

Version Control For Dynamics Solutions

Purpose of Version Control :-

As we started progressing with dynamics, we came across different challenges each sprint. Also there are some anticipated challenges as we start deploying to production environment. Here are few of them.

1. Finding changes from last deployment to this deployment

Dynamics solutions are being deployed twice every sprint from Dev to Test environment for now. Every time, there are few changes, that are made in Dev environment and deployed to Test. Developers who make the changes are aware of their changes. And peer developers who does review the work are aware of these changes as well. How about remaining team members like Architects, P.Os and fellow developers who dint work on that development piece.

Here comes the necessity of consolidated report of changes made from last release to this release. A report that keeps a track of pieces that are being added/modified/deleted in an application to meet the business requirements. This helps everyone in the team to be knowledgeable of the changes made. This helps them to convey it to stake holders and users who will be curious to know whats going on with the product, just like updating enhancements with every version of the product.

The obvious solution to this is by saving the code in a repository every time development is done. Git is most known tool that helps us get the log of differences from previous version to current version and thus in finding changes between two versions or releases.

2. Changes made by developers on same solution needs to be tracked respective to the developer

By tracking changes made by developers on a solution with developer's name, helps in understanding who worked on what? For example if "*developer1*" works on entity1 and "*developer2*" works on another entity2, and this is being tracked, then team will have an idea on whom to approach if something in entity1 or entity2 fails.

3. Deployment to another environment brings unfinished code as developers are working on same solution

As currently, there are multiple developers working on one solution, all of the developers will make their changes in the same solution. Now, getting the solution directly from dynamics carries finished work of one developer and also, work that is in progress by another developer. This makes test environment have unfinished code that makes testing difficult.

A possible solution for this is to be able to just deploy the changes that are finished despite the entire solution.

4. A solution that is readily available for release

We should be able to track the versions of solution that are being deployed in each environment to make sure that we are ready to roll back or roll forward when ever necessary. For example, we have production environment with changes from 15th September. Now in October, there is an issue in production that needs an urgent fix. With current situation, Dev environment and Test environment will always be ahead as development work is done in Dev and all the features developed are tested in Test environment and we don't really track which version of solution is deployed in these environment. Instead we store the entire solution in box and tag this solution in confluence with the date it is being deployed from one environment to the another. Even though we are practically saving the solution, we are not versioning it. so, if the question comes like which version of solution is running in test environment, we can take the solution from box, and give it, but that solution does not have any version. In addition to this, as the files are physically being uploaded to box, each file takes the duplicate space as the code is being saved repetitively in each solution.

One of the solutions for this issue is to have a version control tool for dynamics solutions.

Dynamics Solutions:-

A solution is a bucket where all the **customization** components of a particular project are stored. Creating a solution helps in moving these components from one environment to another. There are three different types of solutions: default, managed and unmanaged.

Default Solution: The out-of-the-box Microsoft Dynamics CRM software as well as the pre-deployment customizations are part of the default solution.

Unmanaged Solution: The beginning state of solution is the unmanaged solution state. During this phase, you can add, edit, update, remove, delete, and test any of the components of the solution. You also have the ability to create restrictions on the components within the solution. Any number of these unmanaged customized solution components can be associated with any number of unmanaged solutions.

Managed Solution: A managed solution is a finalized solution that can be distributed and installed. They are created by exporting an unmanaged solution by setting restrictions to prevent any further customization. They are installed in addition to the system solution. They can also be layered on top of other managed solutions as well. The unrestricted components of the solution are still customization.

To move a solution from one environment to another environment we need to export the solution from first environment and import it to the second one. Exporting a solution, creates a zip file that can be used to import it to another environment. Inside the zip file, we have a folder structure that holds the data of different entities and related customization. These details needs to be versioned.

Solution packager:-

Solution Packager is a tool that can reversibly decompose a Dynamics 365 Customer Engagement (on-premises) compressed solution file into multiple XML files and other files so that these files can be easily managed by a source control system or a version control system.

How to Download and Use Solution Packager:-

Step1:- Download the zip file in box from link given below. This folder has all the SDK tools of Dynamics.

<https://usf.app.box.com/file/541782707834>

Step2:- Unzip the file and choose a folder you prefer to place the .exe files for further use.

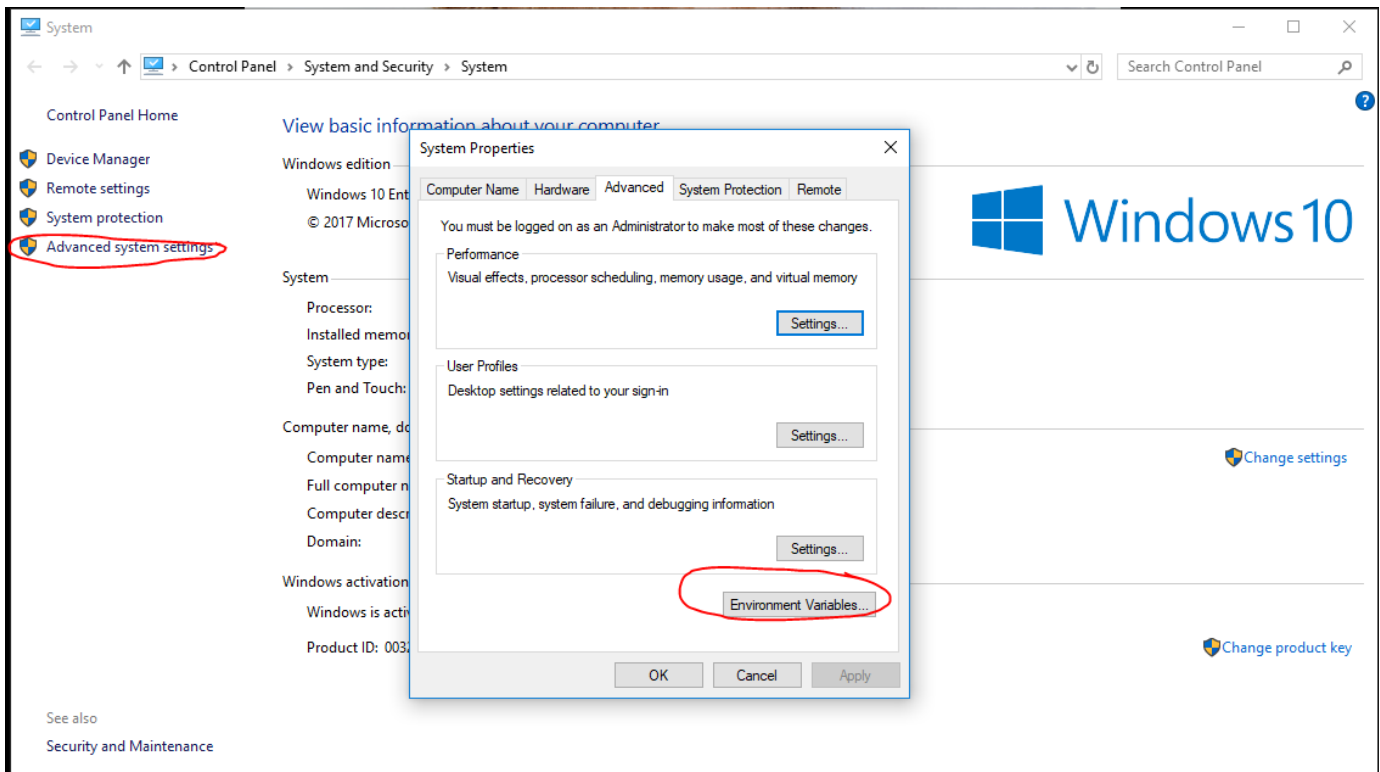
Step3:- Include the path of "*SolutionPackager.exe*" in environment variables to use it from powershell or command line.

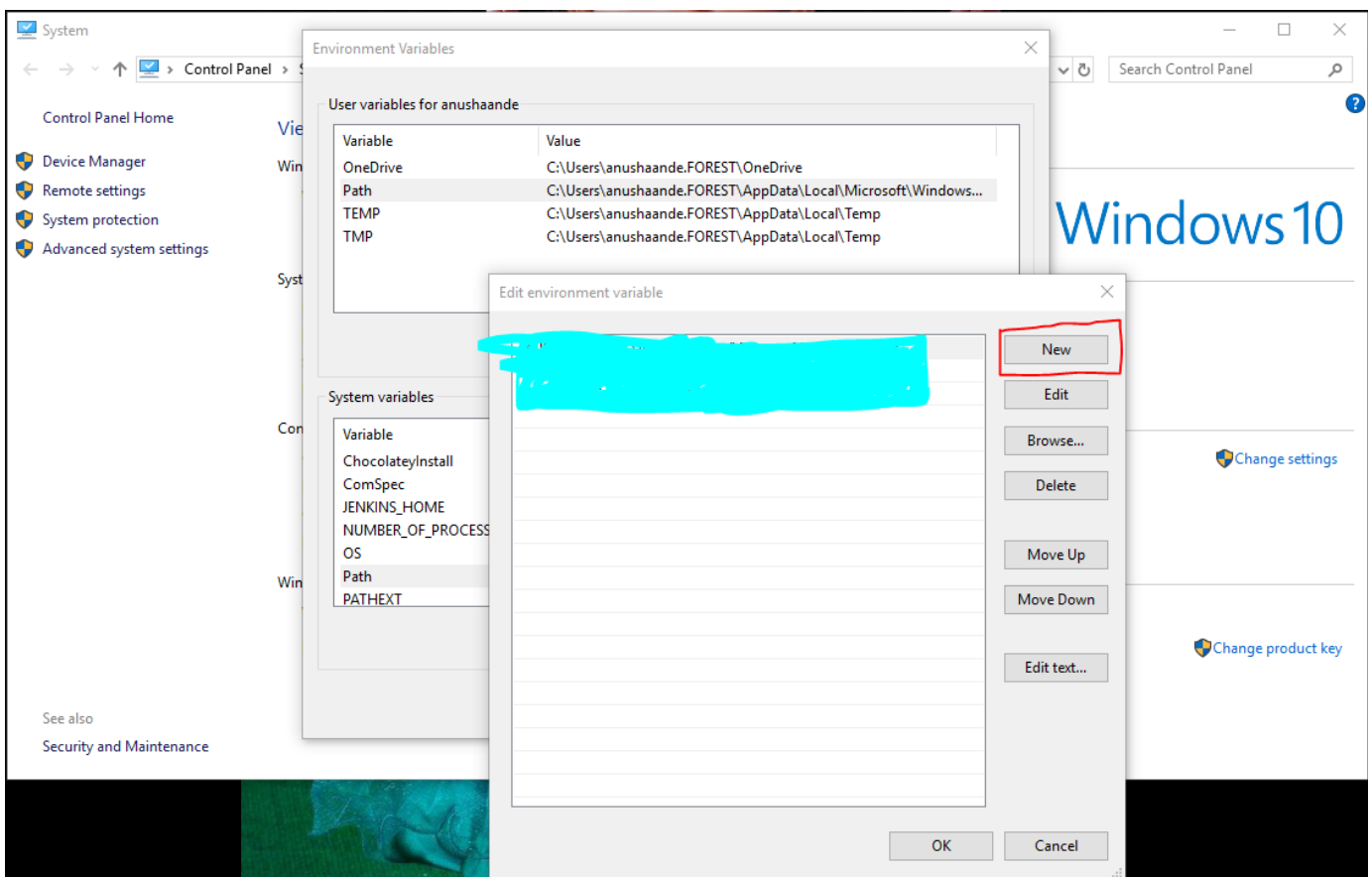
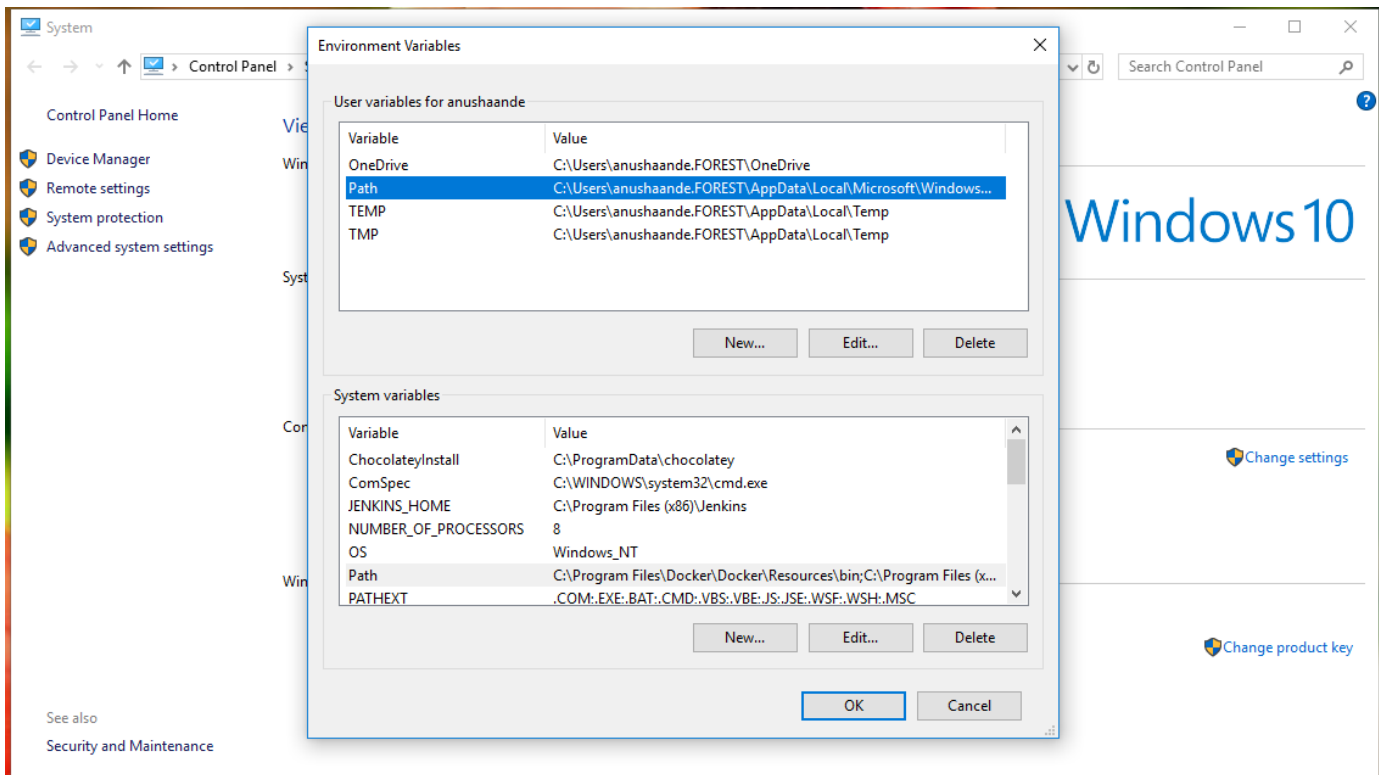
- Copy the path of CoreTools Folder under Tools. This looks something like this

Your path to tools folder\Tools\CoreTools\

- Here is how we do it in windows10.

Right click on "This PC" - Choose Properties - select "Advanced system settings" (Found on left pane of the window opened. Last option) - Chose path from User Variables - Click on Edit - Then Choose New - Paste the copied path - Click "OK"





Step4:- Use SolutionPackager.exe from powershell

Open PowerShell. If it is already opened, close it and open it again for the changes made to system get reflected.

Run the command "*SolutionPackager.exe*". If you see the following, then SolutionPackager is installed successfully.

```

C:\Users\anushaande.FOREST [(unknown)]> SolutionPackager.exe
SolutionPackager CRM Solution Packaging Tool [Version 9.1.0.13]
© 2017 Microsoft Corporation. All rights reserved

Missing required argument '/action'.
Missing required argument '/zipfile'.

Options:
/action:{Extract|Pack}           Action to Perform (short form /a)
/zipfile:<string>                 The full path to the customization ZIP file: C:\customization.zip
                                   (short form /z)
/packageType:{Unmanaged|Managed|Both} When Extracting use to specify dual Managed and Unmanaged operation.
                                   When Packing use to specify Managed or Unmanaged from a previous
                                   'Extract Both'. (short form /p)
/folder:<string>                 The path to the root folder: C:\Solutions\Solution1. When Extracting
                                   this will be written to, when Packing this will be read from. Default
                                   value: '.' (short form /f)
/log:<string>                     The path to the log file. (short form /l)
/errorlevel:{Off|Error|Warning|Info|Verbose} Minimum logging level for log output [Verbose|Info|Warning|Error|Off].
                                   Default value: 'Info' (short form /e)

/allowDelete:{Yes|No|Prompt}      Dictates if delete operations may occur. Default value: 'Prompt' (short
                                   form /ad)
/allowWrite:{Yes|No}              Dictates if write operations may occur. Default value: 'Yes' (short form
                                   /aw)
/clobber                          Enables that files marked read-only can be deleted or overwritten.
                                   (short form /c)
/map:<string>                     The full path to a mapping xml file: C:\maps.xml (short form /m)
/nologo                           Suppresses the banner. (short form /n)
/sourceLoc:<string>               Generates a template resource file. Valid only on Extract. Possible
                                   Values are auto or an LCID/ISO code of the language you wish to export.
                                   When Present, this will extract the string resources from the given
                                   locale as a neutral .resx. If auto or just the long or short form of
                                   the switch is specified the base locale for the solution will be used.
                                   (short form /src)
/localize                         Extract or merge all string resources into .resx files. (short form
                                   /loc)

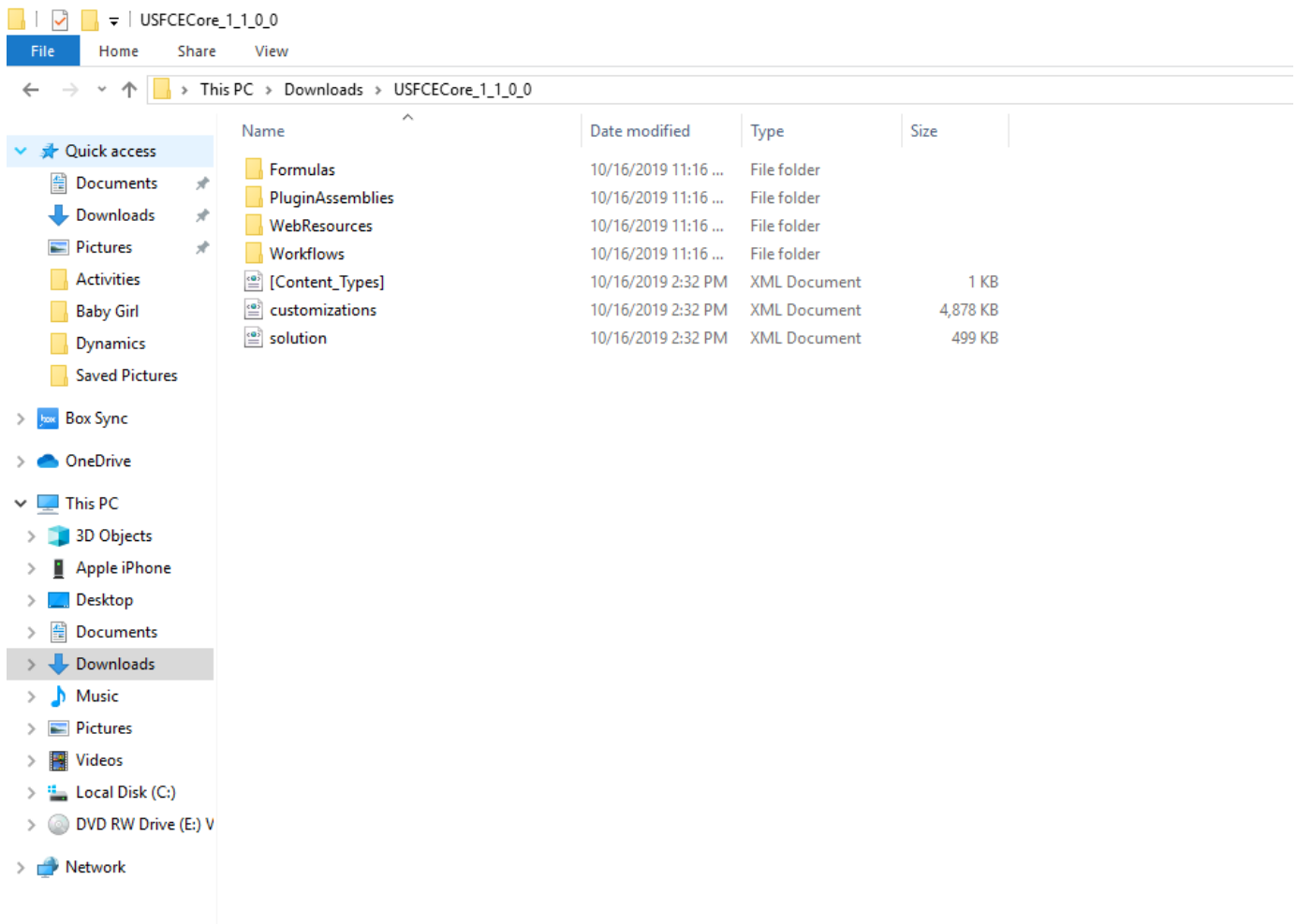
/useUnmanagedFileForMissingManaged Use the same XML source file when packaging for Managed and only
                                   Unmanaged XML file is found; applies to AppModuleSiteMap, AppModuleMap,
                                   FormXml files (short form /same)
@<file>                           Read response file for more options

SolutionPackager: CommandLineException thrown: Microsoft.Crm.Tools.SolutionPackager.CommandLineException: Exception of type
'Microsoft.Crm.Tools.SolutionPackager.CommandLineException' was thrown.
   at Microsoft.Crm.Tools.SolutionPackager.Program.ParseCommandLine(String[] args)
   at Microsoft.Crm.Tools.SolutionPackager.Program.Main(String[] args), returning error code '2'
C:\Users\anushaande.FOREST [(unknown)]>

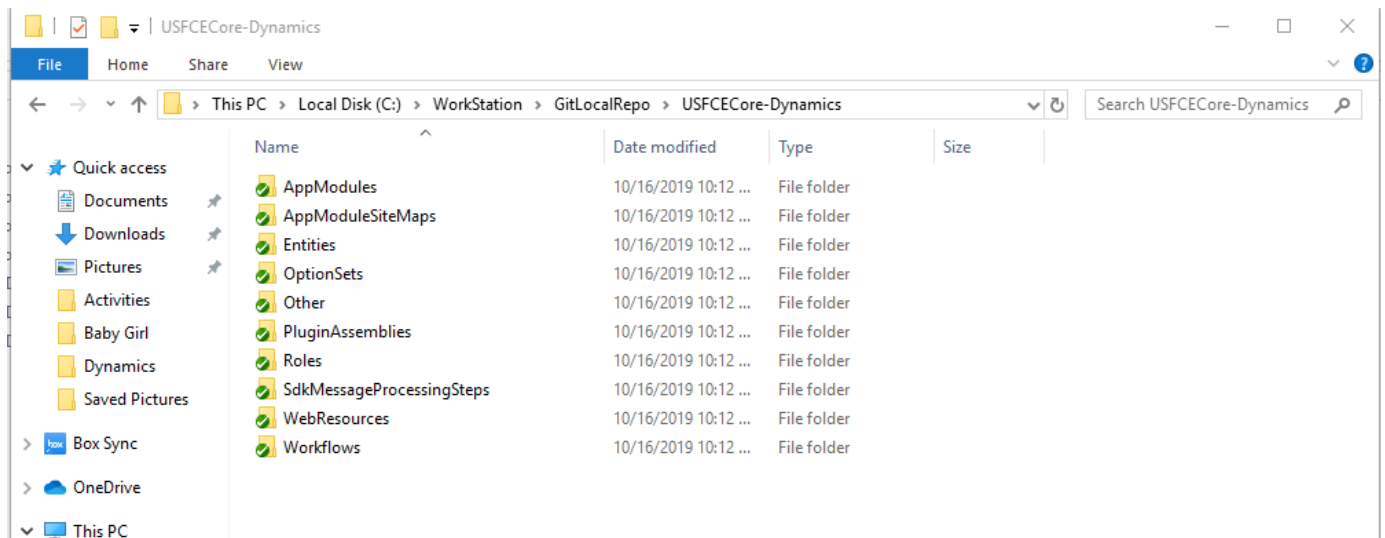
```

Differences between unzipping and Unpacking:-

Folder structure of a solution unzipped : We can use any zip tool for unzipping the solution. Solution gets unzipped into a folder which has files as shown below.



Folder structure of a solution unpacked : Using Solution packager we can export the files in a solution in granular level as shown below.



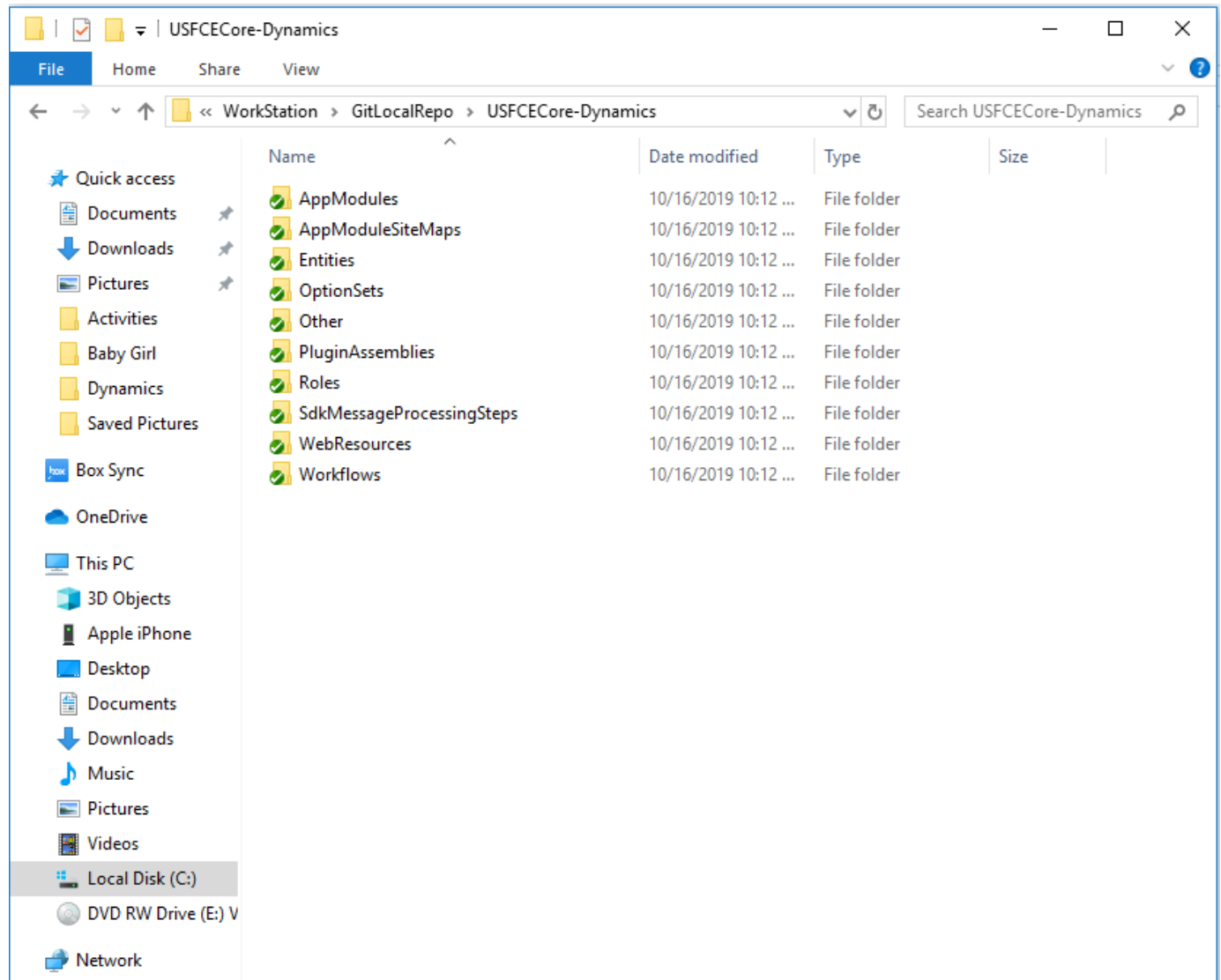
Unpacking the Dynamics solution:-

Here is the command to extract files of solution from solution zip to a folder

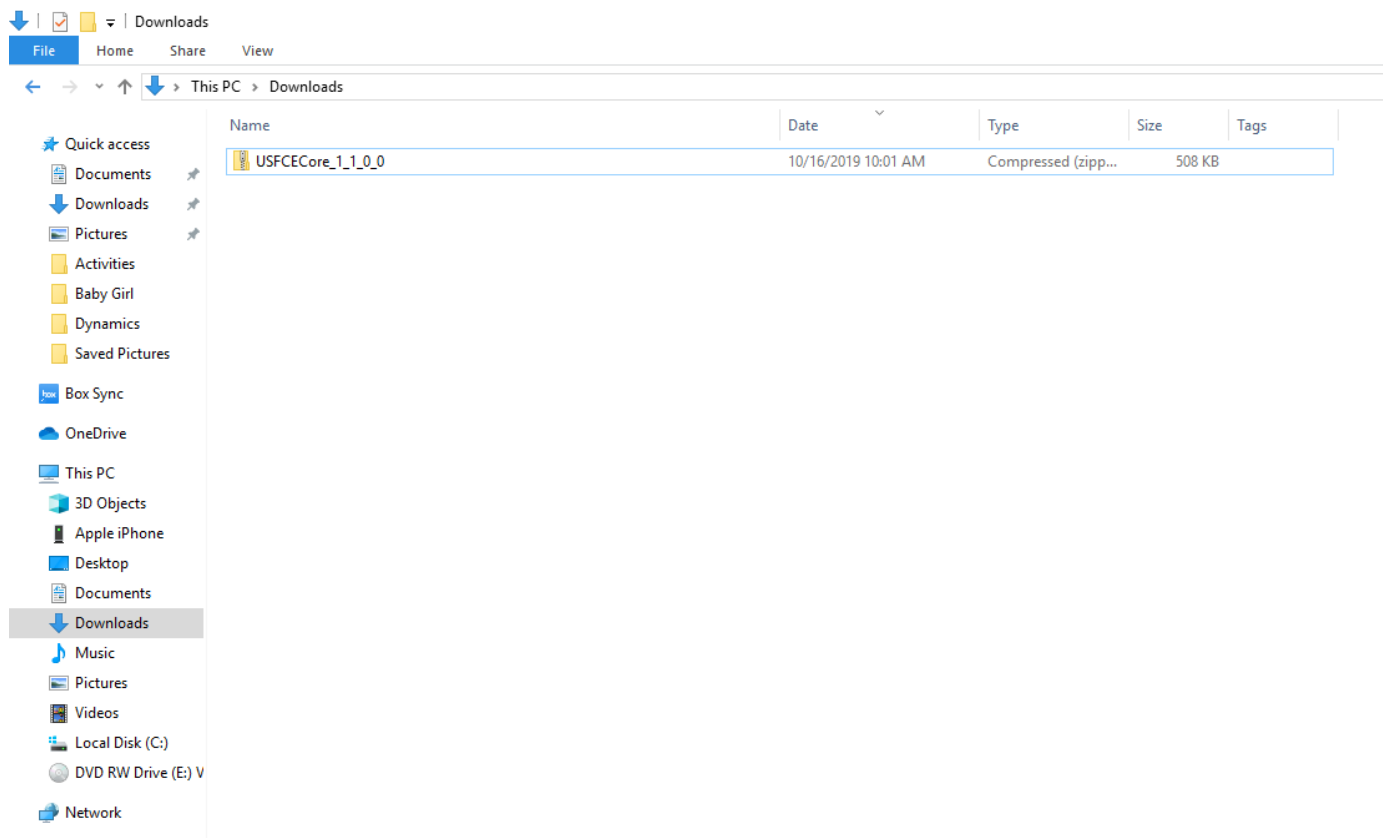
solutionpackager.exe /action:Extract /zipfile:"path/to/solution zipfile/filename.zip" /folder:"folder/to/extract/files/to".

Using Solution Packager with Github:-

Step1:- Have a git local repository or clone the current repository from github.



Step2:- Download the solution from dynamics



Step3:- Extract solution to git local repository

Step3.1: Command to extract the solution

```

C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master]> solutionpackager.exe /action:Extract /zipfile:"C:\Users\anushaande.FOREST\Downloads\USFCECore_1_1_0_0.zip" /folder:"C:\WorkStation\GitLocalRepo\USFCECore-Dynamics\"
SolutionPackager CRM Solution Packaging Tool [Version 9.1.0.13]
© 2017 Microsoft Corporation. All rights reserved

Extracting C:\Users\anushaande.FOREST\Downloads\USFCECore_1_1_0_0.zip to C:\WorkStation\GitLocalRepo\USFCECore-Dynamics\
Processing Component: Entities
- Account
- BusinessUnit
- Campaign
- Contact
- Email
- msdyn_responseaction
- msdyncrm_contentsettings
- msdyncrm_customerjourney
- msdyncrm_marketingemail
- msdyncrm_marketingform
- msdyncrm_marketingpage
- msevtmgt_Event
- msevtmgt_EventRegistration
- msevtmgt_Venue
- Opportunity
- Queue
- QueueItem
- SystemUser
- Team
- UoM
- usf_attribute
- usf_checklist
- usf_comment
- usf_country
- usf_emailcomponentnets
- usf_emailcomponent
- usf_emailstyles
- usf_financialaid
- usf_highschoolhistory
- usf_initiative
- usf_opportunitybusinessprocessflow
- usf_recruiterterritory
- usf_source
- usf_state
- usf_studentattribute
- usf_studentinterest
- usf_systemconfiguration
- usf_term
- usf_testscore
Processing Component: Roles
- Event Administrator
- Login Base Role
- Recruiter
- Recruiting Manager
- Student Call Center
Processing Component: Workflows
- Opportunity - Update fields on Contact
- Opportunity - Set Topic field value
- Opportunity Business Process Flow
- Contact - FOR TESTING - Set User Fields based on Owner
- Opportunity Visit Reason updates
Processing Component: FieldSecurityProfiles
Processing Component: Templates
Processing Component: EntityMaps
Processing Component: EntityRelationships
Processing Component: optionsets
- usf_admittypecode
- usf_applicationdecisioncode
- usf_applicationstatuscode
- usf_campus
- usf_contacttype
- usf_level

```

Step3.2: Warning to Delete Files

As this is a git local repository, there will be few files that are related to git. These files are treated as unnecessary files by solution packager while extracting solutions to git local repository.


```
Processing Component: CustomControls
Processing Component: SolutionPluginAssemblies
  - USF.CE.CodeComponent.Plugins, Version=1.3.0.0, Culture=neutral, PublicKeyToken=e68b8e690cac6082
Processing Component: SdkMessageProcessingSteps
  - 89120840-438b-e911-a833-000d3a375590
Processing Component: AppModuleSiteMaps
  - usf_Admissions
Processing Component: AppModule
  - msdyncrm_MarketingSMBApp
  - usf_Admissions
Processing Component: EntityDataProviders

Unmanaged Extract complete.
```

There are 15 unnecessary files
Delete files? [Yes/No/List]:List

```
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\config
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\description
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\head
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\applypatch-msg.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\commit-msg.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\fsmonitor-watchman.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\post-update.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-applypatch.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-commit.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-push.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-rebase.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-receive.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\prepare-commit-msg.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\update.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\info\exclude
```

Step3.3: Chose "No"

As we need all these files, we chose "NO" to delete the files.

```
Processing Component: AppModule
- msdyncrm_MarketingSMBApp
- usf_Admissions
Processing Component: EntityDataProviders

Unmanaged Extract complete.

There are 15 unnecessary files
Delete files? [Yes/No/List]:List

c:\workstation\gitlocalrepo\usfcore-dynamics\.git\config
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\description
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\head
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\applypatch-msg.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\commit-msg.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\fsmonitor-watchman.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\post-update.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-applypatch.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-commit.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-push.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-rebase.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\pre-receive.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\prepare-commit-msg.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\hooks\update.sample
c:\workstation\gitlocalrepo\usfcore-dynamics\.git\info\exclude

Delete files? [Yes/No/List]:No
Not deleting files
1 warnings encountered
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master +10 ~0 -0 !]>
```

Step4:- Check changes from last version to current version

Assuming "current version" is the working directory (uncommitted modifications) and "last version" is `HEAD` (last committed modifications for the current branch), simply do:

```

C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ≡ +0 ~2 -0 !]> git diff HEAD
diff --git a/Entities/Account/FormXml/main/(8448b78f-8f42-454e-8e2a-f8196b0419af).xml b/Entities/Account/FormXml/main/(8448b78f-8f42-454e-8e2a-f8196b0419af).xml
index 5763af7..de4468b 100644
--- a/Entities/Account/FormXml/main/(8448b78f-8f42-454e-8e2a-f8196b0419af).xml
+++ b/Entities/Account/FormXml/main/(8448b78f-8f42-454e-8e2a-f8196b0419af).xml
@@ -29,15 +29,15 @@
<labels>
  <label description="Account Name" languagecode="1033" />
</labels>
<control id="name" classid="{42731000-AC1D-40d3-9FB2-095C210552D}" datafieldname="name" disabled="false" />
<control id="name" classid="{42731000-AC1D-40d3-9FB2-095C210552D}" datafieldname="name" disabled="false" uniqueid="{40c1dc9-040c-6012-0900-0e03e010922e}" />
</cell>
</row>
<row>
  <cell id="{3441a91e-47c5-672c-7a30-002d0baa9036}" showlabel="true">
  <cell id="{3441a91e-47c5-672c-7a30-002d0baa9036}" showlabel="true" locklevel="0">
    <labels>
      <label description="Phone" languagecode="1033" />
    </labels>
    <control id="telephone1" classid="{42731000-AC1D-40d3-9FB2-095C210552D}" datafieldname="telephone1" disabled="false" />
    <control id="telephone1" classid="{42731000-AC1D-40d3-9FB2-095C210552D}" datafieldname="telephone1" disabled="false" uniqueid="{e14dded0-0bb0-003a-94eb-e00e5a0be73}" />
  </cell>
</row>
</row>
diff --git a/Other/Solution.xml b/Other/Solution.xml
index 2429317..04dccc9 100644
--- a/Other/Solution.xml
+++ b/Other/Solution.xml
@@ -247,109 @@
  <Required key="2" type="1" schemaName="uom" displayName="Unit" solution="msdynce_ProductManagement (9.0.4.0066)" />
  <Dependent key="12" type="2" schemaName="uomscheduleidname" parentSchemaName="uom" parentDisplayName="Unit" />
</MissingDependency>
<MissingDependency>
  <Required key="4" type="1" schemaName="mscvtagi Venue" displayName="Venue" solution="MicrosoftDynamics_EventManagement (1.12.1006.0)" />
  <Dependent key="13" type="2" schemaName="ExchangeRate" displayName="Exchange rate" parentSchemaName="mscvtagi Venue" parentDisplayName="Venue" />
</MissingDependency>
<MissingDependency>
  <Required key="2" type="1" schemaName="uom" displayName="Unit" solution="msdynce_ProductManagement (9.0.4.0066)" />
  <Dependent key="14" type="1" schemaName="Createdonbehalfbyfullname" parentSchemaName="uom" parentDisplayName="Unit" />
  <Dependent key="2" type="2" schemaName="Createdbyfullname" parentSchemaName="uom" parentDisplayName="Unit" />
</MissingDependency>
<MissingDependency>
  <Required key="4" type="1" schemaName="uom" displayName="Unit" solution="msdynce_ProductManagement (9.0.4.0066)" />
  <Dependent key="15" type="2" schemaName="modifiedonbehalfbyfullname" parentSchemaName="uom" parentDisplayName="Unit" />
  <Required key="4" type="1" schemaName="mscvtagi Venue" displayName="Venue" solution="MicrosoftDynamics_EventManagement (1.12.1006.0)" />
  <Dependent key="14" type="2" schemaName="ExchangeRate" displayName="Exchange rate" parentSchemaName="mscvtagi Venue" parentDisplayName="Venue" />
</MissingDependency>
<MissingDependency>
  <Required key="4" type="1" schemaName="uom" displayName="Unit" solution="msdynce_ProductManagement (9.0.4.0066)" />
  <Dependent key="16" type="2" schemaName="baseuomname" parentSchemaName="uom" parentDisplayName="Unit" />
  <Required key="4" type="1" schemaName="mscvtagi Venue" displayName="Venue" solution="MicrosoftDynamics_EventManagement (1.12.1006.0)" />
  <Dependent key="15" type="2" schemaName="Owning user" parentSchemaName="mscvtagi Venue" parentDisplayName="Venue" />
</MissingDependency>
<MissingDependency>
  <Required key="4" type="1" schemaName="mscvtagi Venue" displayName="Venue" solution="MicrosoftDynamics_EventManagement (1.12.1006.0)" />
  <Dependent key="17" type="2" schemaName="baseuomname" parentSchemaName="mscvtagi Venue" parentDisplayName="Venue" />
  <Required key="2" type="1" schemaName="uom" displayName="Unit" solution="msdynce_ProductManagement (9.0.4.0066)" />
  <Dependent key="16" type="2" schemaName="Createdonbehalfbyfullname" parentSchemaName="uom" parentDisplayName="Unit" />
</MissingDependency>
<MissingDependency>
  <Required key="4" type="1" schemaName="mscvtagi Venue" displayName="Venue" solution="MicrosoftDynamics_EventManagement (1.12.1006.0)" />
  <Dependent key="17" type="2" schemaName="modifiedonbehalfbyfullname" parentSchemaName="uom" parentDisplayName="Unit" />
  <Required key="4" type="1" schemaName="mscvtagi Venue" displayName="Venue" solution="MicrosoftDynamics_EventManagement (1.12.1006.0)" />
  <Dependent key="19" type="2" schemaName="Created by" parentSchemaName="mscvtagi Venue" parentDisplayName="Venue" />
  <Required key="2" type="1" schemaName="uom" displayName="Unit" solution="msdynce_ProductManagement (9.0.4.0066)" />

```

Step5:- Commit changes to git remote repository

```

C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ≡ +0 ~2 -0 !]> git add *
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ≡ +0 ~2 -0 ~]> git commit -m "Modified account"
[master 845aaf7] Modified account
 2 files changed, 2117 insertions(+), 2117 deletions(-)
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑1]> git push -u origin master
Username for 'https://github.com': anushaande
Password for 'https://anushaande@github.com':
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads.
Compressing objects: 100% (8/8), done.
Writing objects: 100% (9/9), 15.64 KiB | 1.30 MiB/s, done.
Total 9 (delta 6), reused 0 (delta 0)
remote: Resolving deltas: 100% (6/6), completed with 6 local objects.
To https://github.com/USF-IT/USFCECore-Dynamics.git
 5d56abe..845aaf7 master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ≡]>

```

Multiple developers Working on same solution:-

Step1:- Changes made to opportunity entity by developer1

The screenshot shows the Microsoft Dynamics 365 CRM REST Builder interface. The 'All Solutions' list on the left includes solutions like 'msdyn_PowerAppsCh...', 'TestAnusha', 'CRMRESTBuilder', 'msdyn_PowerAppsCh...', 'USFCECodeComponent', 'msdyn_LinkedInSales...', 'LinkedIn', 'USFCEProcesses', 'USFCESecurityRoles', 'USFCECore', 'MicrosoftDynamics_P...', 'MicrosoftDynamics_P...', 'MicrosoftDynamics_St...', and 'MicrosoftDynamics_M...'. The main pane displays the 'Form: Opportunity' for the 'Solution: USF.CE.Core'. The form includes sections for 'Summary', 'Application Information', 'Legal', 'Holds', and 'Attributes'. The 'Field Explorer' on the right lists available fields for the form.

Step2:- Changes made to Contact entity by developer2

Step3:- Developer1 extracts solution from dev environment to local machine

The screenshot shows the Microsoft Dynamics 365 CRM REST Builder interface. The 'All Solutions' list on the left includes solutions like 'msdyn_PowerAppsCh...', 'TestAnusha', 'CRMRESTBuilder', 'msdyn_PowerAppsCh...', 'USFCECodeComponent', 'msdyn_LinkedInSales...', 'LinkedIn', 'USFCEProcesses', 'USFCESecurityRoles', 'USFCECore', 'MicrosoftDynamics_P...', 'MicrosoftDynamics_P...', 'MicrosoftDynamics_St...', and 'MicrosoftDynamics_M...'. A file explorer window is open, showing the 'Downloads' folder. The file 'USFCECore_1_1_0_0.zip' is highlighted, indicating it has been downloaded from the remote repository.

Step4:- Developer1 pulls the code from remote repository

```
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master f1]> git pull
Username for 'https://github.com': anushaande
Password for 'https://anushaande@github.com':
Already up to date.
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master f1]>
```

Step5:- Developer1 Unpacks the solution to git local repository

```

C:\Users\anushaande.FOREST\Downloads\USFCCore_1_1_0_0.zip" /folder:"C:\WorkStation\Git\localRepo\USFCCore-Dynamics"
SolutionPackager CRM Solution Packaging Tool [Version 9.1.0.13]
© 2017 Microsoft Corporation. All rights reserved

Extracting C:\Users\anushaande.FOREST\Downloads\USFCCore_1_1_0_0.zip to C:\WorkStation\Git\localRepo\USFCCore-Dynamics\

Processing Component: Entities
- Account
- BusinessUnit
- Campaign
- Contact
- Email
- msdyn_responseaction
- msdynrm_contentsettings
- msdynrm_customerjourney
- msdynrm_marketingemail
- msdynrm_marketingform
- msdynrm_marketingpage
- msevtmgt_Event
- msevtmgt_EventRegistration
- msevtmgt_Venue
- Opportunity
- Queue
- QueueItem
- SystemUser
- Team
- User
- usf_attribute
- usf_checklist
- usf_comment
- usf_country
- usf_emailcomponents
- usf_emailcomponent
- usf_emailstyles
- usf_financialaid
- usf_highschoolhistory
- usf_initiative
- usf_opportunitybusinessprocessflow
- usf_recruiterterritory
- usf_source
- usf_state
- usf_studentattribute
- usf_studentinterest
- usf_systemconfiguration
- usf_term
- usf_testscore
Processing Component: Roles
- Event Administrator
- Login Base Role
- Recruiter
- Recruiting Manager
- Student Call Center
Processing Component: Workflows
- Opportunity - Update fields on Contact
- Opportunity - Set Topic field value
- Opportunity Business Process flow
- Contact - FOM TESTING - Set User Fields based on Owner
- Opportunity Visit Reason updates
Processing Component: FieldSecurityProfiles
Processing Component: Templates
Processing Component: EntityMaps
Processing Component: EntityRelationships
Processing Component: optionsets
- usf_admitypecode
- usf_applicationdecisioncode
- usf_applicationstatuscode
- usf_campus
- usf_contacttype
- usf_level

```

Step6:- Developer1 checks the changes from previous version to current version

[illegible]

Step7:- Developer1 Commits his changes to remote repository

```
</row>
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑1 +0 ~4 -0 !]> git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   Entities/Account/FormXml/main/{8448b78f-8f42-454e-8e2b-f8196b0419af}.xml
        modified:   Entities/Contact/FormXml/main/{1fed44d1-ae68-4a41-bd2b-f13acac4acfa}.xml
        modified:   Entities/Opportunity/FormXml/main/{a837e4a7-01b8-4f82-a475-be9abd67e667}.xml
        modified:   Other/Solution.xml

no changes added to commit (use "git add" and/or "git commit -a")
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑1 +0 ~4 -0 !]>
```

```
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑1 +0 ~4 -0 !]> git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   Entities/Account/FormXml/main/{8448b78f-8f42-454e-8e2b-f8196b0419af}.xml
        modified:   Entities/Contact/FormXml/main/{1fed44d1-ae68-4a41-bd2b-f13acac4acfa}.xml
        modified:   Entities/Opportunity/FormXml/main/{a837e4a7-01b8-4f82-a475-be9abd67e667}.xml
        modified:   Other/Solution.xml

no changes added to commit (use "git add" and/or "git commit -a")
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑1 +0 ~4 -0 !]> git add '.\Entities\Opportunity\*'
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑1 +0 ~1 -0 | +0 ~3 -0 !]> git commit -m "Committing changes in Opportunity by Anusha"
[master 60fc751] Committing changes in Opportunity by Anusha
 1 file changed, 11 insertions(+), 2 deletions(-)
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑2 +0 ~3 -0 !]> git status
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   Entities/Account/FormXml/main/{8448b78f-8f42-454e-8e2b-f8196b0419af}.xml
        modified:   Entities/Contact/FormXml/main/{1fed44d1-ae68-4a41-bd2b-f13acac4acfa}.xml
        modified:   Other/Solution.xml

no changes added to commit (use "git add" and/or "git commit -a")
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master ↑2 +0 ~3 -0 !]> git push -u origin master
Username for 'https://github.com': anushaande
Password for 'https://anushaande@github.com':
Enumerating objects: 28, done.
Counting objects: 100% (28/28), done.
Delta compression using up to 8 threads.
Compressing objects: 100% (15/15), done.
Writing objects: 100% (16/16), 16.35 KiB | 1.02 MiB/s, done.
Total 16 (delta 11), reused 0 (delta 0)
remote: Resolving deltas: 100% (11/11), completed with 9 local objects.
To https://github.com/USF-IT/USFCECore-Dynamics.git
   5d56abe..60fc751 master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master = +0 ~3 -0 !]>
```

Packing Solution Using Solution Packager and deploying solution to dynamics:-

Step8:- Download the code from git remote repository

USF-TT / USFCECore-DynamicsPrivate

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3 commits

1 branch

0 releases

0 contributors

Branch: masterNew pull request

Create new fileUpload filesFind fileClone or download

anushaande

Committing changes in Opportunity by Anusha

Latest commit 60fc751 2 minutes ago

AppModuleSiteMaps/usf_Admissions	initial Commit	6 hours ago
AppModules	initial Commit	6 hours ago
Entities	Committing changes in Opportunity by Anusha	2 minutes ago
OptionSets	initial Commit	6 hours ago
Other	Modified account	6 hours ago
PluginAssemblies/USFCECodeComponentPlugi...	initial Commit	6 hours ago
Roles	initial Commit	6 hours ago
SdkMessageProcessingSteps	initial Commit	6 hours ago
WebResources	initial Commit	6 hours ago
Workflows	initial Commit	6 hours ago

Help people interested in this repository understand your project by adding a README.

Add a README

Clicking on "Committing changes in Opportunity by Anusha" we can see exactly whats changed

Committing changes in Opportunity by Anusha

[Browse files](#)

master

anushaande committed 2 minutes ago

1 parent 845aaf7

commit 60fc751e6e1012b7be2037453122ee4ed27e46e6

Showing 1 changed file with 11 additions and 2 deletions.

[Unified](#) [Split](#)

▼ 13 Entities/Opportunity/FormXml/main/{a837e4a7-01b8-4f82-a475-be9abd67e667}.xml			...
File	@@ -35,9 +35,18 @@		
35	35		<row>
36	36		<cell id="{e70e7de7-b3eb-6198-7479-7c3104abcb80}" showlabel="true" locklevel="0">
37	37		<labels>
38	-		<label description="Contact" languagecode="1033" />
38	+		<label description="Contact_Test" languagecode="1033" />
39	39		</labels>
40	-		<control id="parentcontactid" classid="{2708D3DB-D9AF-4782-9025-509E298DEC0A}" datafieldname="parentcontac
40	+		<control id="parentcontactid" classid="{2708D3DB-D9AF-4782-9025-509E298DEC0A}" datafieldname="parentcontac
41	+		<parameters>
42	+		<AutoResolve>true</AutoResolve>
43	+		<DisableMrU>false</DisableMrU>
44	+		<DisableQuickFind>false</DisableQuickFind>
45	+		<DisableViewPicker>false</DisableViewPicker>
46	+		<DefaultViewId>{A2D479C5-53E3-4C69-ADDD-802327E67A0D}</DefaultViewId>
47	+		<AllowFilterOff>false</AllowFilterOff>
48	+		</parameters>
49	+		</control>
41	50		</cell>
42	51		</row>
43	52		</row>
File			

USF-IT / USFCECore-Dynamics

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Watch2

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Edit

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3 commits

1 branch

0 releases

0 contributors

Branch: master

New pull request

Create new file

Upload files

Find file

Clone or download

anushaande

Committing changes in Opportunity by Anusha

AppModuleSiteMaps/usf_Admissions	initial Commit	
AppModules	initial Commit	
Entities	Committing changes in Opportunity by Anusha	
OptionSets	initial Commit	
Other	Modified account	6 hours ago
PluginAssemblies/USFCECodeComponentPlugi...	initial Commit	6 hours ago
Roles	initial Commit	6 hours ago
SdkMessageProcessingSteps	initial Commit	6 hours ago
WebResources	initial Commit	6 hours ago
Workflows	initial Commit	6 hours ago

Clone with HTTPS

Use Git or checkout with SVN using the web URL.

https://github.com/USF-IT/USFCECore-Dynai

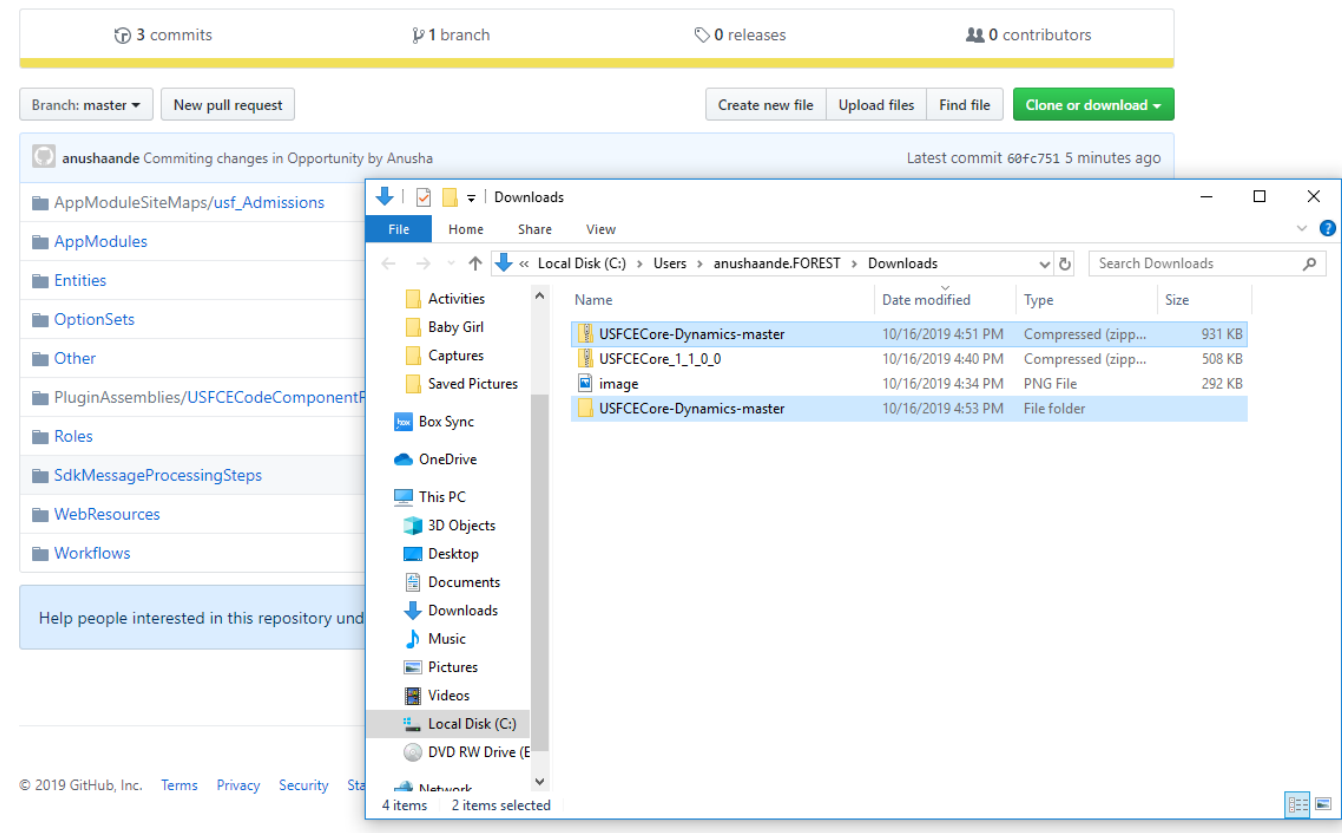
Open in Desktop

Download ZIP

Help people interested in this repository understand your project by adding a README.

Add a README

Step9:- Unzip the code



Step10:- Pack the files into dynamics solution using solution packager

Command to pack the files :-

solutionpackager.exe /action:Pack /folder:"Path\To\Folder\That has\granular\files of\ solution" /zipfile:"Path\to\zip\files\to\File_Name.zip"

```
C:\WorkStation\Git\LocalRepo\USFCECore-Dynamics [master > 40-3-0] > solutionpackager.exe /action:Pack /folder:"C:\Users\anushaand.FOREST\Downloads\USFCECore-Dynamics-master" /zipfile:"C:\Users\anushaand.FOREST\Downloads\USFCECore-Dynamics-master\USFCECore-Dynamics-master.zip"
SolutionPackager CRM Solution Packaging Tool [Version 9.1.0.13]
© 2017 Microsoft Corporation. All rights reserved

Packing C:\Users\anushaand.FOREST\Downloads\USFCECore-Dynamics-master to C:\Users\anushaand.FOREST\Downloads\USFCECore-Dynamics-master\USFCECore-Dynamics-master.zip

Processing Component: Entities
- Account
- BusinessUnit
- Campaign
- Contact
- Email
- msdyncrm_contentsettings
- msdyncrm_customerjourney
- msdyncrm_marketingemail
- msdyncrm_marketingform
- msdyncrm_marketingpage
- msdyn_responseaction
- msvtngt_Event
- msvtngt_EventRegistration
- msvtngt_Venue
- Opportunity
- Queue
- QueueItem
- SystemUser
- Team
- User
- usf_attribute
- usf_checklist
- usf_comment
- usf_country
- usf_emailcomponents
- usf_emailcomponent
- usf_emailstyles
- usf_financialaid
- usf_highschoolhistory
- usf_initiative
- usf_opportunitybusinessprocessflow
- usf_recruiterterritory
- usf_source
- usf_state
- usf_studentattribute
- usf_studentinterest
- usf_systemconfiguration
- usf_term
- usf_testscore
Processing Component: Roles
Processing Component: Workflows
- Contact - FOR TESTING - Set User Fields based on Owner
- Opportunity Visit Reason updates
- Opportunity - Set Topic field value
- Opportunity - Update fields on Contact
- Opportunity Business Process flow
Processing Component: FieldSecurityProfiles
Processing Component: Templates
Processing Component: EntityMaps
Processing Component: EntityRelationships
Processing Component: OrganizationSettings
Processing Component: OptionSets
Processing Component: WebResources
- usf_opportunity_step_validation.js
- usf_opportunity_form
- usf_showbefore
Processing Component: CustomControls
Processing Component: SolutionPluginAssemblies
```

```
Type='Dashboard', Id (or schema name)='{a837e4a7-01b8-4f82-a475-be9abd67e667}'.
Type='Dashboard', Id (or schema name)='{ab491d37-edce-48ea-9cc2-0d4967c9c348}'.
Type='Dashboard', Id (or schema name)='{b4b344dd-5e56-49ce-af8d-79fd84be37d9}'.
Type='Dashboard', Id (or schema name)='{c2cd9e55-d4b4-4b55-9951-16ead79643e5}'.
Type='Dashboard', Id (or schema name)='{c938569d-fc9d-4e07-b15b-187d28abbbfb}'.
Type='Dashboard', Id (or schema name)='{c9c504eb-fa19-4124-851f-bd3d46590322}'.
Type='Dashboard', Id (or schema name)='{e3c588ee-8e11-49da-a5fe-3800f3f683de}'.
Type='Dashboard', Id (or schema name)='{e56a9046-90eb-477f-9af9-0c9bfaba6842}'.
Type='Dashboard', Id (or schema name)='{e588f94a-4e0c-4491-8de3-2253d22bba38}'.
Type='Dashboard', Id (or schema name)='{e9bb6310-f81c-4e74-8afe-d36581342eb5}'.
Type='Dashboard', Id (or schema name)='{f033e3ed-61ef-4faf-b4f1-1dc0a138bfc8}'.
Type='Dashboard', Id (or schema name)='{f376ae20-45a4-46bc-9712-1c12b057b8c2}'.
```

Unmanaged Pack complete.

2 warnings encountered

C:\WorkStation\GitLocalRepo\USFCECore-Dynamics [master = +0 ~3 -0 !]>

Step11:- Deploying solution to usfdevsandbox

The screenshot displays the Dynamics 365 Sandbox environment. The 'All Solutions' table lists various installed and unmanaged solutions. The 'Import Solution' wizard is active, prompting the user to select a solution package. A file explorer window is open, showing the 'Downloads' directory with the 'USFCECore-Dynamics-master' folder selected.

Name	Display Name	Version	Installed On	Package T...
msdyn_PowerAppsCh...	PowerApps Checker U...	1.0.1.36	7/26/2019	Managed
msdyn_PowerAppsCh...	PowerApps Checker B...	1.0.1.36	7/13/2019	Managed
TestAnusha	TestAnusha	1.0	6/4/2019	Unmanag...
CRMRESTBuilder	CRM REST Builder	2.6.0.0	5/16/2019	Managed

Step12:- Check the changes made by developer1 - Changes will be reflected

Opportunity: Opportunity | Owner: Anusha Ande | Status: Active

Opportunity Business Process: Active for less than one m...

Process Flow: Suspect (< 1 Min) | Prospect | Applicant | Admit | Deposit | Enrolled

Summary | Checklist | Comments | High Schools | Post-Secondary | Test Scores | Scholarship/Financial

Opportunity Information

- Topic: ---
- Contact_Test**: ---
- USF ID: ---
- Student Type: ---
- Term: ---
- Application Sequence Number: ---
- Application Source ID: ---
- Application Date: ---
- Prospect Preferred Campus: ---

Application Information

- Application Decision Code: ---
- Application Decision Description: ---
- Application Status Code: ---
- Application Status Description: ---
- Decision Date: ---
- Admit Type Code: ---
- Archivum Decision: ---

Legal

- Conduct Disciplinary: No
- Conduct Legal Violation: No

Holds

- Holds: No

Attributes

Timeline

This record hasn't been created yet. To view this record, save it to your timeline.

Step13:- Check the changes made by developer2 - Changes will not be reflected

Contact: Contact | Owner: Anusha Ande

Summary | Events | Test Scores | Opportunities

Contact Information

- First Name: ---
- Middle Name: ---
- Last Name: ---
- Alternate Name**: ---
- USF ID: ---
- Email: ---
- USF Email: ---
- Mobile Phone: ---
- Home Phone: ---
- Orientation Attendance Code: ---
- Orientation Attendance Description: ---

Mailing Address

- Local Mailing Address: Street 1: ---
- Local Mailing Address: Street 2: ---
- Local Mailing Address: Street 3: ---
- Local Mailing Address: County: ---
- Local Mailing Address: City: ---
- Local Mailing Address: State: ---
- Local Mailing Address: ZIP/Postal Code: ---
- Local Mailing Address: Country: ---

Permanent Address

- Permanent Address: Street 1: ---
- Permanent Address: Street 2: ---
- Permanent Address: Street 3: ---
- Permanent Address: County: ---
- Permanent Address: City: ---
- Permanent Address: State: ---
- Permanent Address: ZIP/Postal Code: ---
- Permanent Address: Country: ---

Emergency Contact

- Relationship: ---

Hence changes made by developer1 got reflected in dynamics and changes made by developer2 are still in dev environment. This way as developer will be responsible for their code, there is no unfinished code being deployed to another environment.

Release tags for a solution:-

Tagging a version of solution when ever it is ready to deployed to another environment and keeping a track of the version released is one of the best practices to know which version of code resides in which environment.

References:-

<https://docs.microsoft.com/en-us/dynamics365/customerengagement/on-premises/developer/compress-extract-solution-file-solutionpackager>

<https://docs.microsoft.com/en-us/dynamics365/customerengagement/on-premises/developer/download-tools-nuget>