

A background image of a person rock climbing a steep, reddish-brown cliff face. The climber is wearing a red shirt and black shorts, and is secured by a rope. The sky is a clear blue. The image is overlaid with a dark blue gradient at the bottom.

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FIVE WAYS TO IMPROVE YOUR DEVELOPMENT

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INNOFACTOR

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- ✓ XrmToolBox contributor
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 - *Dev focus*

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Audience

- ✓ Customizers?
- ✓ Developers?
- ✓ C# Developers?
- ✓ Plugin Wizards?
- ✓ Solution Architects?
- ✓ DevOps / CI / CD?



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Five ways to improve quality and productivity of your development

- ✓VS Extensions
- ✓C# Extensions
- ✓Base Classes
- ✓VSTS Build Extensions
- ✓XrmToolBox tools

Visual Studio extensions

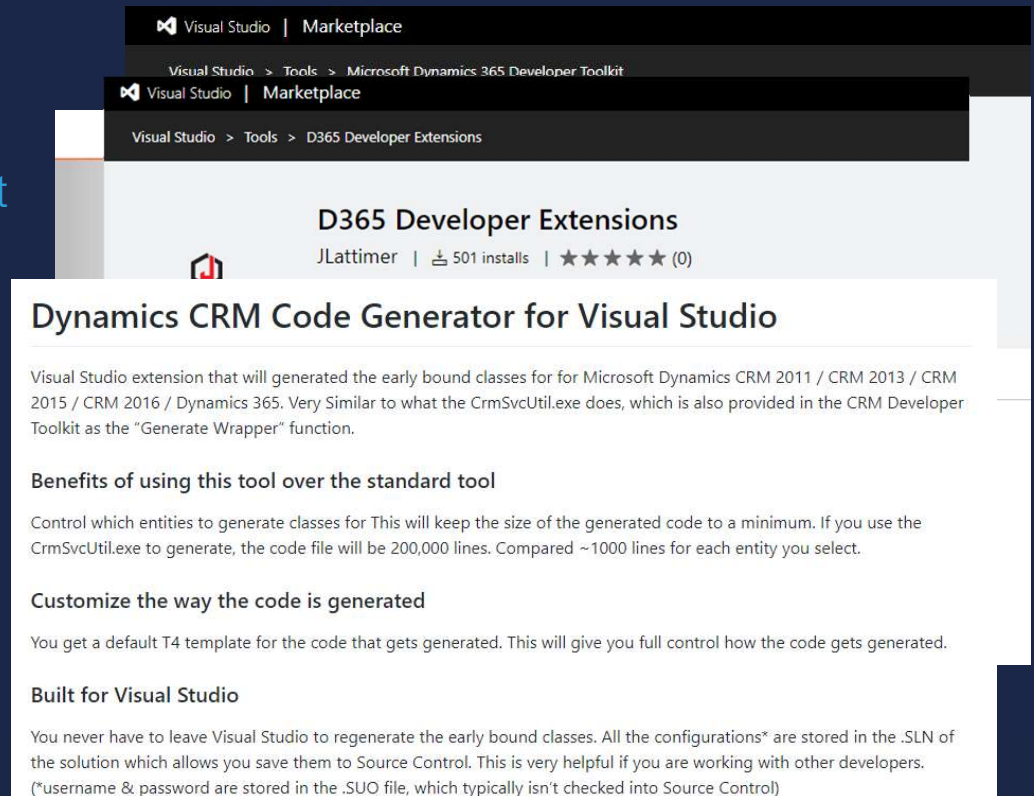
Customizing Visual Studio for Dynamics 365 development

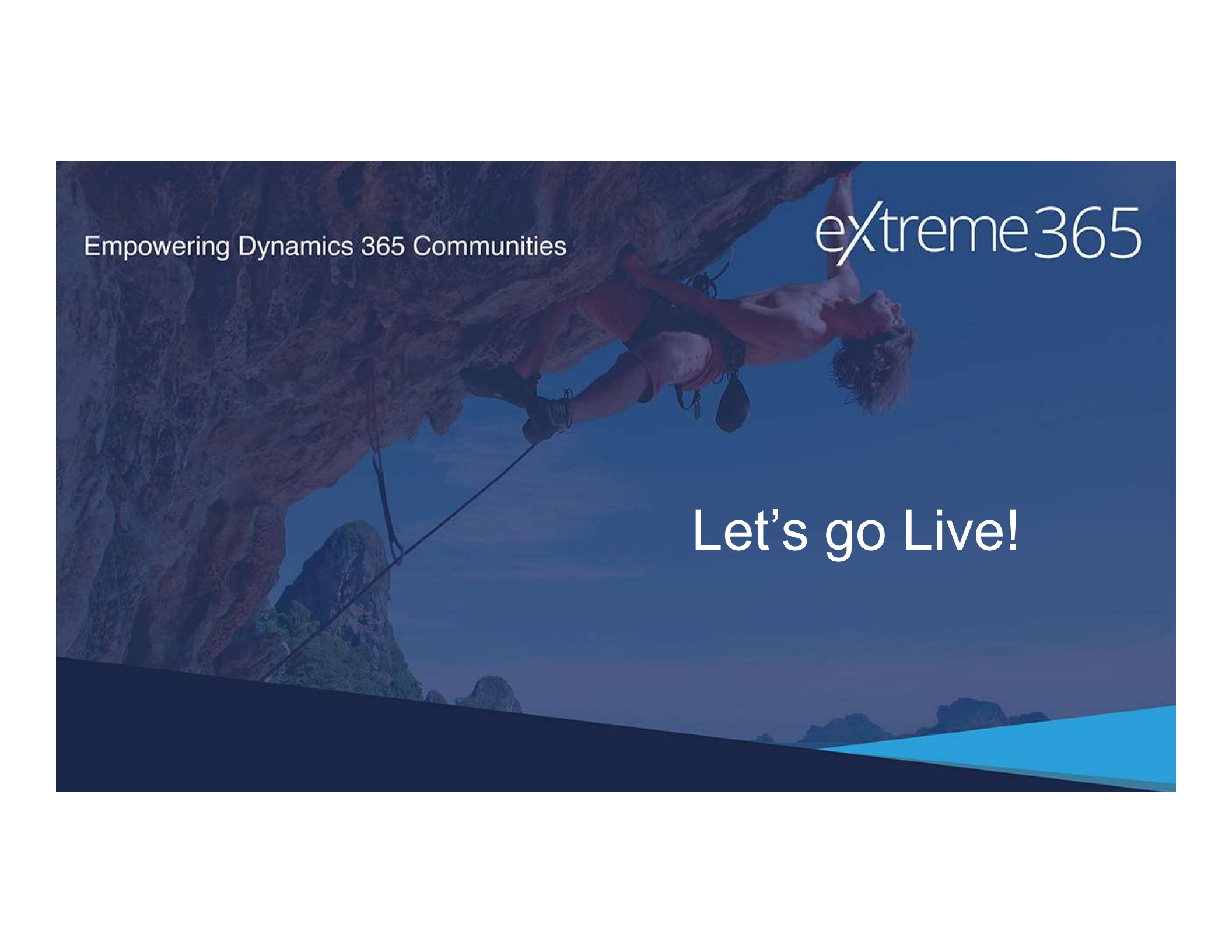
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Visual Studio extensions

- ✓ Microsoft D365 Developer Toolkit
 - VS 2015 ☹️
- ✓ XrmToolkit
 - Expensive 💰
- ✓ D365 Developer Extensions
 - OSS Dev Toolkit
- ✓ CRM Code Generator
 - Early bound ⌚



A person is rappelling down a dark, textured rock face. The person is wearing a red shirt and dark shorts, and is holding onto a rope. The background is a clear blue sky. The image is overlaid with a blue gradient that is darker at the top and lighter at the bottom.

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Let's go Live!

Lab 1: VS Extensions

- ✓ marketplace.visualstudio.com
- ✓ Search "D365"
- ✓ Install D365 Dev Ext
- ✓ Start VS
- ✓ Create Project – D365 Plugin
- ✓ Plugin / eXtremeDubrovnik
- ✓ Add item – Plugin class
- ✓ Add items – Plugin Base, Plugin from Base
- ✓ Investigate localContext
- ✓ Internalize OrgSvc + Context
- ✓ Create Project – Console app
- ✓ Simple WhoAmIRequest
- ✓ Create Project – TypeScript
- ✓ Tools – Options – D365
- ✓ Plug-in Trace Viewer
- ✓ Web Resource Deployer

C# extensions

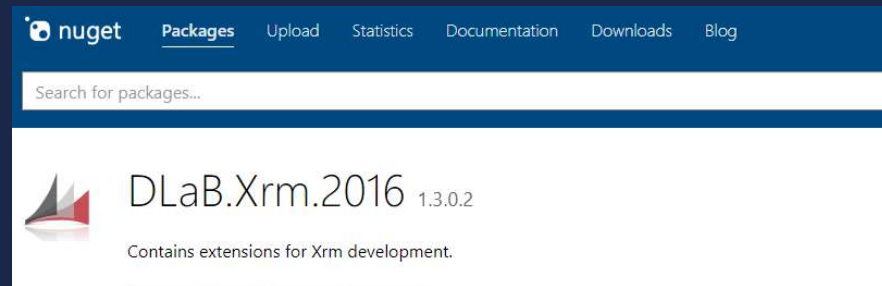
Get more functionality from standard SDK types

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C# extensions to the SDK classes

- ✓ DLaB.Xrm
- ✓ Available in VS extensions
 - Use what is available
- ✓ Create what you need



```
/// <summary>
/// Get the parent record of an entity by retrieving the entity in specified lookup attribute
/// </summary>
/// <param name="entity">The child entity from which to lookup the parent record</param>
/// <param name="service">Service used to retrieve the parent record</param>
/// <param name="lookupattribute">Lookup attribute on the child entity that identifies the parent</param>
/// <param name="attributes">List of attributes to retrieve for the parent record</param>
/// <returns>The Parent entity, or null if lookup attribute did not contain a reference</returns>
0 references | 0 changes | 0 authors, 0 changes
public static Entity GetParent(this Entity entity, IOrganizationService service, string lookupattribute, params string[] attributes)
{
    if (entity.Contains(lookupattribute) && entity[lookupattribute] is EntityReference parentRef)
    {
        return service.Retrieve(parentRef.LogicalName, parentRef.Id, new ColumnSet(attributes));
    }
}
```

```
var myaccount = mycontact.GetParent(svc, "parentcustomerid", "name", "websiteurl", "revenue");
```

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Lab 2: C# Extensions

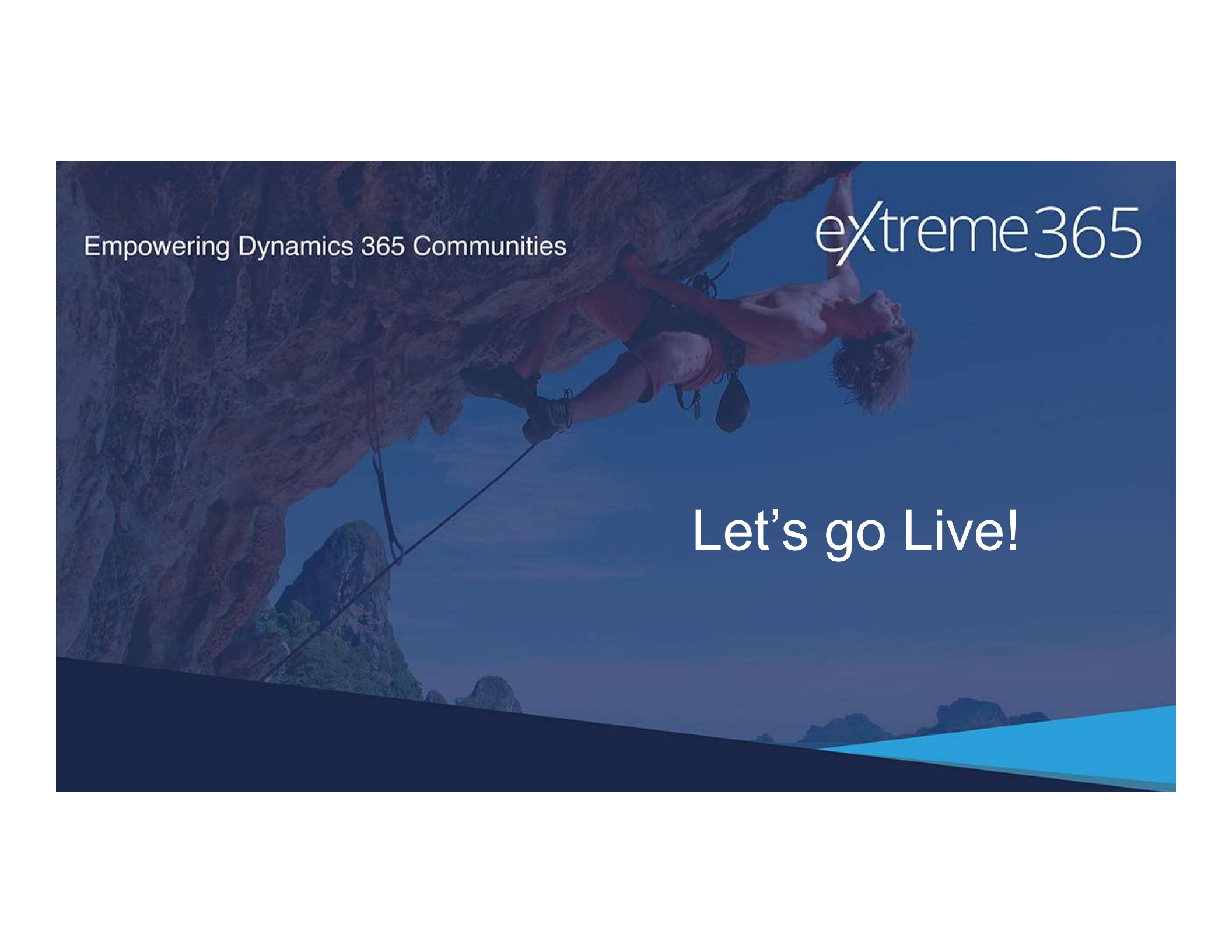
- ✓ VS – Plugin – Create new class: SDKExtensions
- ✓ Create extension Entity.GetParent
- ✓ Create extension Context.GetTarget
- ✓ Get Target contact
- ✓ Get Parent account
- ✓ Create extension Entity.GetChildren
- ✓ Get Children cases
- ✓ Add NuGet DLaB.Xrm.2016
- ✓ Change GetChildren, use qx.ActiveOnly()
- ✓ Use QueryExpressionFactory.Create()
- ✓ Create extension Entity.Save

Base classes

Generalize behavior and structure of plugin classes

Base classes

- ✓ Doing the housekeeping
 - Initiating orgsvc, tracer, context
 - Logging common actions
- ✓ Available in VS extensions
 - Use what is available
- ✓ Easy to create
 - Identify repeated code

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Lab 3: Base classes

- ✓ Improve D365 DevExt LocalPluginContext class
- ✓ Create RetrieveMultiple method
- ✓ Add logging and Stopwatch
- ✓ Make LocalPluginContext public
- ✓ Change extension methods to accept LocalPluginContext
- ✓ Install Rappen.Xrm.JonasPluginBase
- ✓ Create AccountPlugin
- ✓ Explore JonasPluginBag

VSTS Build extensions

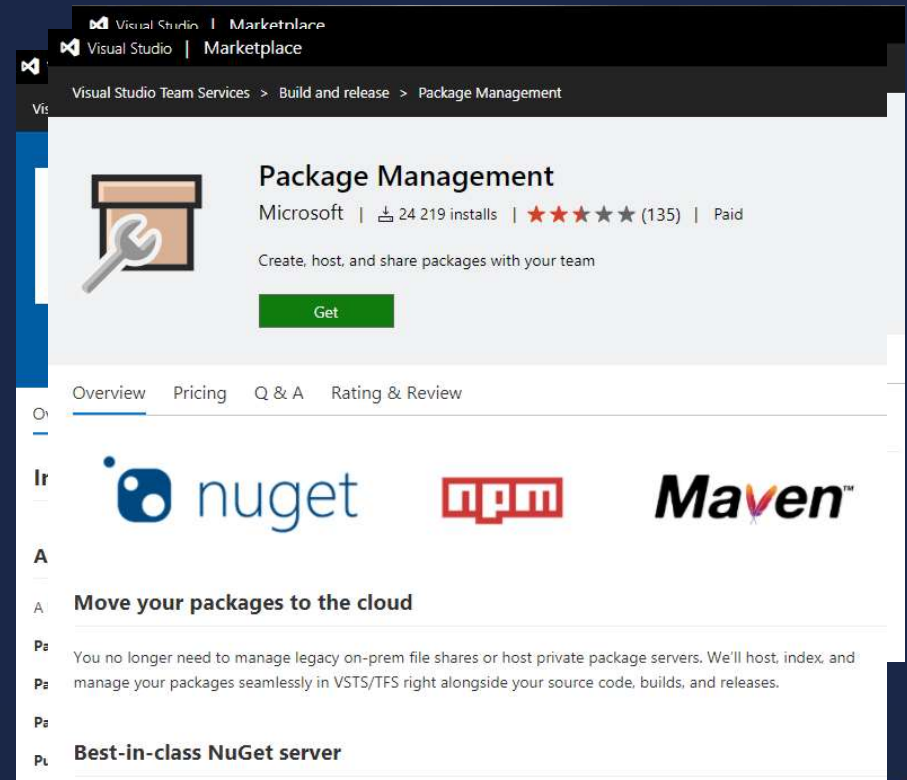
Automate CI / CD for the Dynamics 365 platform

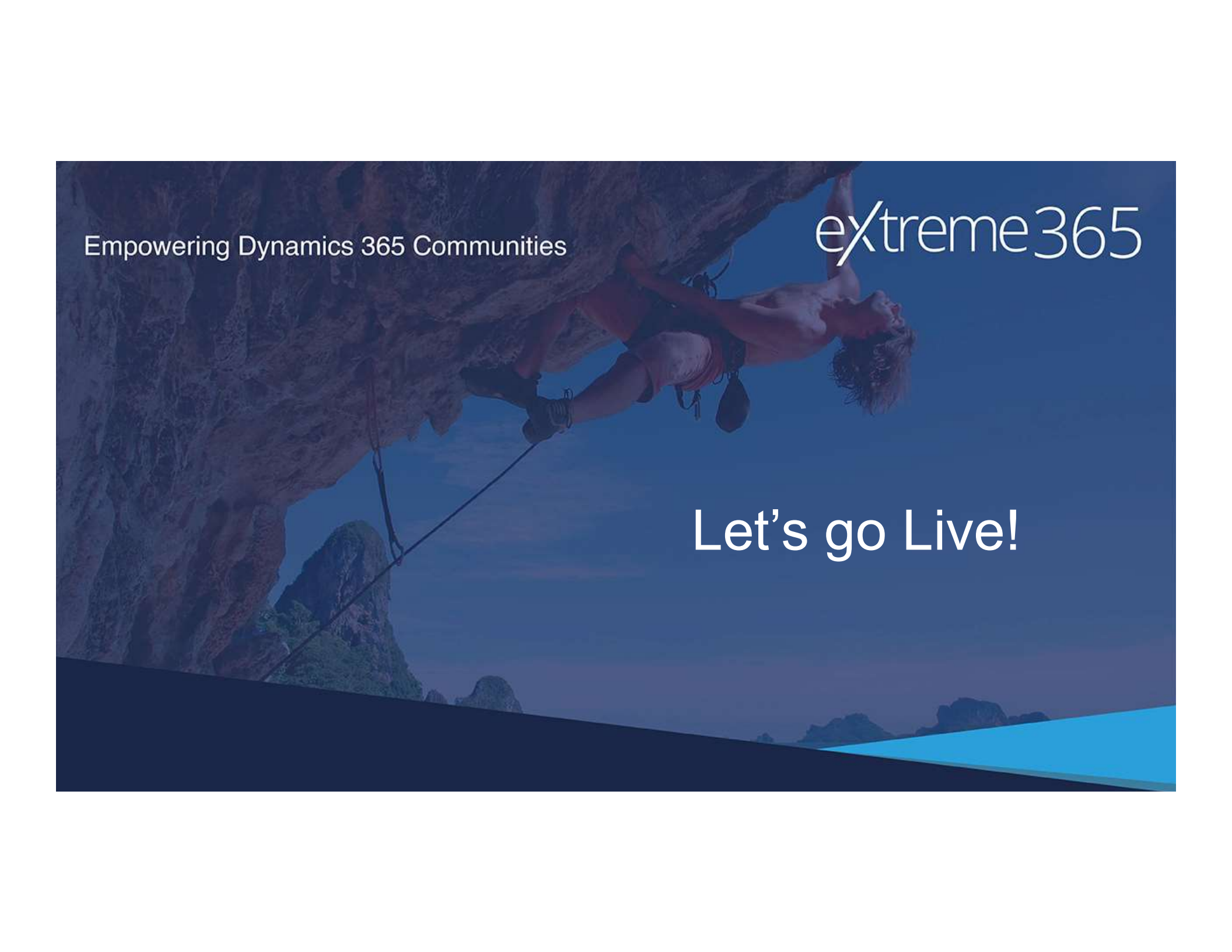
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VSTS Build Extensions

- ✓ xRM CI Framework
 - Solution Packager
- ✓ DevOps for MS Dynamics 365
 - Shuffle
- ✓ Package Management
 - Internal packages / extensions



A person is rappelling down a dark, textured rock face. The person is wearing a red shirt and black shorts, and is holding onto a rope. The background is a clear blue sky. The image has a blue gradient overlay that covers the entire scene.

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Let's go Live!

Lab 4: VSTS Extensions

- ✓ Open vanilla build
- ✓ Check extensions
- ✓ Install MSCRM xRM CI
- ✓ Add Ping
- ✓ Add Update Assembly
- ✓ Add Export Solution
- ✓ Run

XrmToolBox helping out

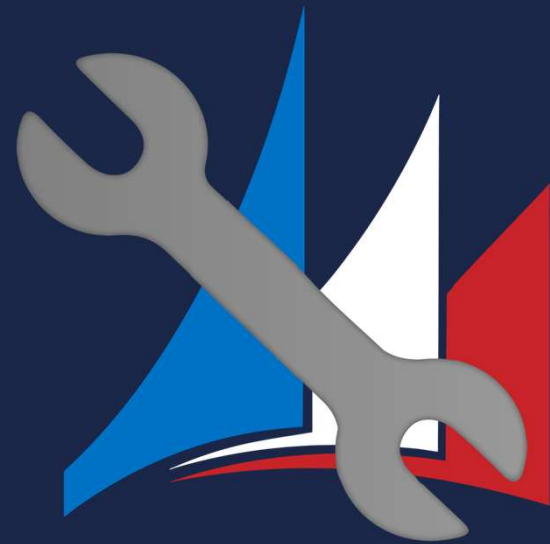
A few tools to take your development the last kilometer

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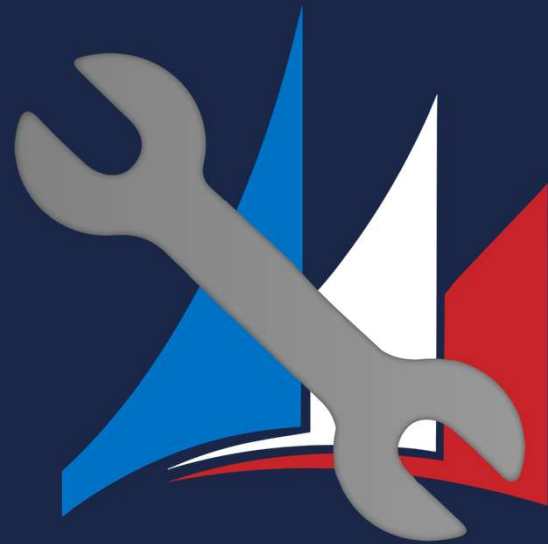
XrmToolBox tools

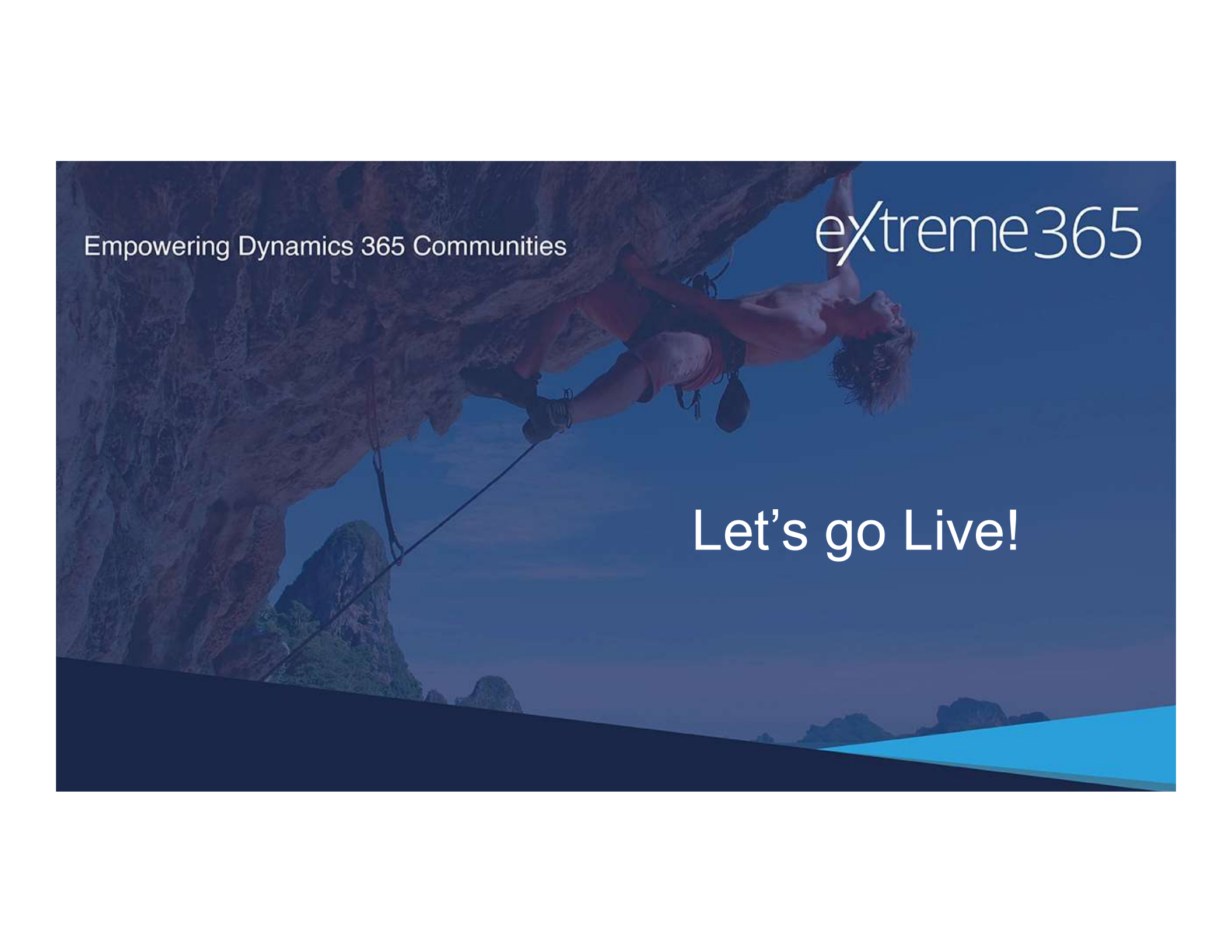
- ✓ Early Bound Generator
 - When working early bound
- ✓ Latebound Constants Generator
 - When working late bound
- ✓ Code Now
 - Quickly try your code
- ✓ Metadata Browser
 - Investigate XRM anatomy



XrmToolBox tools

- ✓ Plugin Auto Deployer
 - Save the clicks!
- ✓ Plugin Trace Viewer
 - Analyzing plugin behavior
- ✓ FetchXML Builder
 - Generate queries



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Lab 5: XrmToolBox

- ✓ Run LCG
- ✓ Add const to code
- ✓ Update code with consts
- ✓ Register plugin
- ✓ Start Plugin Auto Updater
- ✓ Test, update code, see AutoUpdater, check logs
- ✓ Try CodeNow with sample code

Links

jonas@jonasrapp.net

- ✓ [Microsoft Dynamics 365 Developer Toolkit](#)
- ✓ [D365 Developer Extensions](#)
- ✓ [XrmToolkit](#)
- ✓ [CRM Code Generator](#)
- ✓ [DLab.Xrm](#)
- ✓ [XrmToolBox](#)
- ✓ [xRM CI Framework](#)
- ✓ [Innofactor DevOps tools](#)

- ✓ Demos and samples will be published on my blog:
jonasrapp.innofactor.se

THANK YOU!

Jonas Rapp, Innofactor

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