admin mode
- Construct JSON
 - **DevToolsEnabled = True** (Mark False if creating Non-Developer (Sandbox) environment)
 - **DemoDataEnabled = False** (Mark True if need Demo data)
- **Templates** = D365_FinOps_Finance / D365_FinOps_SCM / D365_FinOps_ProjOps
- **DomainName** = For unique Environment Name (DisplayName don't guarantee env URL)
- **LocationName** = Run "Get-AdminPowerAppEnvironmentLocations" to identify location names such as "unitedstates"
- Always deploy on latest Service & Quality Update

[Tutorial: Provision a new environment with an ERP-based template
New-AdminPowerAppEnvironment \(Microsoft.PowerApps.Administration.PowerShell\)](#)

Demo – Create Unified Developer Environment via Powershell



Developer workstation | Install Dev Tools

Pankaj





Workstation

- Windows 10 or 11 instance (laptop, desktop, vm, cloud box, etc.) with minimum 4 cores and 16GB RAM. SSD preferred. Good network bandwidth.
- 16+ GB of free space on the local system drive

Software

- Visual Studio 2022
 - .NET desktop development
 - Modeling SDK
 - DGML editor
 - Microsoft Reporting Services Projects
- SQL Server Management Studio (SSMS)

[Visual Studio requirements for X++ - Finance & Operations | Dynamics 365](#)

Install / Setup Development tools

Available Now!



Validate

- Ensure access to UDE in sys admin role

Install Power Platform VS Extension

- Go to VS > Manage Extensions> Online> Search 'Power Platform Tools for VS 2022'

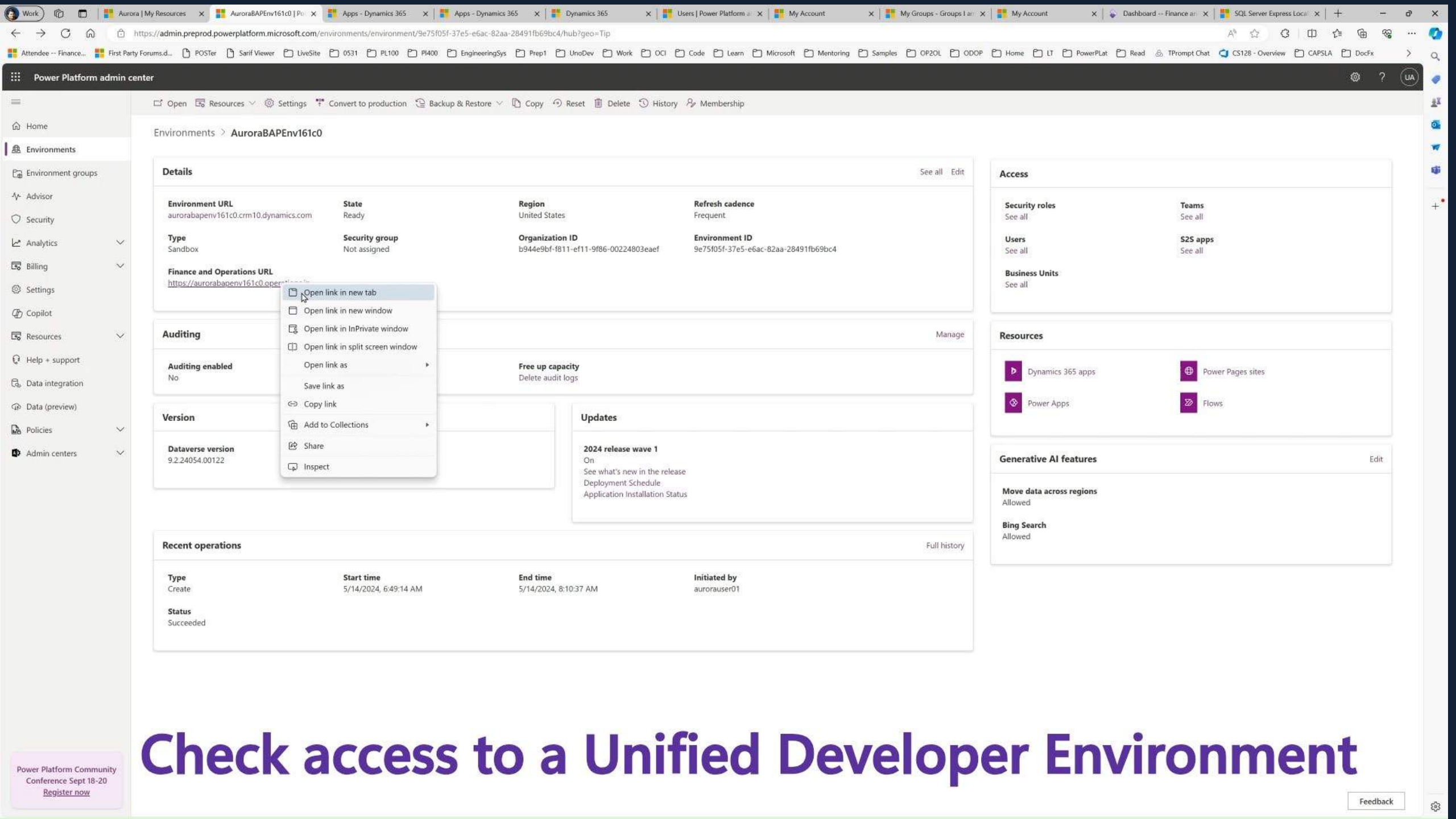
Check SQL Server LocalDB

- Test connection to SQLServer LocalDB

Download/ Auto setup client tools

- Go to VS > Tools > Download Dynamics 365 FinOps assets
- If using MFA or a guest user account also ensure skip Discovery is enabled.
- Go to VS > Tools> Options > Power Platform Tools and ensure Auto setup is enabled.
- Download Client assets from VS>Tools menu
- Review progress in VS output pane

[Install and configure development tools \(preview\) - Power Platform](#)



Environments > AuroraBAPEnv161c0

Details See all Edit

Environment URL aurorabapenv161c0.crm10.dynamics.com	State Ready	Region United States	Refresh cadence Frequent
Type Sandbox	Security group Not assigned	Organization ID b944e9bf-f811-ef11-9f86-00224803eae4	Environment ID 9e75f05f-37e5-e6ac-82aa-28491fb69bc4
Finance and Operations URL https://aurorabapenv161c0.open...			

- Open link in new tab
- Open link in new window
- Open link in InPrivate window
- Open link in split screen window
- Open link as
- Save link as
- Copy link
- Add to Collections
- Share
- Inspect

Auditing Manage

Auditing enabled No	Free up capacity Delete audit logs
-------------------------------	--

Version

Dataverse version 9.2.24054.00122

Updates

2024 release wave 1
On
See what's new in the release
Deployment Schedule
Application Installation Status

Access

Security roles See all	Teams See all
Users See all	S2S apps See all
Business Units See all	

Resources

- Dynamics 365 apps
- Power Pages sites
- Power Apps
- Flows

Generative AI features Edit

Move data across regions Allowed
Bing Search Allowed

Recent operations Full history

Type	Start time	End time	Initiated by
Create	5/14/2024, 6:49:14 AM	5/14/2024, 8:10:37 AM	auroraus01
Status	Succeeded		

Check access to a Unified Developer Environment

Power Platform Community Conference Sept 18-20
[Register now](#)

Feedback

Write, deploy, and debug X++ code

Pankaj



Write, Deploy, and Debug X++

Available Now!



Write

- Create a model
- Create a project with X++ objects (classes, tables etc.)
- Build the Project

Deploy (Execute Code on Cloud Env)

- Deploy Model to Online Environment
- DB Sync to Online Environment if needed
- Unit Testing to Online Environment

Debug

- Include Models/Packages to debug
- Set Breakpoints

[Write, deploy, and debug X++ code - Power Platform](#)

Demo – Write, Deploy, and Debug in X++

Application Explorer

Enter a Filter Query

- AOT
 - aaaTest1 (aaaTest1)
 - aaModel0123 (aaModel0123)
 - aaTestModel (aaTestModel)
 - aaTestModel2 (aaTestModel2)
 - Acceptance Test Library - Application S...
 - Acceptance Test Library - Core Financial
 - Acceptance Test Library - Cost accountin...
 - Acceptance Test Library - Globalization
 - Acceptance Test Library - Material Hanc...
 - Acceptance Test Library - Personnel (At...
 - Acceptance Test Library - Sample Tests
 - Acceptance Test Library - Test Case Con...
 - Acceptance Test Library Foundation (A...
 - Accounts Payable Mobile (AccountsPay...
 - aNewModelB1 (aNewModelB1)
 - aNewModelB1Extension (aNewModelB1E...
 - Application Common (ApplicationCorr...
 - Application Foundation (ApplicationFc...
 - Application Foundation Form Adaptor
 - Application Platform (ApplicationPlatf...
 - Application Platform Form Adaptor (A...
 - Application Suite (ApplicationSuite)
 - Application Suite Electronic Reporting I...
 - Application Suite Form Adaptor (Appli...
 - Application Suite Tax Books Integration
 - Application Suite Tax Engine Integrator
 - Application Workspaces (ApplicationW...
 - ApplicationWorkspacesFormAdaptor (...
 - AppTroubleshooting (AppTroubleshoo...
 - AppTroubleshootingCore (AppTrouble...
 - ArchiveService (ArchiveService)
 - Asset Leasing (AssetLeasing)
 - Asset Management Dynamics 365 for O...
 - Asset Management IoT Integration (En...

Power Pla... Explorer

Breakpoints

New

Show Columns

Name Labels Condition Hit Count

Manage local XPP configurations

Name	Current
aurorabapenv161c0	<input checked="" type="checkbox"/>
aurorabapenv56949	<input type="checkbox"/>
aurorabapenvc9bfa	<input type="checkbox"/>
Local	<input type="checkbox"/>
PU61	<input type="checkbox"/>
PU61b	<input type="checkbox"/>
xppconfig	<input type="checkbox"/>

Name: aurorabapenv161c0

Description: Unified development environment aurorabapenv161c0. FinOps application version 10.0.1964.0. Configuration generated on 5/28/2024. Cross Reference DB Server (LocalDB)\MSSQLLocalDB. Cross Reference DB Name XRef_aurorabapenv161c010019640.

Cross reference database server (localdb or SQL Server): (LocalDB)\MSSQLLocalDB

Cross reference database name: XRef_aurorabapenv161c010019640

Application version (to initialize cross reference database if new): 10.0.1964.0

Folder for your own custom metadata: E:\Trial\MyMetadata2

Folders for reference metadata: C:\Users\pathaku\AppData\Local\Microsoft\Dynamics365\10.0.1964.0\PackagesLocalDirectory

Add Remove

New Delete Save

Git Changes - vTeam1

main

11 0 / 0 View all commits

Enter a message <Required>

Commit All Amend

Related Work Items

Changes (1720)

- E:\Source\ProgrammingM...
 - Metadata
 - Solution\FinanceOpera...
 - FinanceOperations1.r... A

Stashes

Update the custom metadata location

Create, Update, Deploy, Delete and Debug in Dataverse

Available Now!



Create

- Create a project with project templates in Visual Studio or with PAC CLI
- Write or update your plugin code in C# using Visual Studio
- Build the project

Deploy (Execute Code on Cloud Env)

- Deploy Plugin with Visual studio or Plugin Registration Tool
- Browse/Create/update/delete Plugin Steps

Add your plugin and steps in your solution

- Add Plugin Assembly and Steps to your solution in maker portal

Debug

- Start profiling directly in Visual Studio or in Plugin Registration Tool
- Set Breakpoints and attach in Visual Studio
- Start execution in Visual Studio or in Plugin Registration Tool

[Tutorial: Debug a plug-in \(Microsoft Dataverse\)](#)

Demo – Write, Deploy, and Debug for Dataverse

Application Explorer

Enter a Filter Query

- AOT
 - aaModel1 (aaModel1)
 - Acceptance Test Library - Application Suite (AtlApp)
 - Acceptance Test Library - Core Financial (AtlCoreFin)
 - Acceptance Test Library - Cost accounting (AtlCostA)
 - Acceptance Test Library - Globalization for LATAM (
 - Acceptance Test Library - Material Handling (AtlMat)
 - Acceptance Test Library - Personnel (AtlPersonnel)
 - Acceptance Test Library - Sample Tests (AtlSampleT)
 - Acceptance Test Library - Test Case Common (ATLT)
 - Acceptance Test Library Foundation (AtlFoundation)
 - Accounts Payable Mobile (AccountsPayableMobile)
 - Application Common (ApplicationCommon)
 - Application Foundation (ApplicationFoundation)
 - Application Foundation Form Adaptor (Application)
 - Application Platform (ApplicationPlatform)
 - Application Platform Form Adaptor (ApplicationPla)
 - Application Suite (ApplicationSuite)
 - Application Suite Electronic Reporting Integration (
 - Application Suite Form Adaptor (ApplicationSuiteFc)
 - Application Suite Tax Books Integration (Applicatio)
 - Application Suite Tax Engine Integration (Applicatio)
 - Application Workspaces (ApplicationWorkspaces)
 - ApplicationWorkspacesFormAdaptor (ApplicationW)
 - AppTroubleshooting (AppTroubleshooting)
 - AppTroubleshootingCore (AppTroubleshootingCore)
 - ArchiveService (ArchiveService)
 - Asset Leasing (AssetLeasing)
 - Asset Management Dynamics 365 for Operations (E)
 - Asset Management IoT Integration (EnterpriseAsset)
 - Asset Management Manufacturing Execution (EntAs)
 - Asset Management Manufacturing Execution Backoff
 - Asset Management Manufacturing Execution Interfac
 - Asset Management Mobile Dynamics 365 for Operat
 - BankTypes (BankTypes)

FMRental Account.cs Test Explorer Power Plat...m Explorer What's New?

Search ...

- FMRental (isv) [Fleet Management]
 - Methods
 - Events
 - Data Sources
 - Parts

Design | Pattern: Details Transaction

- ApplicationBar (Action Pane)
- NavigationList (Group)
- Tab (Tab)

Preview Pattern

Start rental Complete rental

Rental

New

Rental

Output

Show output from: Datarverse Deploy

```

5/29/2024 5:01:46 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:46 PM : ==>Execute Command - Retrieval
5/29/2024 5:01:46 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:46 PM : ==>Executed Command - Retrieval
5/29/2024 5:01:46 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:46 PM : ==>Execute Command - Retrieval
5/29/2024 5:01:47 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:47 PM : ==>Executed Command - Retrieval
5/29/2024 5:01:47 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:47 PM : ==>Execute Command - Retrieval
5/29/2024 5:01:47 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:47 PM : ==>Executed Command - Retrieval
5/29/2024 5:01:47 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:47 PM : ==>Execute Command - Retrieve
5/29/2024 5:01:47 PM : Microsoft.Xrm.Tooling.Connector.CrmServiceClient Verbose: 16 : 5/29/2024 5:01:47 PM : ==>Executed Command - Retrieval
5/29/2024 5:01:47 PM : Deploy or Update operation Succeeded. Elapsed Time: 00:00:31.0789010
5/29/2024 5:01:47 PM : Saving registration information
5/29/2024 5:01:47 PM : Successfully saved registration information
5/29/2024 5:01:47 PM : =====
  
```

Solution Explorer

Search Solution Explorer (Ctrl+)

- Solution 'FleetManagementUnoSln' (4 of 4 projects)
 - CrmPackage
 - FleetManagement (ISV) [Fleet Management]
 - References
 - FMRental
 - FleetManagementUT (ISV) [Fleet Management Un]
 - References
 - aFMTestClass1
 - FleetConfigUnitTests
 - Plugin01
 - Properties
 - References
 - C# Account.cs
 - key.snk
 - C# PluginBase.cs
 - C# PostOperationaccountCreate.cs
 - C# PreValidationaccountCreate.cs
 - C# PreValidationaccountDelete.cs

SQL Access Trace Parser

Saurabh



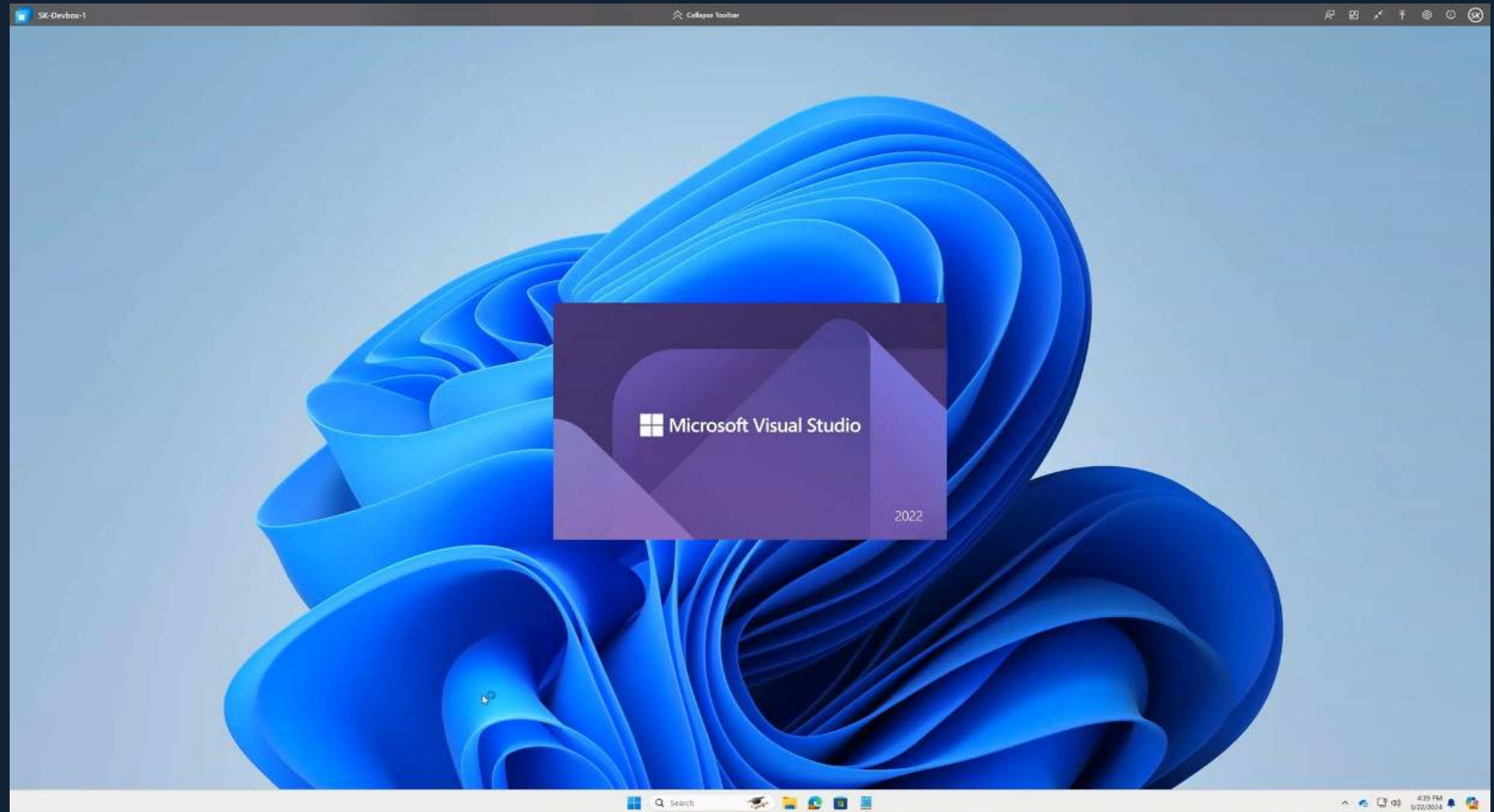


Visual Studio

- Visual Studio > Tools > SQL Credentials for Dynamics 365 FinOps
- Provide a reason, choose between Reader and Writer roles
- Request Access

SQL Server Management Studio (SSMS)

- Provide Details
- Connect

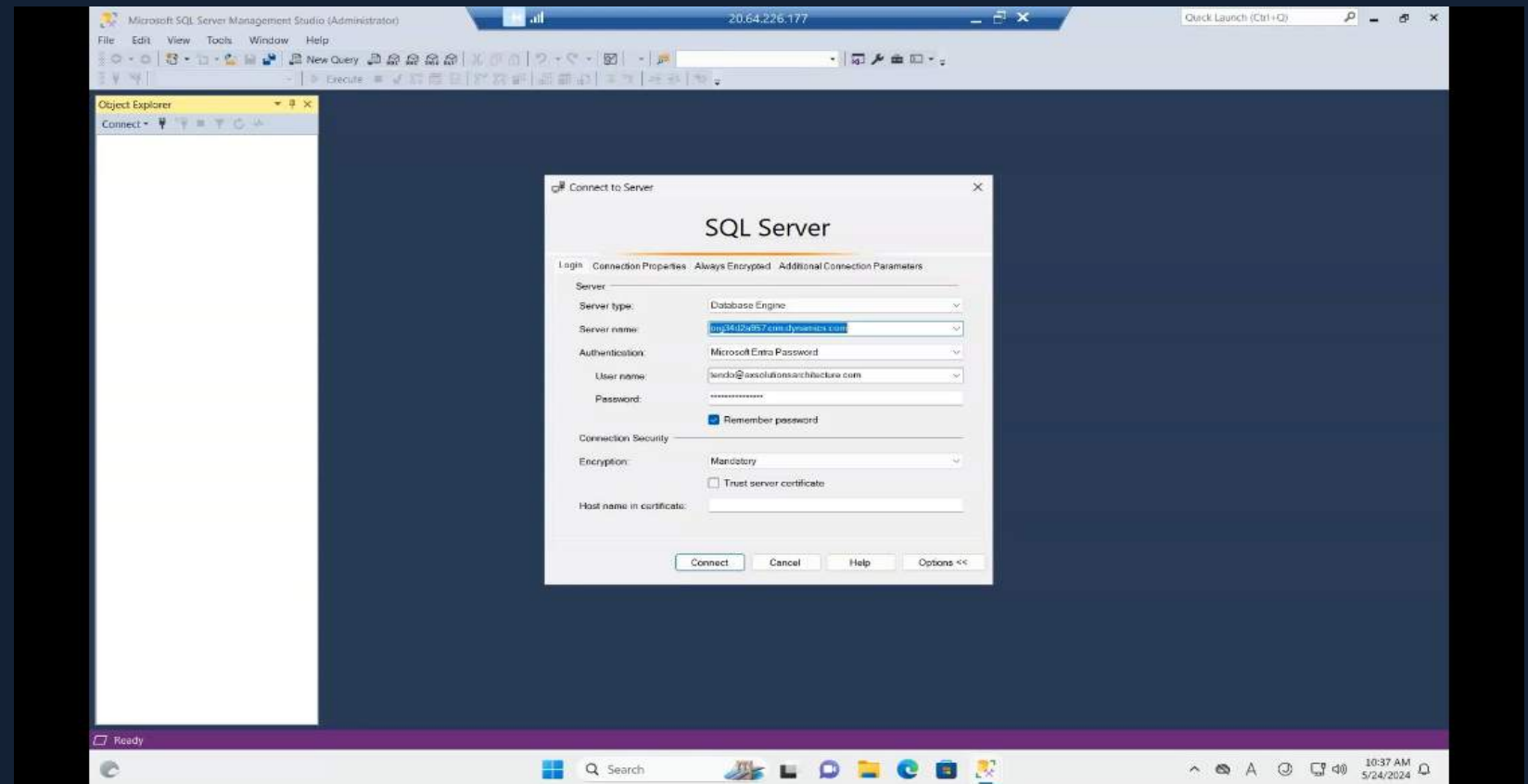


[SQL Access for Dataverse - Use SQL to query data \(Microsoft Dataverse\) - Power Apps](#)



TDS Endpoint

- For Dataverse, direct SQL access is not possible even in Dev/Sandbox environments
- Using the TDS Endpoint, you can use SSMS to read Dataverse tables, but with many limitations



[SQL Access for Dataverse - Use SQL to query data \(Microsoft Dataverse\) - Power Apps](#)

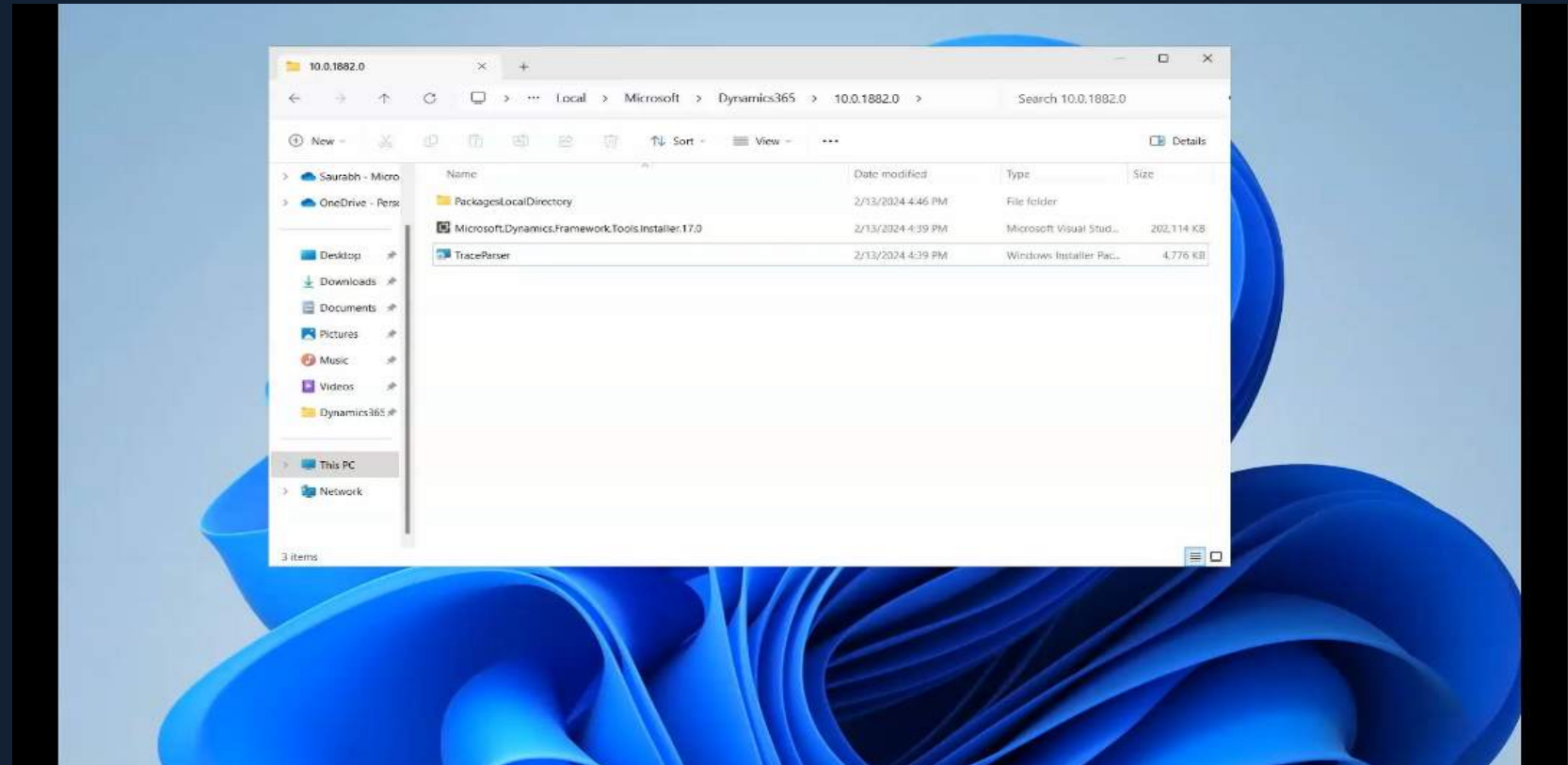


Install

Find & Install

“TraceParser.msi” in the following location:
C:\Users\

Microsoft Dynamics
365 Unified Operations
- Trace Parser
Register Database



[Capture a trace - Finance & Operations | Dynamics 365](#)
[Diagnose issues and analyze performance by using Trace parser - Finance & Operations](#)

F&O Copilots Extension

Available Now!

Prerequisites

- Unified Dev Env (UDE)
- 10.0.40 or later
- Copilot in finance and operations apps

Features in 10.0.40 Public Preview

Contextual Record

- Navigation Context
- Page Context
- User Context
- Current Record

Client Actions

- Add X++ class extends to **SysCopilotChatAction**

Feature in 10.0.40 Private Preview

AI Plugins for F&O business logic

The screenshot displays the 'Finance and Operations Preview' application interface. The main content area shows a record for '00004 : Business Standards' with various fields and sections:

- General**: Course ID (00004), Status (Closed), Allow self registration (Yes), Template (Annual), Course title (Business Standards), Organizer, TIME (Start date and time: 9/3/2016 05:00:00 PM, End date and time: 9/3/2016 06:00:00 PM, Registration deadline: 8/27/2016), PARTICIPANTS (Minimum: 5, Maximum: 40), LOCATION (Location: TrainCente, Classroom: TrainRmB).
- Course description**: Corporate review of practices and policies.
- Target audience**, **Course objectives**, **Course subjects**, and **Instructors**: Each section has a dropdown arrow.

On the right side, the Copilot chat interface is visible, showing a conversation about translating the course description into Italian and French. The chat includes a search bar, a 'Translate the course description' button, and a text input area with a 'Send' button. The chat history shows the user asking for a translation into Italian, the AI providing the translation, and the user asking for a translation into French, with the AI providing that translation as well. A footer note states: 'AI-generated content may be incorrect. This Copilot feature uses Bing Search which is governed by the Microsoft Services Agreement and the Microsoft Privacy Statement. Your data will flow outside your organization's compliance and geo boundaries. See terms.'

[Tutorial - Create client plugins for Copilot in finance and operations apps - Finance & Operations](#)

Resources

Saurabh



Admin Experience Advantages - CHE vs UDE

Factors	Customer Hosted Environment (CHE)	Unified Development Environment (UDE)
Azure subscription	Needs Azure subscription	Not Required
Security & compliance	Customer must manage	Microsoft would manage
Azure quota management	Customer must manage	Not Required
New environment setup	Takes 8+ hours	Less than 1 hour
Service & Quality updates	Customer must manage	Microsoft would manage
With Microsoft Power Platform / Dataverse	Customer must manually integrate with CHE	Fully integrated environment
Service and quality updates rollback	Not supported for failed updates	Supported for failed updates
Copy production data to troubleshoot	Multi-step and multi-day process	Less than 4 hours for most data sizes
Deploy changes / customizations to cloud	Takes a few hours	Takes a few minutes
Customer Managed Keys enabled	Not possible	Available



Developer Experience Advantages - CHE vs UDE

Factors	Customer Hosted Environment (CHE)	Unified Development Environment (UDE)
Extending Copilot capabilities with F&O	Not supported	Supported
Add-ins support for development	Not supported	Supported
Bring your own device	Not supported	Supported
CI: Run X++ Unit Tests in Az DevOps pipelines	Not supported	Supported
CD: Deploy to UDE via Az DevOps pipelines	Not supported	Supported
Work with multiple F&O runtime versions	Not supported	Supported
Faster debugging with new protocol	Not supported	Supported
Out of box connectivity to both Dataverse and F&O	Not supported	Supported
Author, deploy, debug and test X++ and Dataverse artifacts to both Dataverse and F&O from Visual Studio	Not supported	Supported





Can multiple developers share a single UDE?

- Yes, for non simultaneous testing or debugging
- Yes, if doing bug fixes occasionally using source version control
- Potentially, if developers are working on independent modules using source version control
- No, when development is happening on the same or highly dependent modules

Can a single developer workstation be used for multiple UDEs?

- Yes, a dev workstation can be used to connect to multiple UDEs
- Yes, can switch using multiple VS configuration

Roadmap - Upcoming features

Post GA Scope!



Persona	Feature	Purpose
Admin	Support in sovereign clouds	Support in Mooncake, GCC, GCC High clouds
Admin	Restore	Ability to back point in time with-in same environment or restore from another environment
Admin	Delete and Recover	Ability to recover a deleted environment
Admin	Transaction-less copy via UI	Ability to select copy options from PPAC Copy UI
Admin	Microsoft managed updates	Ability for Microsoft to push updates to UDE environments
Dev	SQL JIT custom reader/writer roles	Tweak the roles to grant additional permissions for development scenarios
Dev	Reduce Xref DB size	Compress the cross-reference database for reduced size
Dev	Visual studio Add-ins	Add-ins that needs to access the database directly will get addressed using developer's SQL Jit credentials

Resources

[Viva Engage : Dynamics 365 and Power Platform Preview Programs : Private Preview: Online Development](#)

[Unified admin experience for finance and operations apps \(preview\) - Power Platform | Microsoft Learn](#)

[Unified developer experience for finance and operations apps \(preview\) - Power Platform | Microsoft Learn](#)

[One Dynamics One Platform – TechTalk Series](#)

[What is Power Platform Tools for Visual Studio - Power Platform | Microsoft Learn](#)

[Tutorial: Copy a Lifecycle Services environment to a unified environment \(preview\) - Power Platform](#)

[Tutorial - Create client plugins for Copilot in finance and operations apps - Finance & Operations](#)

[Install and configure development tools \(preview\) - Power Platform](#)

[Frequently asked questions \(preview\) - Power Platform | Microsoft Learn](#)



QUESTIONS

Dankie Faleminderit **Shukran** Chnorakaloutioun Hvala Blagodaria
Děkuji **Tak** Dank u **Tānan** Kiitos **Merci** Danke Ευχαριστώ A dank
Mahalo הודות. **Dhanyavād** Köszönöm Takk **Terima kasih** **Grazie** Grazzi

Thank you!

감사합니다 Paldies Choukrane Aċiū **Благодарам** ありがとうございます
谢谢 Баярлалаа **Dziękuję** Obrigado Mulțumesc **Спасибо** Ngiyabonga
Ďakujem **Tack** Nandri **Kop khun** Teşekkür ederim Дякую **Хвала** Diolch