

Project Report

on

28.Create Language-Specific MST TransformsSubmitted

By

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Create Language-Specific MST Transforms to Localize the Installer

Introduction

- In today's globalized software market, it is essential for applications to support multiple languages. Localization ensures that software can cater to users from different linguistic and cultural backgrounds.
- One common method to localize software installers on Windows is by using MST (Microsoft Transform) files, which are transform files that modify the original MSI (Microsoft Installer) package without altering the base installer. These MST files help in translating UI text, messages, directory names, and other localizable elements.
- This project focuses on creating language-specific MST transforms for localizing software installers. The approach allows developers and system administrators to deploy a single MSI installer with different MST files depending on the user's language preference.

Project Requirements

System Requirements:

- Windows OS (Windows 10 or later recommended).
- Admin privileges (for installing and editing installers).
- Disk space to store MSI/MST files.

Functional Requirements:

- Analyze the original MSI package.
- Identify localizable strings (dialogs, error messages, labels, etc.).
- Create MST files for each target language (e.g., French, Spanish, German).
- Apply MST files during installation to reflect the appropriate language.

Install Developer



Create Base File msi



Identify Localize String



Create Language Specific MS



Apply Mst to MSI



Test Localize Installer



Deploy Localized Installer

Introduction to Tools

1. Orca (Microsoft):

Orca.exe

- A Windows Installer package editor provided in the **Windows SDK**.
- Used to view, edit, and generate MST files.
- Allows table-level manipulation of MSI packages.



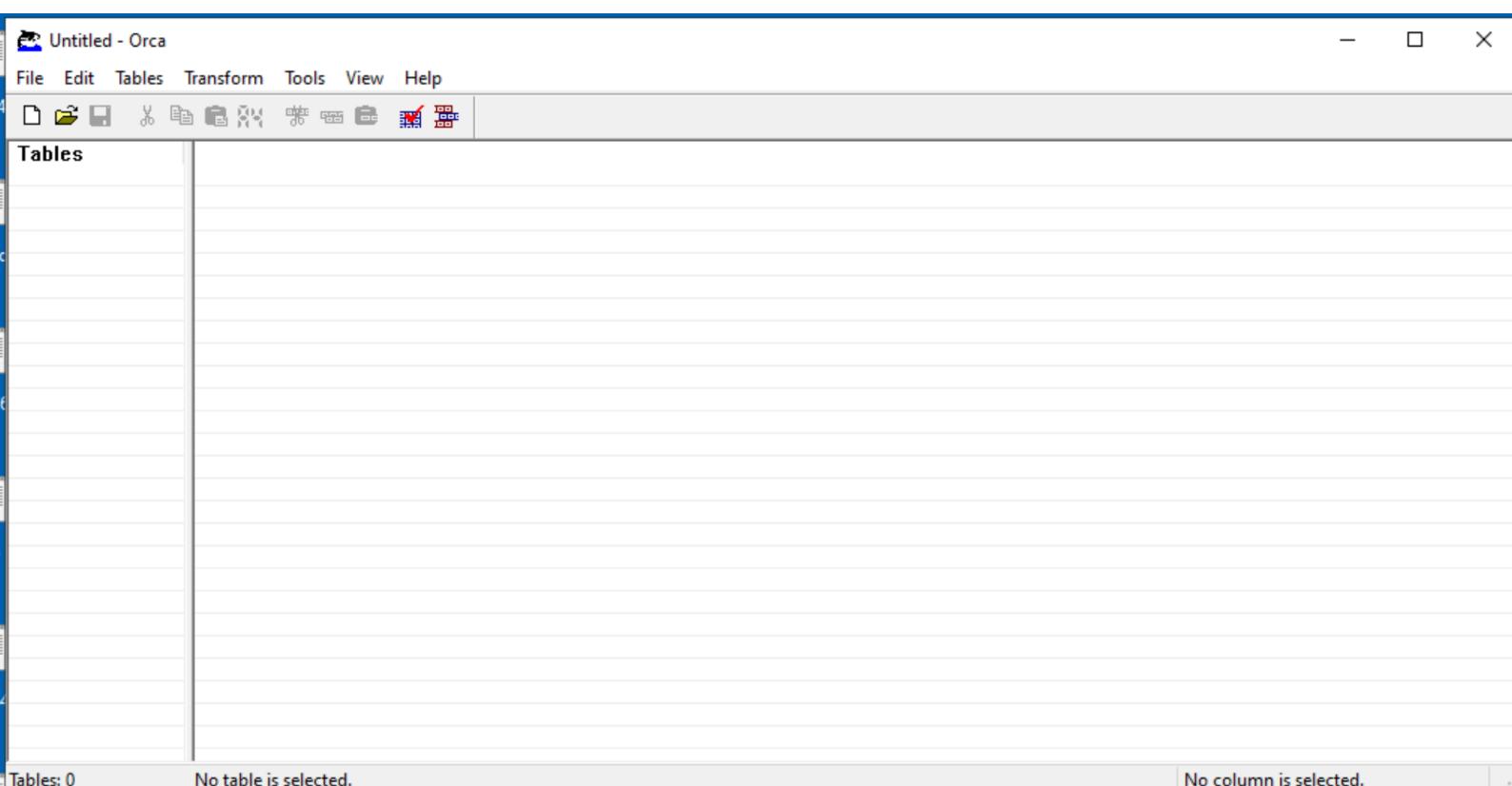
2.A .msi Package File:

A .msi file which is to be transformed for Language Transformation

Steps to Create MST Transforms for Localization

Step 1: Install Required Tools

- Download and install **Orca** from Microsoft (part of Windows SDK).
- **Launch Orca.**



- This is the basic Dashboard of ORCA
- Orca is a Microsoft tool used to view and edit Windows Installer (.msi) files. It's part of the Windows SDK.

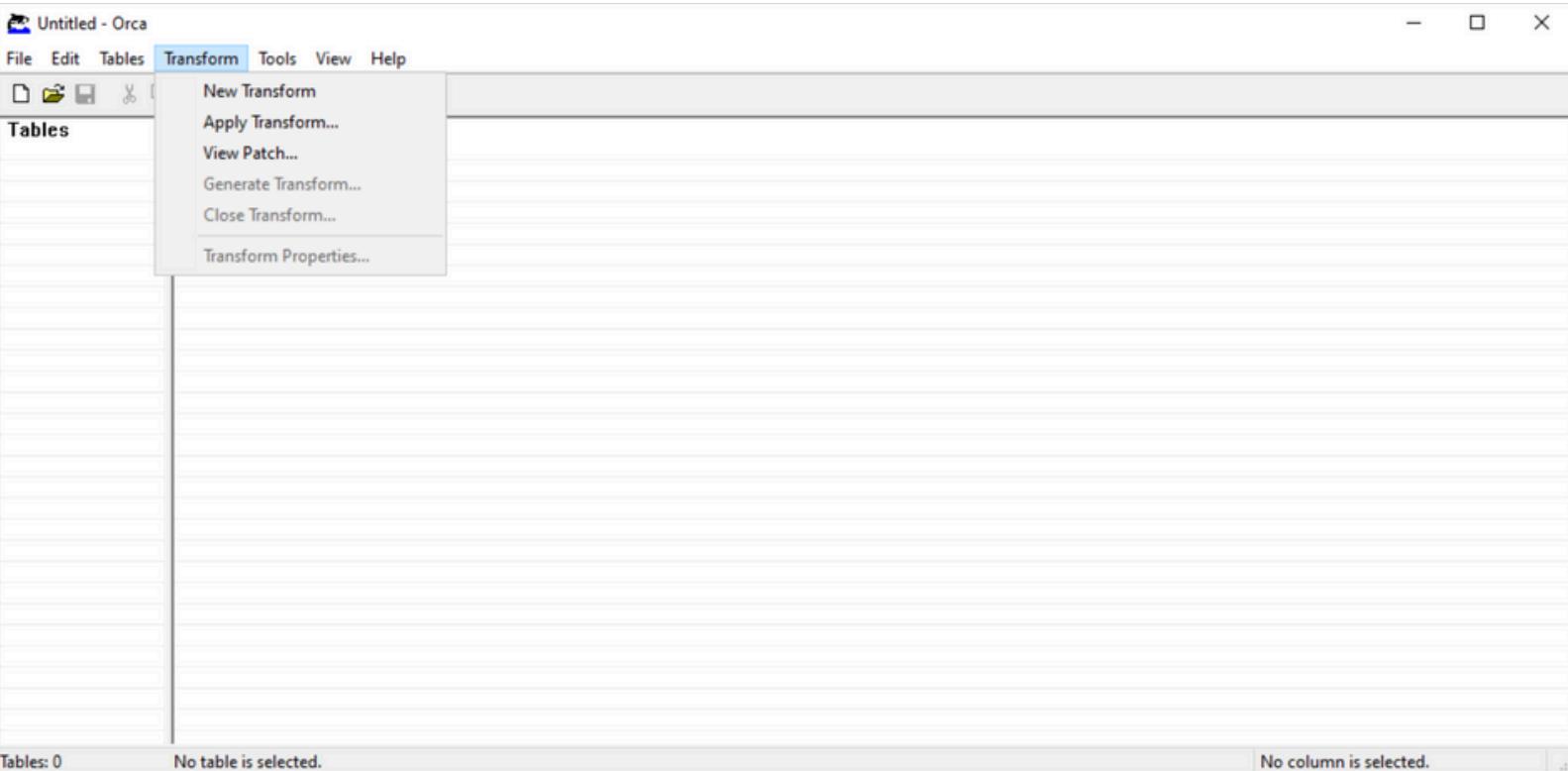
Menu Bar:

Contains the standard menus:

- **File > Edit > Tables > Transform > Tools > View > Help**

Create a New Transform

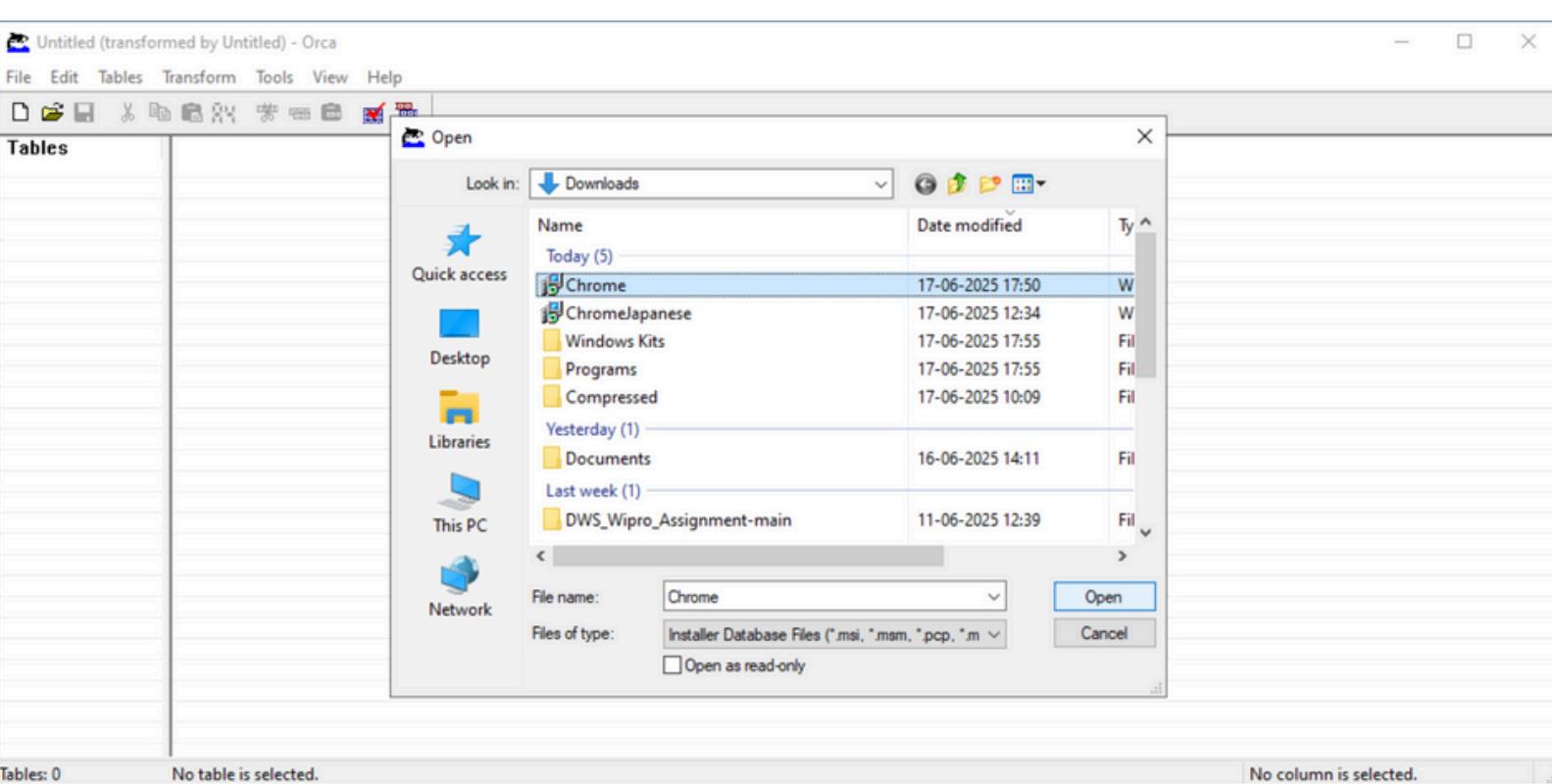
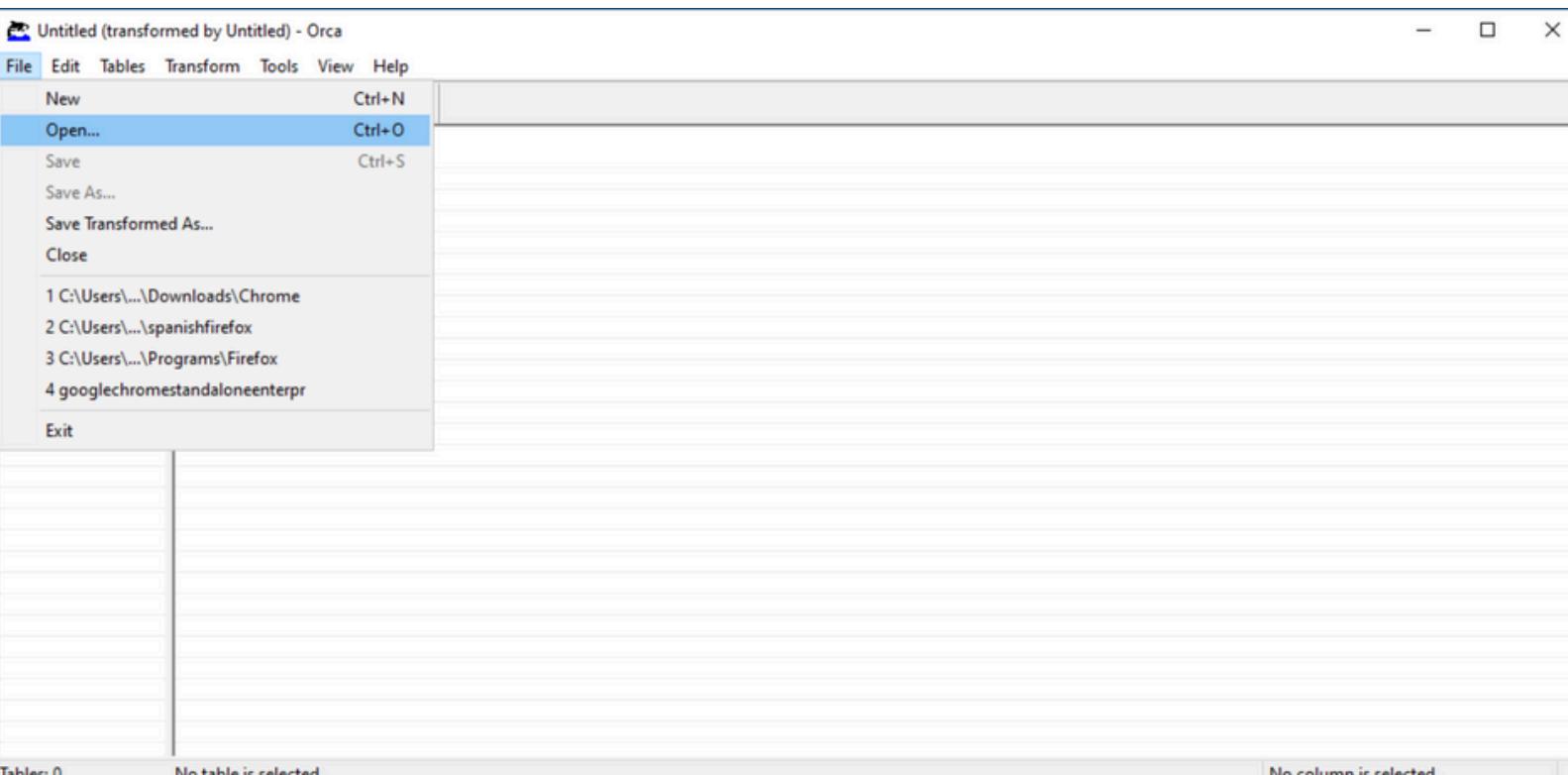
- Go to Transform > New Transform.
- This begins tracking the changes you make.



- After Clicking on the **NEW TRANSFORM** from the **TRANSFORM**
- We need to load the **.msi** package to **Transform**

Load the msi Package in ORCA

- From the Orca File Menu load the MSI package file into ORCA for Transformation



- The Orca window is displaying the **Property table** of the Chrome.msi file.
- Which then shows the Value assigned with the Properties

The screenshot shows the Orca MSI Editor interface with the 'Property' table selected. The table contains the following data:

Property	Value
ALLUSERS	1
ARPPRODUCTICON	icon.ico
ARPNOMODIFY	1
AllowDowngradeSubstitution	false
Manufacturer	Google LLC
ProductCode	{637DE894-ACF5-3AAA-96FC-A53FC9B1904B}
ProductLanguage	1033
ProductName	Google Chrome
ProductVersion	137.0.7151.104
UpgradeCode	{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}
SecureCustomProperties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND

This view is typically used for:

- **Customizing MSI behavior** before deployment (e.g., silent install, pre-configured settings).
- **Reading version, product codes, and language** info for enterprise software deployment.
- **Modifying or troubleshooting MSI installs** in a corporate or lab environment.

Creating Language Specific MST Transforms

The screenshot shows the Orca tool interface with the 'Property' table selected. The table contains the following data:

Property	Value
ALLUSERS	1
ARPPRODUCTICON	icon.ico
ARPNOMODIFY	1
AllowDowngradeSubstitution	false
Manufacturer	Google LLC
ProductCode	{637DE894-ACF5-3AAA-96FC-A53FC9B1904B}
ProductLanguage	1033
ProductName	Google Chrome
ProductVersion	137.0.7151.104
UpgradeCode	{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}
SecureCustomProperties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND

In the Above Snapshot

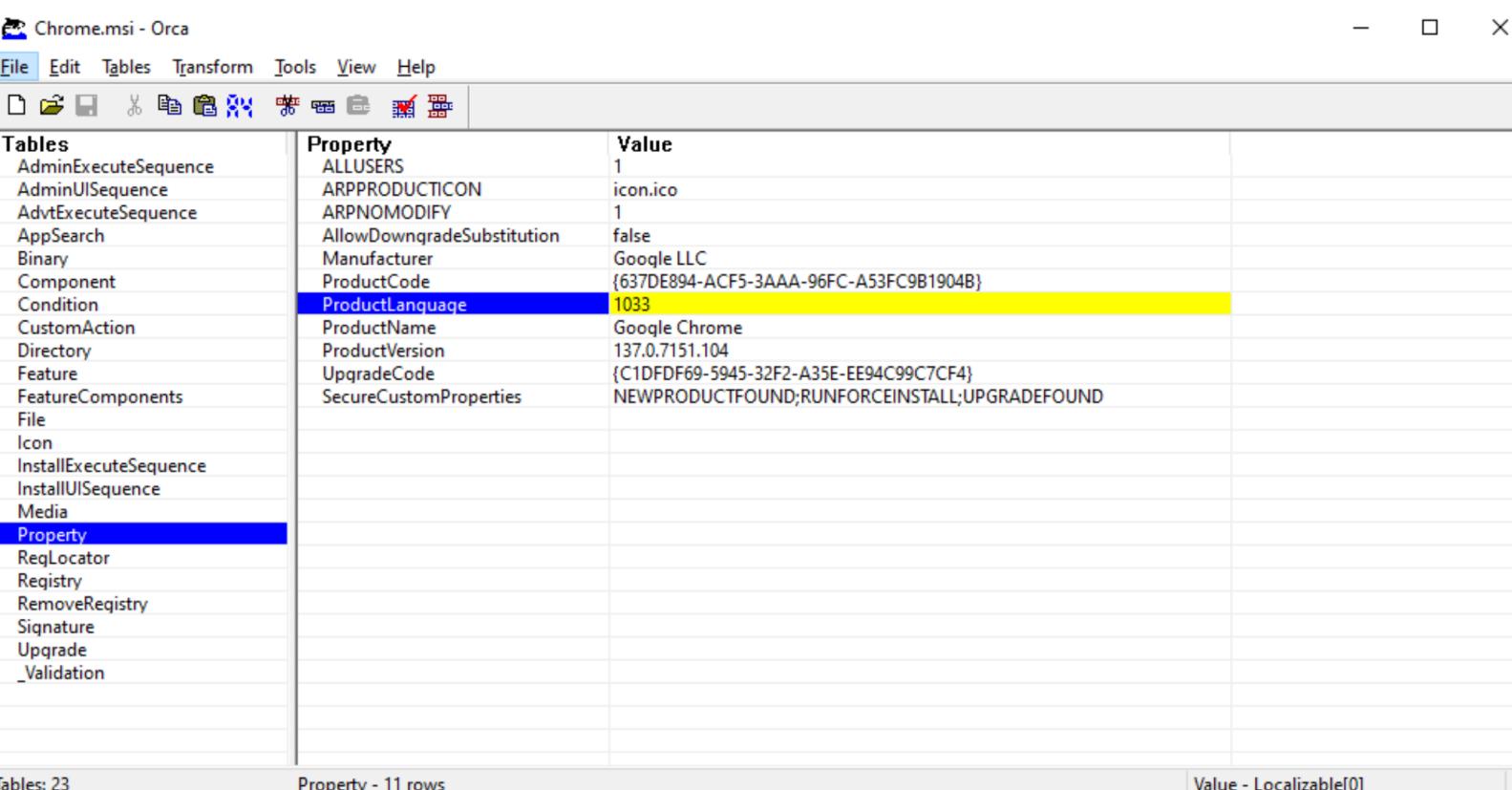
- In the Table section we navigate to the Property
- Which Displays the Properties

Where we Edit or Change the Product Language

- English (United States): 1033
- French (France): 1036
- German (Germany): 1031
- Japanese: 1041
- Spanish (Spain): 3082

Steps to create Language Transformation

- Navigate to the Product Language Property
- Check for the Language code
- In this snapshot the code is 1033
- The Language Code 1033 represents English Language



The screenshot shows the Orca MSI Editor interface. The title bar reads "Chrome.msi - Orca". The menu bar includes File, Edit, Tables, Transform, Tools, View, and Help. Below the menu is a toolbar with various icons. The main area has three columns: "Tables", "Property", and "Value". The "Tables" column lists various MSI table names. The "Property" column contains the names of properties, and the "Value" column contains their corresponding values. One row in the table is highlighted with a yellow background: "ProductLanguage" with a value of "1033". At the bottom left, it says "Tables: 23". At the bottom right, it says "Value - Localizable[0]".

Tables	Property	Value
AdminExecuteSequence	ALLUSERS	1
AdminUISequence	ARPPRODUCTICON	icon.ico
AdvtExecuteSequence	ARPNONMODIFY	1
AppSearch	AllowDowngradeSubstitution	false
Binary	Manufacturer	Google LLC
Component	ProductCode	{637DE894-ACF5-3AAA-96FC-A53FC9B1904B}
Condition	ProductLanguage	1033
CustomAction	ProductName	Google Chrome
Directory	ProductVersion	137.0.7151.104
Feature	UpgradeCode	{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}
FeatureComponents	SecureCustomProperties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND
File		
Icon		
InstallExecuteSequence		
InstallUISequence		
Media		
Property		
ReqLocator		
Registry		
RemoveRegistry		
Signature		
Upgrade		
_Validation		

Now We change the Language Code to 1041 Represents Japanese

Chrome.msi - Orca

File Edit Tables Transform Tools View Help

Tables

Property	Value
ALLUSERS	1
ARPPRODUCTICON	icon.ico
ARPNOMODIFY	1
AllowDowngradeSubstitution	false
Manufacturer	Google LLC
ProductCode	{637DE894-ACF5-3AAA-96FC-A53FC9B1904B}
ProductLanguage	1041
ProductName	Google Chrome
ProductVersion	137.0.7151.104
UpgradeCode	{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}
SecureCustomProperties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND

Property

Tables: 23 Property - 11 rows Value - Localizable[0]

- The ProductLanguage is changed now to 1041
- The next step involves of Generating the Transformation
- When Clicked in Generate Transformation it Produces a .mst File which contains the Transformed Data

Chrome.msi (transformed by Untitled) - Orca

File Edit Tables Transform Tools View Help

Tables

AdminExecuteSequence
AdminUISequence
AdvtExecuteSequence
AppSearch
Binary
Component
Condition
CustomAction
Directory
Feature
FeatureComponents
File
Icon
InstallExecuteSequence
InstallUISequence
Media
Property
ReqLocator
Registry
RemoveRegistry
Signature
Upgrade
_Validation

New Transform
Apply Transform...
View Patch...
Generate Transform...
Close Transform
Transform Properties...

	Value
1	
icon.ico	
1	
Substitution	false
Google LLC	
(637DE894-ACF5-3AAA-96FC-A53FC9B1904B)	
PRODUCTLANGUAGE	1041
ProductName	Google Chrome
ProductVersion	137.0.7151.104
UpgradeCode	{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}
SecureCustomProperties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND

Tables: 23 Property - 11 rows Value - Localizable[0]

Chrome.msi - Orca

File Edit Tables Transform Tools View Help

Tables

AdminExecuteSequence
AdminUISequence
AdvtExecuteSequence
AppSearch
Binary
Component
Condition
CustomAction
Directory
Feature
FeatureComponents
File
Icon
InstallExecuteSequence
InstallUISequence
Media
Property
ReqLocator
Registry
RemoveRegistry
Signature
Upgrade
_Validation

Open

Look in: Downloads

Name	Date modified
ChromeMST	17-06-2025 20:01
Programs	17-06-2025 18:49
Windows Kits	17-06-2025 17:55
Compressed	17-06-2025 10:09

Today (4)
Yesterday (1)
Last week (1)
Earlier this month (1)

File name: ChromeMST

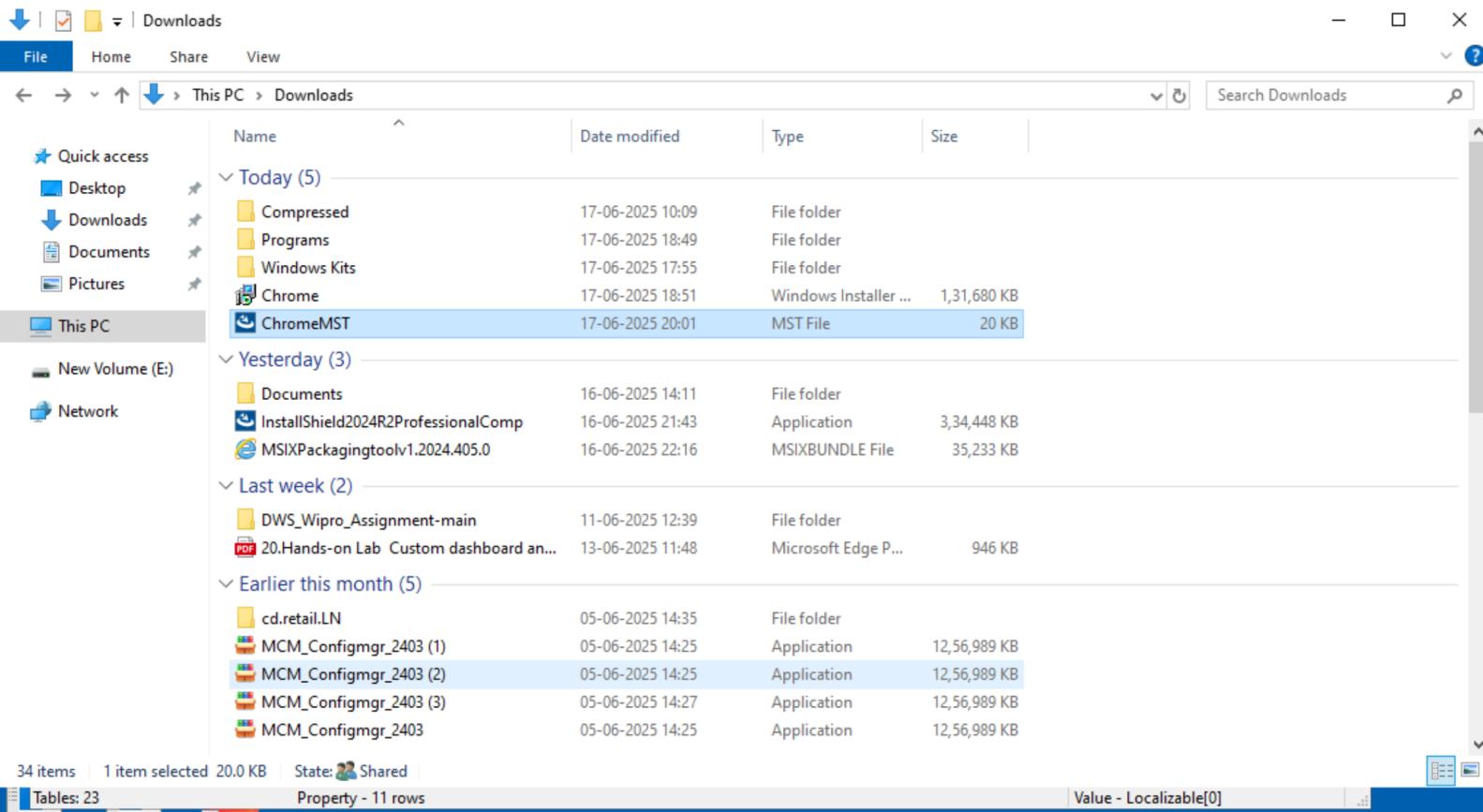
Files of type: Installer Transforms (*.mst)

Open as read-only

Open Cancel

Tables: 23 Property - 11 rows No column is selected.

- After committing the transform We have not got the Chrome.MST file which is saved in preferred location



A screenshot of a Windows File Explorer window. The title bar says 'Downloads'. The left sidebar shows 'This PC' selected. The main area lists files and folders in the 'Downloads' folder. A file named 'ChromeMST' is selected and highlighted in blue. The table below shows the details of the selected file.

	Name	Date modified	Type	Size
▼ Today (5)				
	Compressed	17-06-2025 10:09	File folder	
	Programs	17-06-2025 18:49	File folder	
	Windows Kits	17-06-2025 17:55	File folder	
	Chrome	17-06-2025 18:51	Windows Installer ...	1,31,680 KB
	ChromeMST	17-06-2025 20:01	MST File	20 KB
▼ Yesterday (3)				
	Documents	16-06-2025 14:11	File folder	
	InstallShield2024R2ProfessionalComp	16-06-2025 21:43	Application	3,34,448 KB
	MSIXPackagingtoolv1.2024.405.0	16-06-2025 22:16	MSIXBUNDLE File	35,233 KB
▼ Last week (2)				
	DWS_Wipro_Assignment-main	11-06-2025 12:39	File folder	
	20.Hands-on Lab Custom dashboard an...	13-06-2025 11:48	Microsoft Edge P...	946 KB
▼ Earlier this month (5)				
	cd.retail.LN	05-06-2025 14:35	File folder	
	MCM_Configmgr_2403 (1)	05-06-2025 14:25	Application	12,56,989 KB
	MCM_Configmgr_2403 (2)	05-06-2025 14:25	Application	12,56,989 KB
	MCM_Configmgr_2403 (3)	05-06-2025 14:27	Application	12,56,989 KB
	MCM_Configmgr_2403	05-06-2025 14:25	Application	12,56,989 KB

34 items | 1 item selected 20.0 KB | State: Shared | Tables: 23 | Property - 11 rows | Value - Localizable[0]

- As we see the MST file is generated and stored in the Location

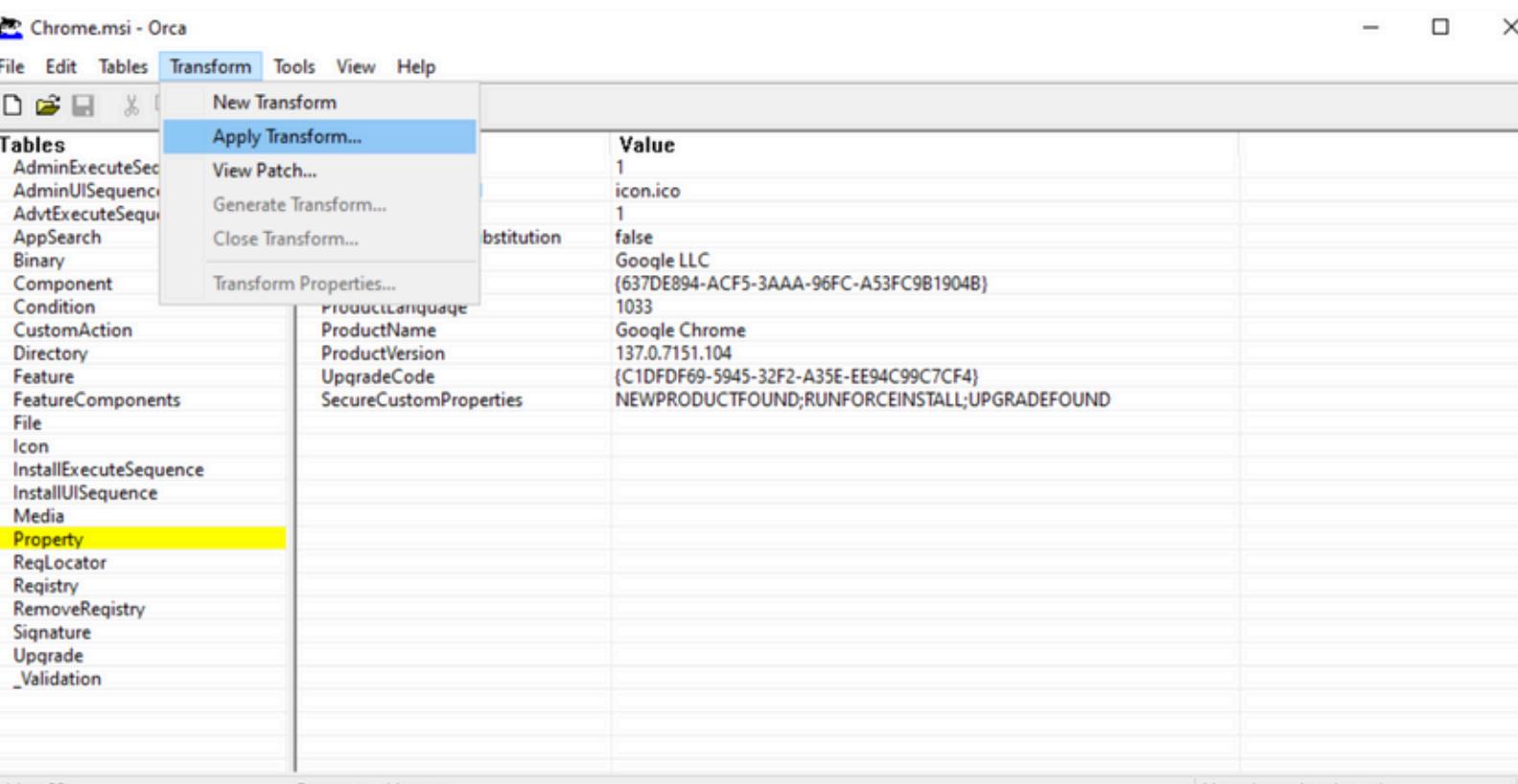
Downloads\ChromeMST

- Now the Further steps involves of bundling the msi and mst package file

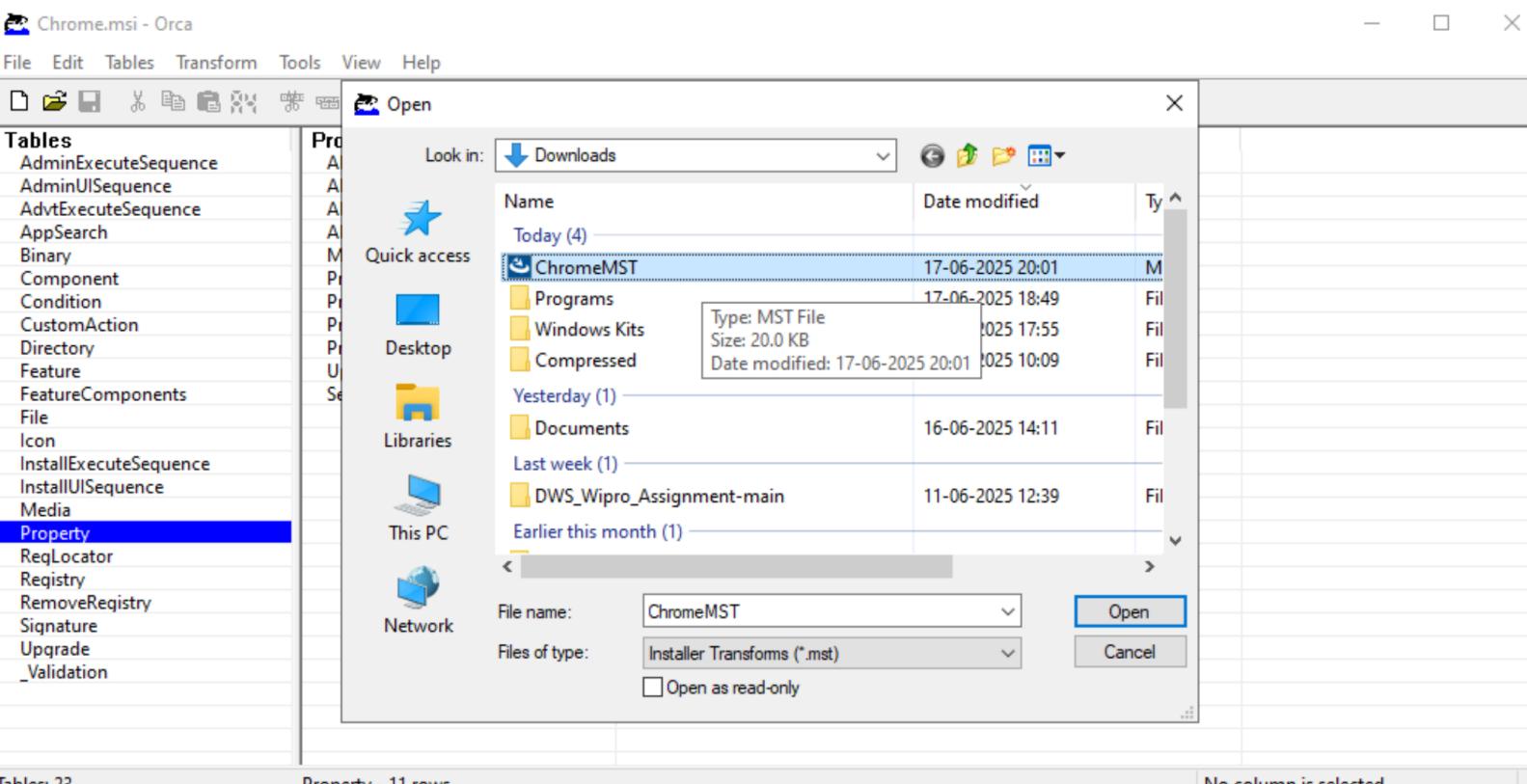
- Now open the **chrome.msi** to apply Transformation to it

Navigate to the files > Open File > Choose the .msi package

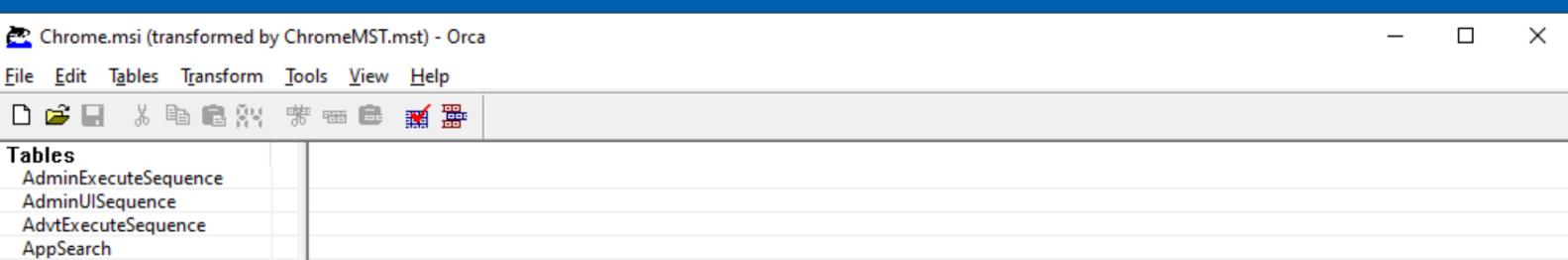
- Navigate to the Transformation Menu > **APPLY TRANSFORM**



- Choose the mst file which we created earlier named ChromeMST



- When the file is selected it is Opened the ORCA Bundles the files And Shows the Transformed status as shown



Chrome.msi (Transformed by ChromeMST.mst)

- once Transformed the file is now ready to be saved as Transformation

Chrome.msi (transformed by ChromeMST.mst) - Orca

The screenshot shows the Orca MSI Editor interface with the 'Property' table selected. The table contains the following data:

Property	Value
ALLUSERS	1
ARPPRODUCTICON	icon.ico
ARPNOMODIFY	1
AllowDowngradeSubstitution	false
Manufacturer	Google LLC
ProductCode	{637DE894-ACF5-3AAA-96FC-A53FC9B1904B}
ProductLanguage	1041
ProductName	Google Chrome
ProductVersion	137.0.7151.104
UpgradeCode	{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}
SecureCustomProperties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND

Tables: 23 Property - 11 rows No column is selected.

We can now see the **ProductLanguage** is changed as of 1033 to 1041

- Now once we know the **ProductLanguage** is Changed
- We now head towards Saving the file
- Hit the **SAVE TRANSFORMED AS** button from **File Menu**
-

File Edit Tables Transform Tools View Help

New Ctrl+N

Open... Ctrl+O

Save Ctrl+S

Save As...

Save Transformed As...

Close

1 Chrome

2 C:\Users\...\spanishfirefox

3 C:\Users\...\Programs\Firefox

4 googlechromestandaloneenterprise

Exit

InstallUISequence

Media

Property

ReqLocator

Registry

RemoveRegistry

Signature

Upgrade

_Validation

	Value
ON	1
icon.ico	
Substitution	false
Google LLC	
{637DE894-ACF5-3AAA-96FC-A53FC9B1904B}	
1041	
Google Chrome	
137.0.7151.104	
{C1DFDF69-5945-32F2-A35E-EE94C99C7CF4}	
Properties	NEWPRODUCTFOUND;RUNFORCEINSTALL;UPGRADEFOUND

Tables: 23

Property - 11 rows

No column is selected.

File Edit Tables Transform Tools View Help



Save As

Tables

AdminExecuteSequence

AdminUISequence

AdvtExecuteSequence

AppSearch

Binary

Component

Condition

CustomAction

Directory

Feature

FeatureComponents

File

Icon

InstallExecuteSequence

InstallUISequence

Media

Property

ReqLocator

Registry

RemoveRegistry

Signature

Upgrade

_Validation

Save in: Downloads

Name	Date modified	Type
Today (4)		
Chrome	17-06-2025 21:13	W
Programs	17-06-2025 18:49	Fil
Windows Kits	17-06-2025 17:55	Fil
Compressed	17-06-2025 10:09	Fil
Yesterday (1)		
Documents	16-06-2025 14:11	Fil
Last week (1)		
DWS_Wipro_Assignment-main	11-06-2025 12:39	Fil
Earlier this month (1)		
cd.retail.LN	05-06-2025 14:35	Fil

File name: ChromeTransformed

Save as type: Windows Installer (*.msi)

Save Cancel

Tables: 23

Property - 11 rows

No column is selected.

Save the Transformed package

Test Installation

Use msiexec to Apply MST During Installation

The msiexec command-line tool is used to run MSI installations on Windows. You use it to apply your MST file during the installation like this:

bash

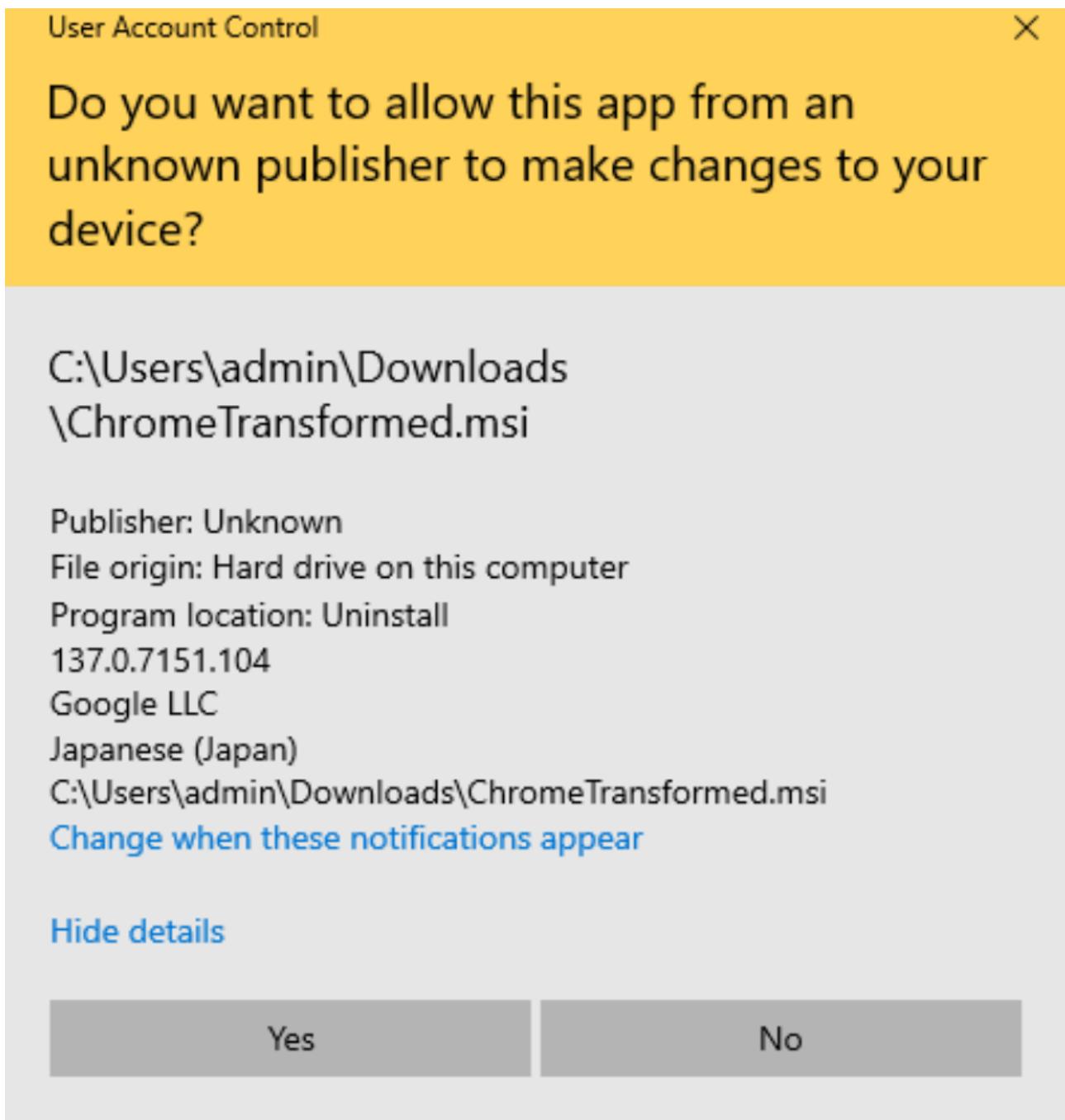
CopyEdit

```
msiexec /i Chrome.msi TRANSFORMS=ChromeTransformed.mst
```

On successful Transformation of the file we have got the Language Transformed Application

- Now we have the Language Transformed File created

Results



The Language for the Package is now Changed to JAPANESE