

Asterisk Dialplan



Workflows & Maintainability

Made easy



Integra
intelligent communication

Contact Center Solutions

Sebastian Gutierrez Maeso
Software Architect and Developer



@integraccs
www.integraccs.com

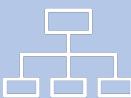
back to 2008



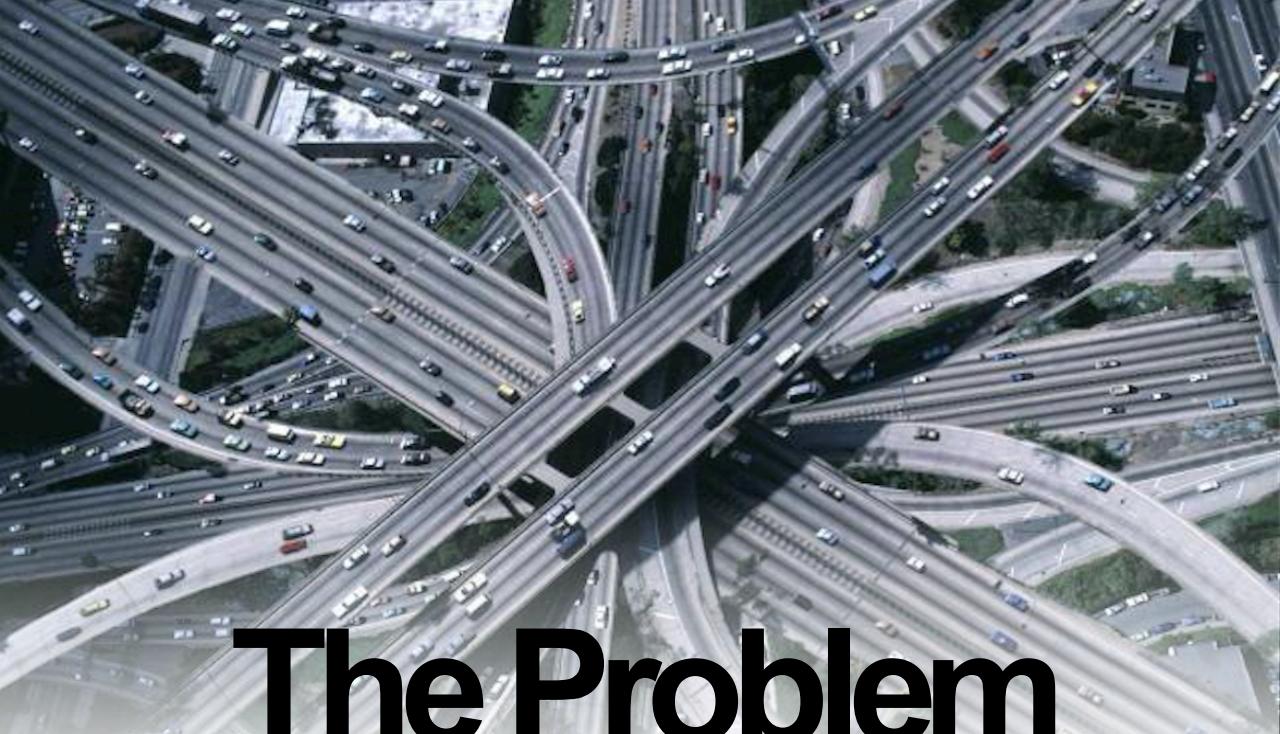
Code hard to maintain and change



Workflows seems to match this!



Started Developing Workflow Designer



The Problem

From
coding...

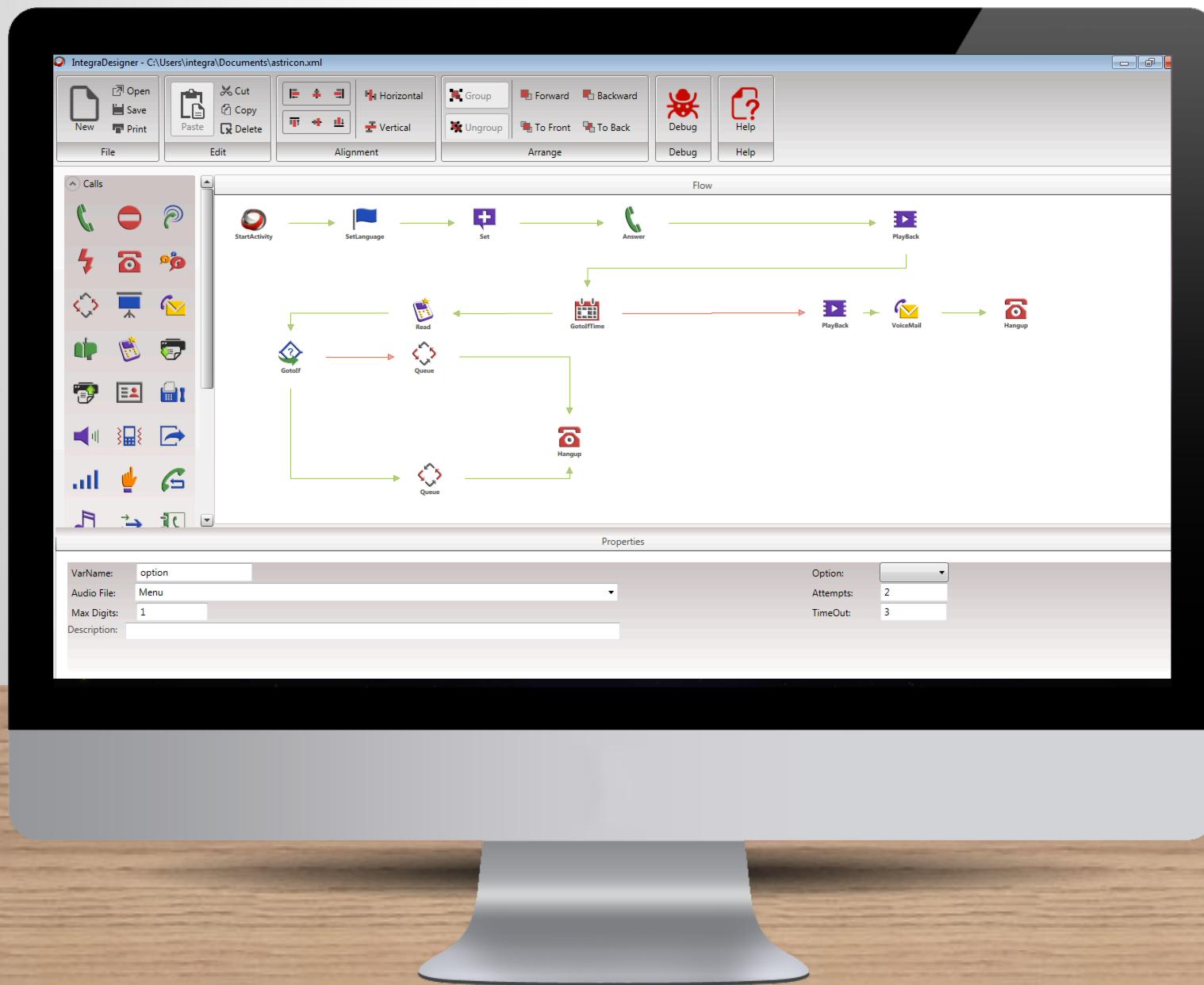
```
[incoming]  
  
exten=> _XXXX,1,Set(CHANNEL(Language)=en)  
exten=> _XXXX,2,Set(__Ani=${CALLERID(num)})  
exten=> _XXXX,3,Answer()  
exten=> _XXXX,4,Playback(Welcome,,)  
exten=> _XXXX,5,GotoIfTime(09:00-18:00,mon-fri,,?,${EXTEN},9)  
exten=> _XXXX,6,Playback(OutOfTime,,)  
exten=> _XXXX,7,VoiceMail(1000@voicemail,,)  
exten=> _XXXX,8,Hangup()  
exten=> _XXXX,9,Read(option,Menu,1,,2,3)  
exten=> _XXXX,10,GotoIf(${option}=1?13:11)  
exten=> _XXXX,11,Queue(Sales,tTkK,,,400,,CTI,,)  
exten=> _XXXX,12,Hangup()  
exten=> _XXXX,13,Queue(Support,tTkK,,,400,,,,)  
exten=> _XXXX,14,Goto(incoming,${EXTEN},12)
```



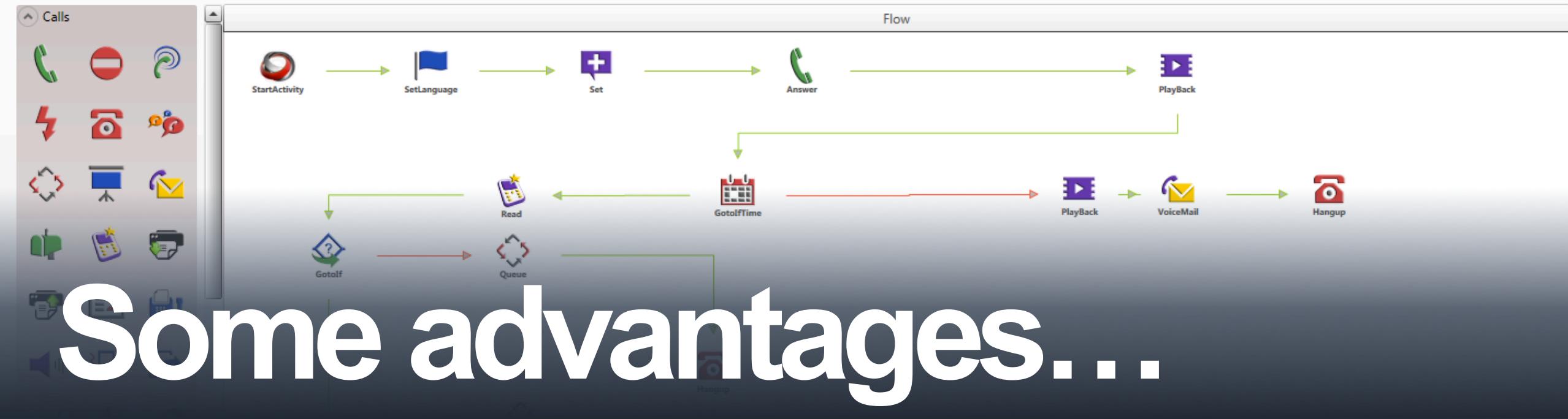
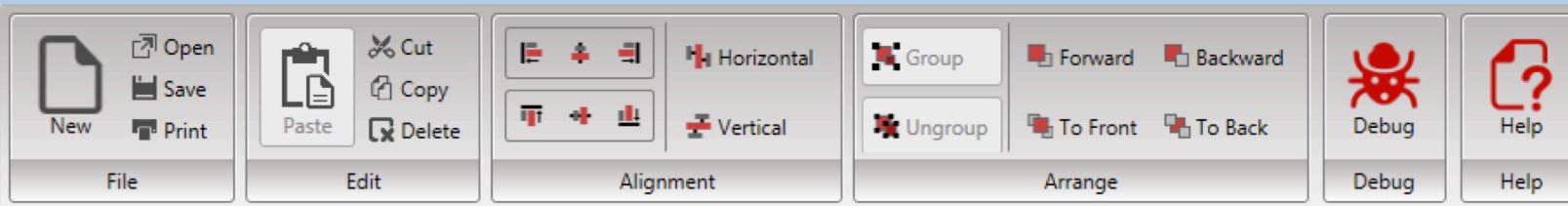
The Solution

....to drawing.

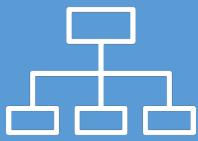




Workflow Designer



Some advantages...



Dynamic creation of communication workflows

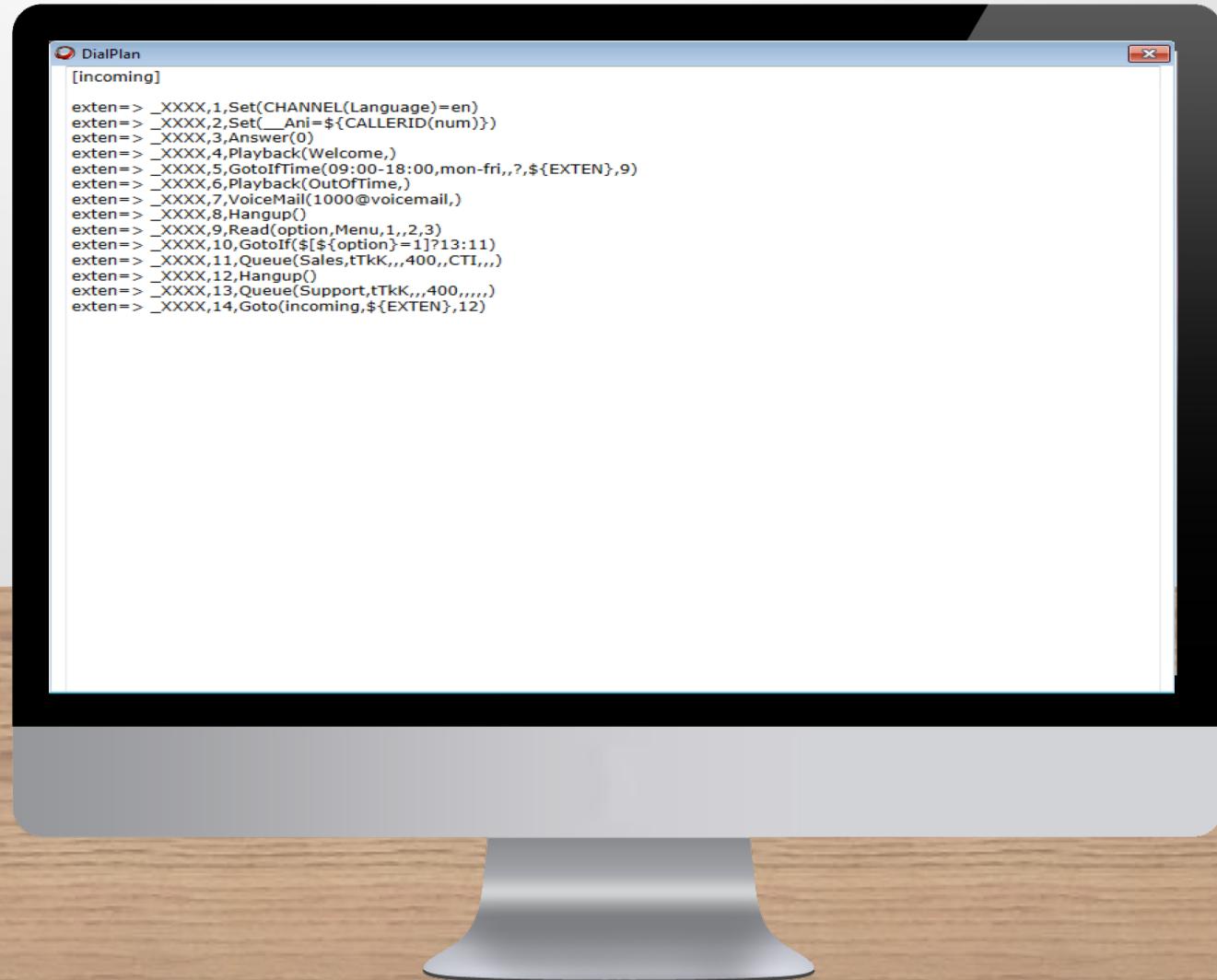
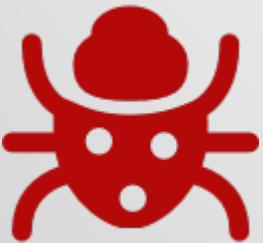


Drag & Drop



Easy to Use

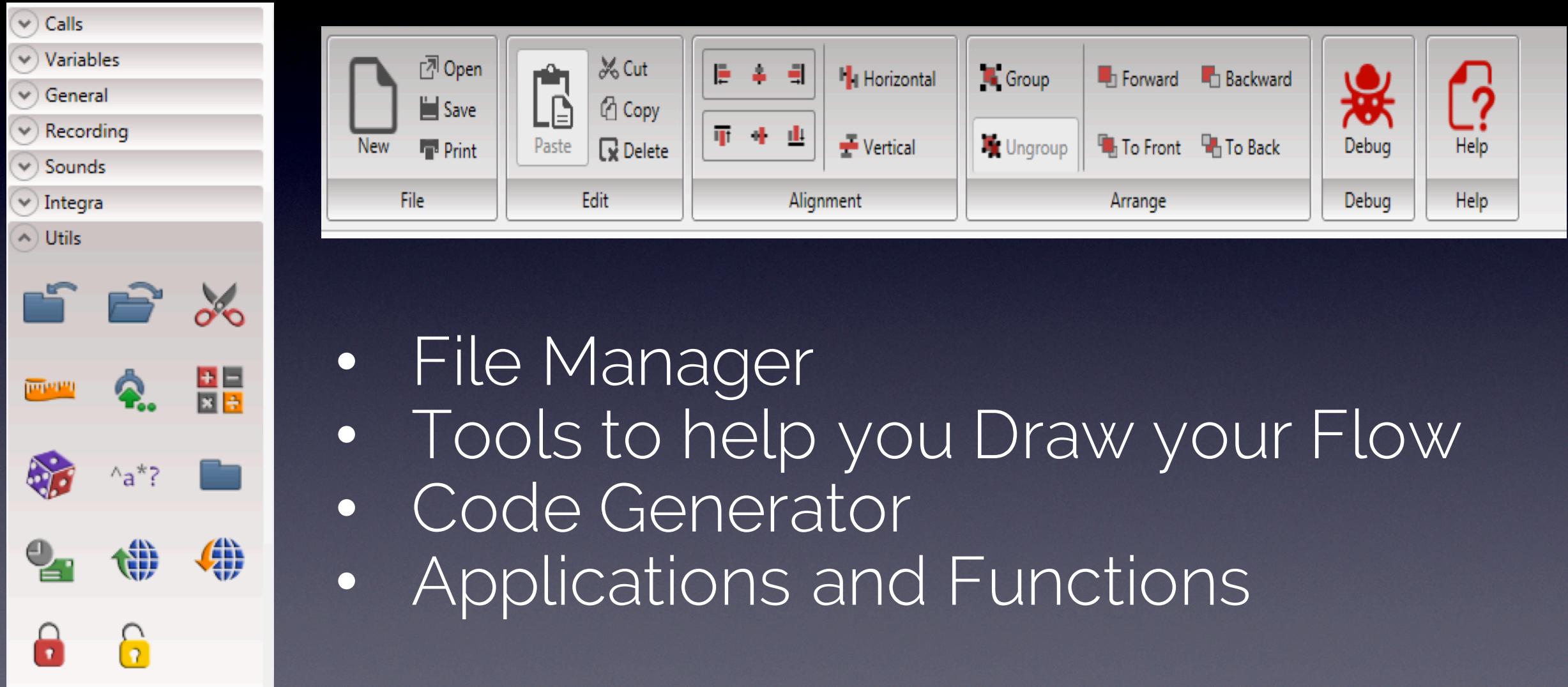
The Code Generator



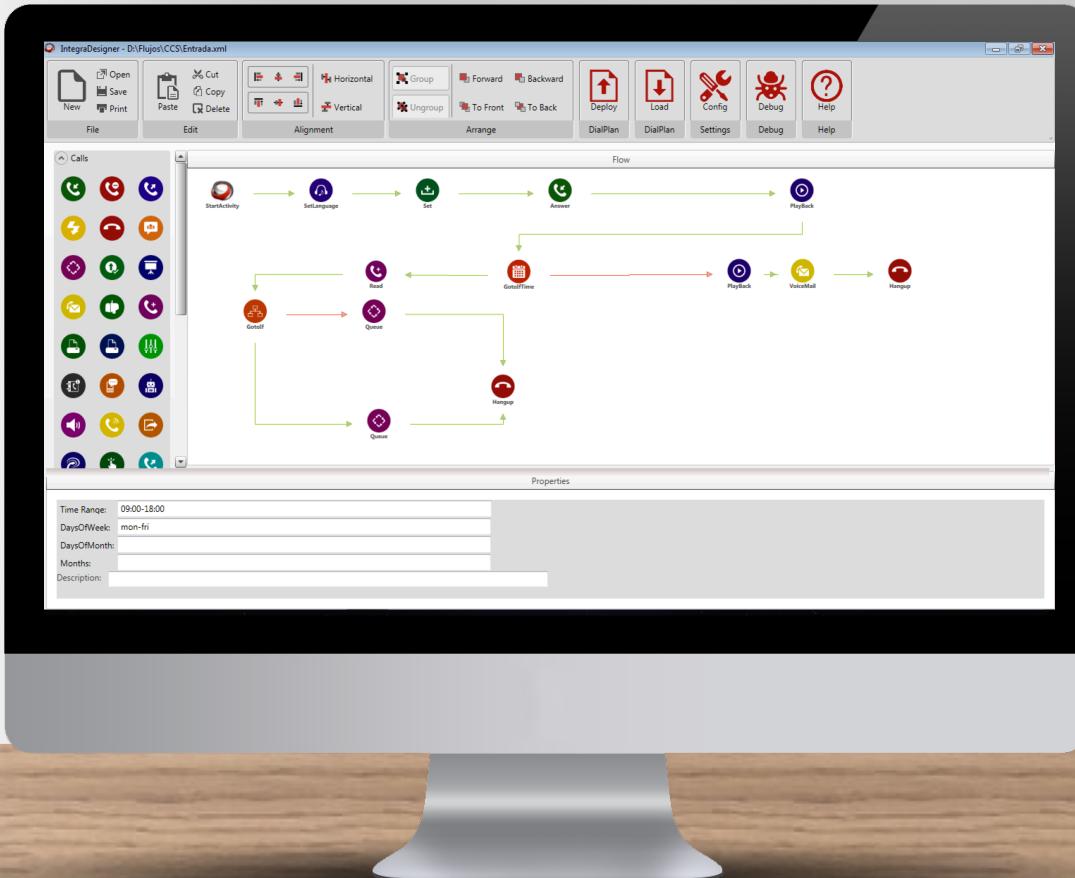
Why keep using Dialplan Syntaxis?

- Built-in dialplan scripting language
- Easy to Map to a Workflow
- Easy to Make new Apps in C and add them (JSON, XML, Socket, others)
- Haven't found any reason to change

Basics



Integra Designer

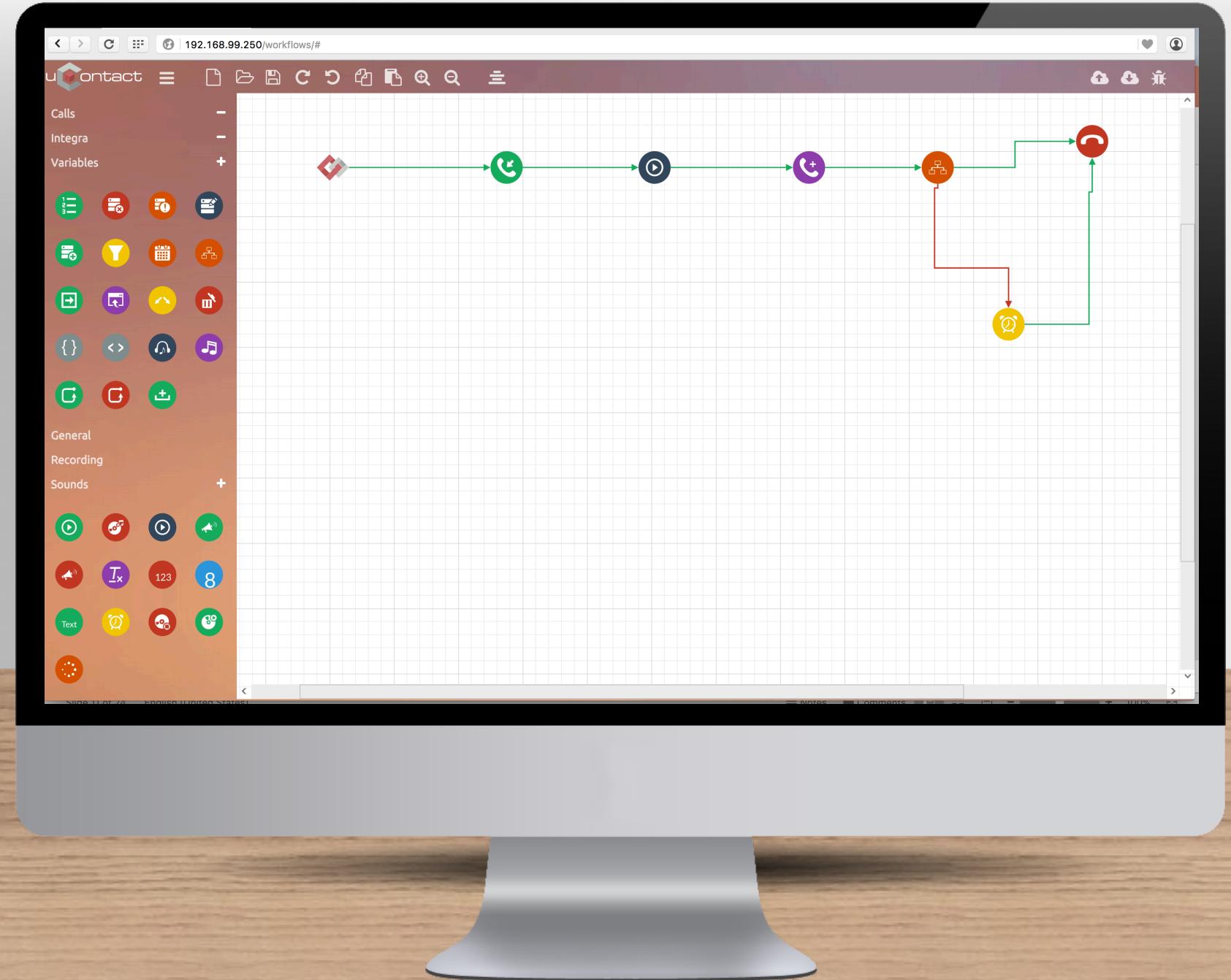


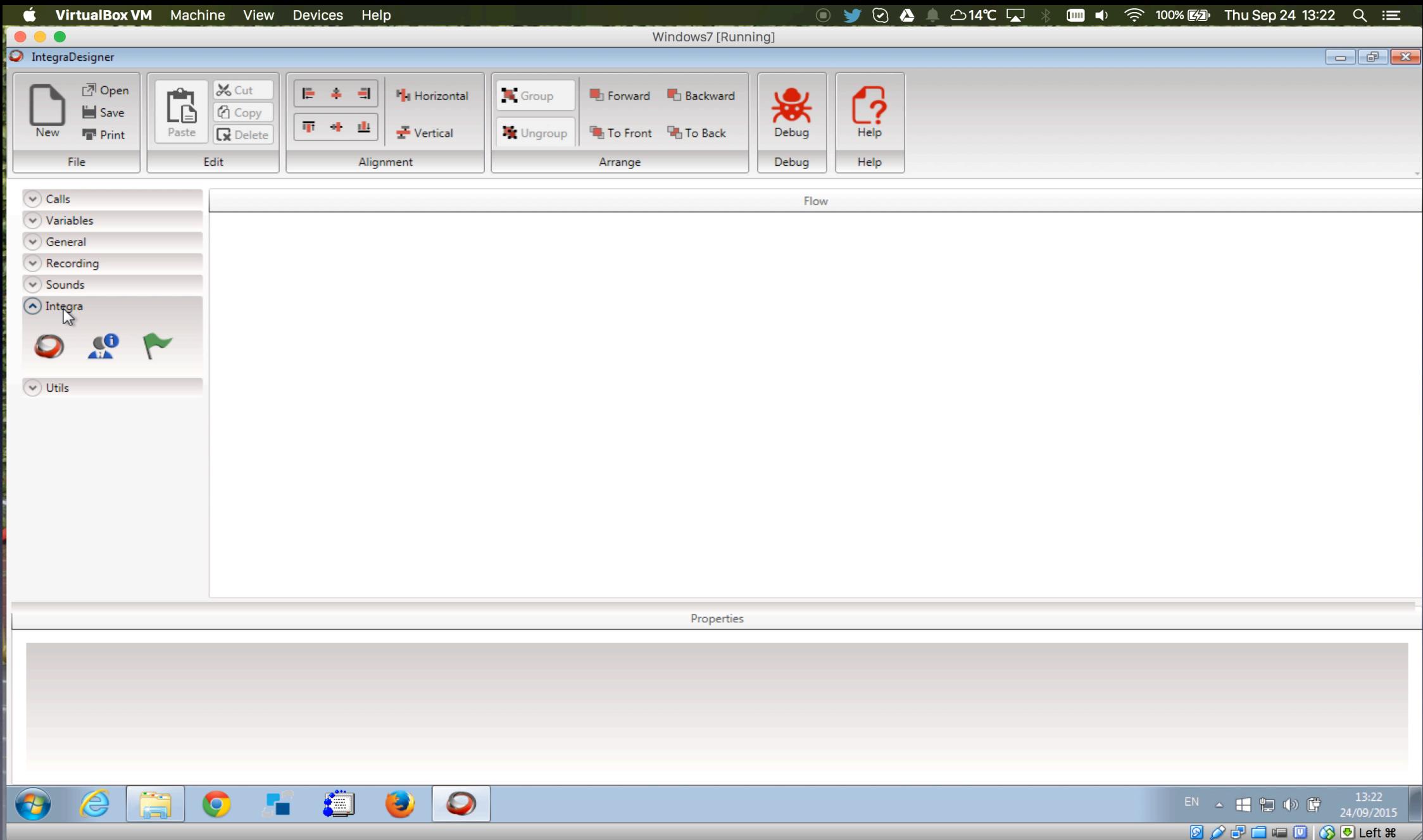
Integra Designer Lite



- ✓ Deploy and Load
- ✓ Configuration
- ✓ Other custom apps

Integra Designer WEB

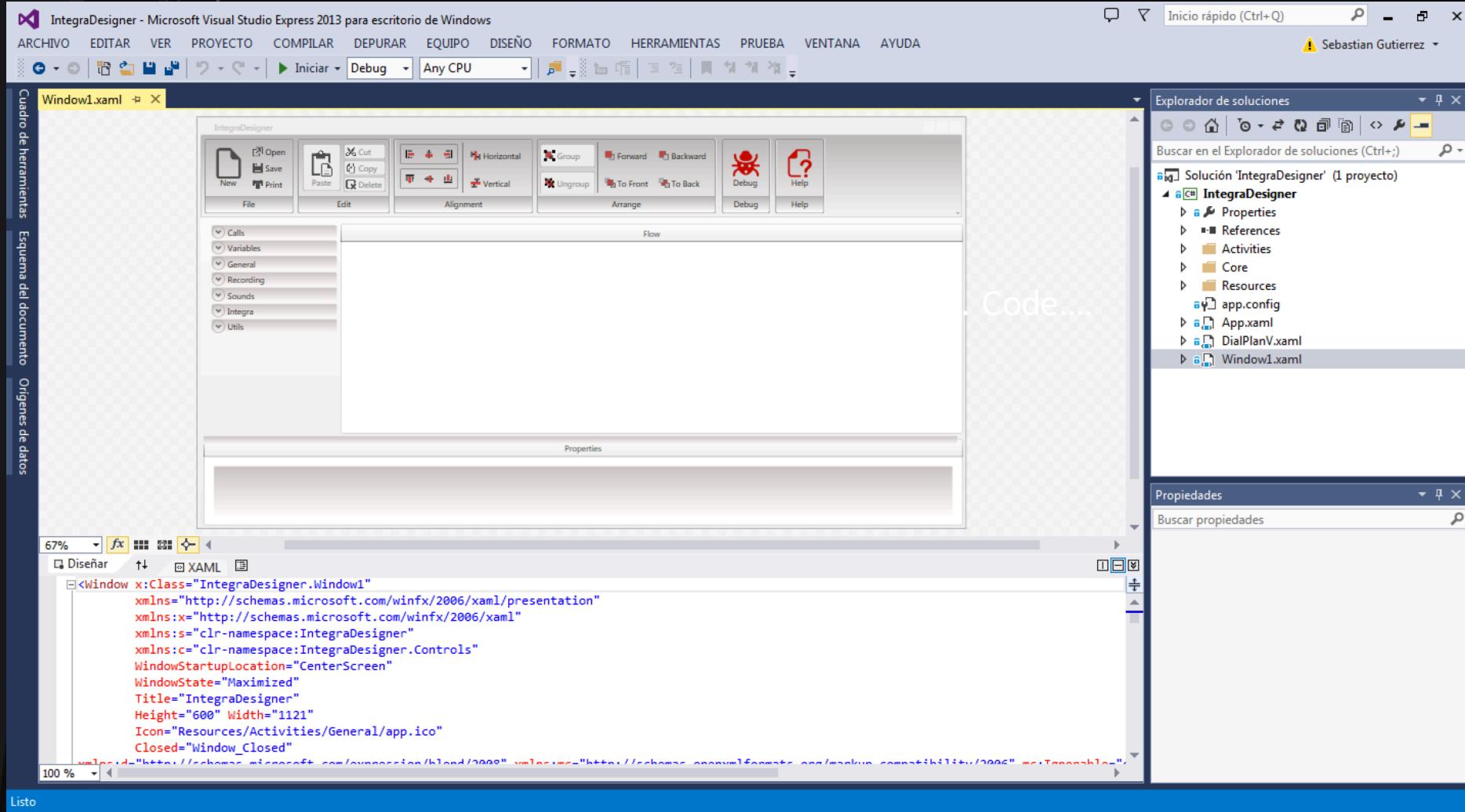




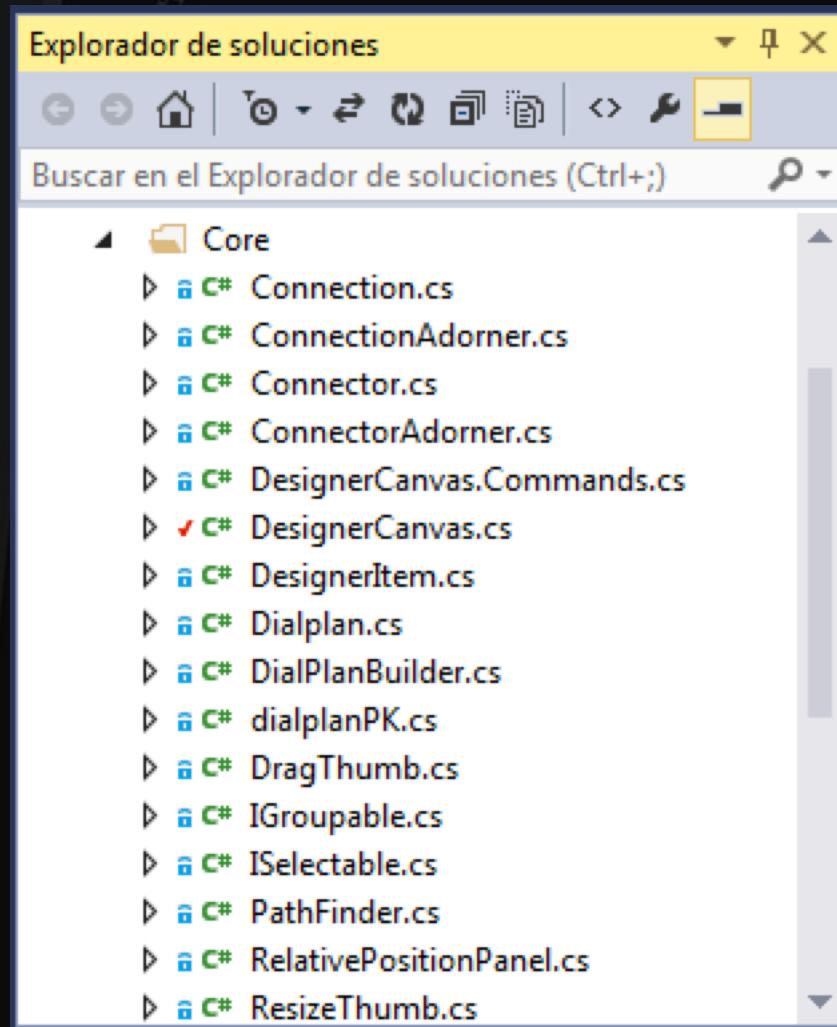
For Developers... Code...

- Visual Studio 2013
- .NET Framework and WPF
- Designed for Adding new Activities Fast!
- Activities = Dialplan Applications or Functions
- This version is only for Windows

For Developers... Code... Structure



For Developers... Code...



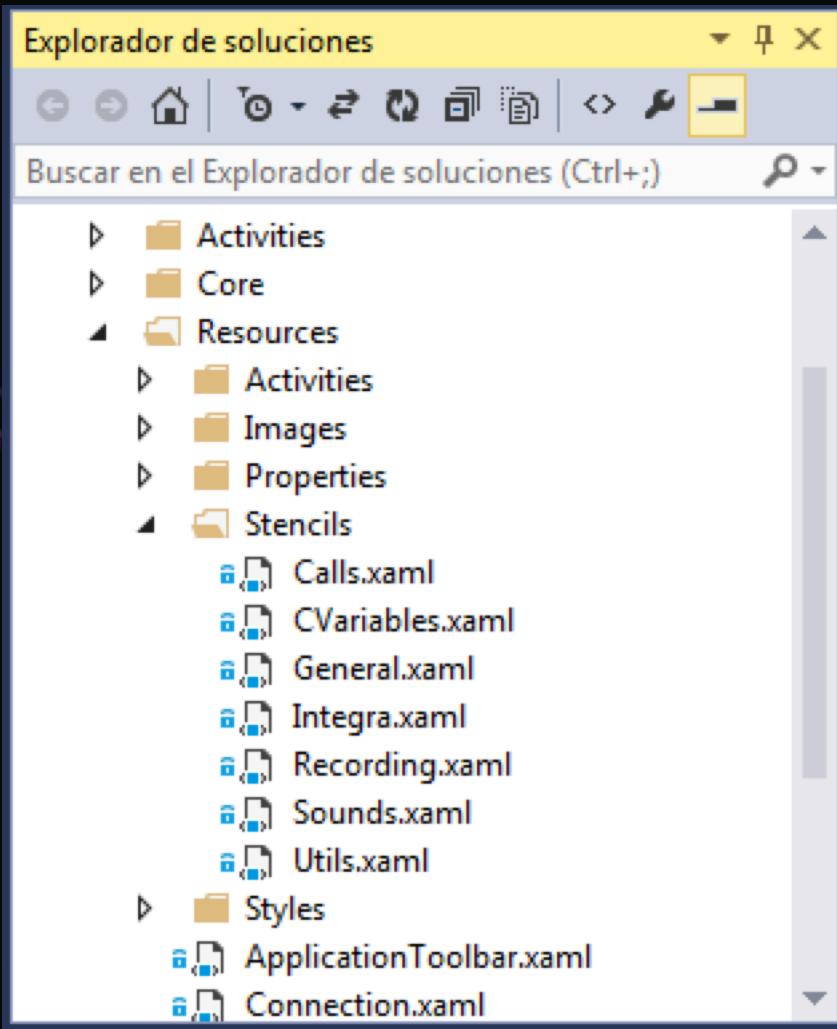
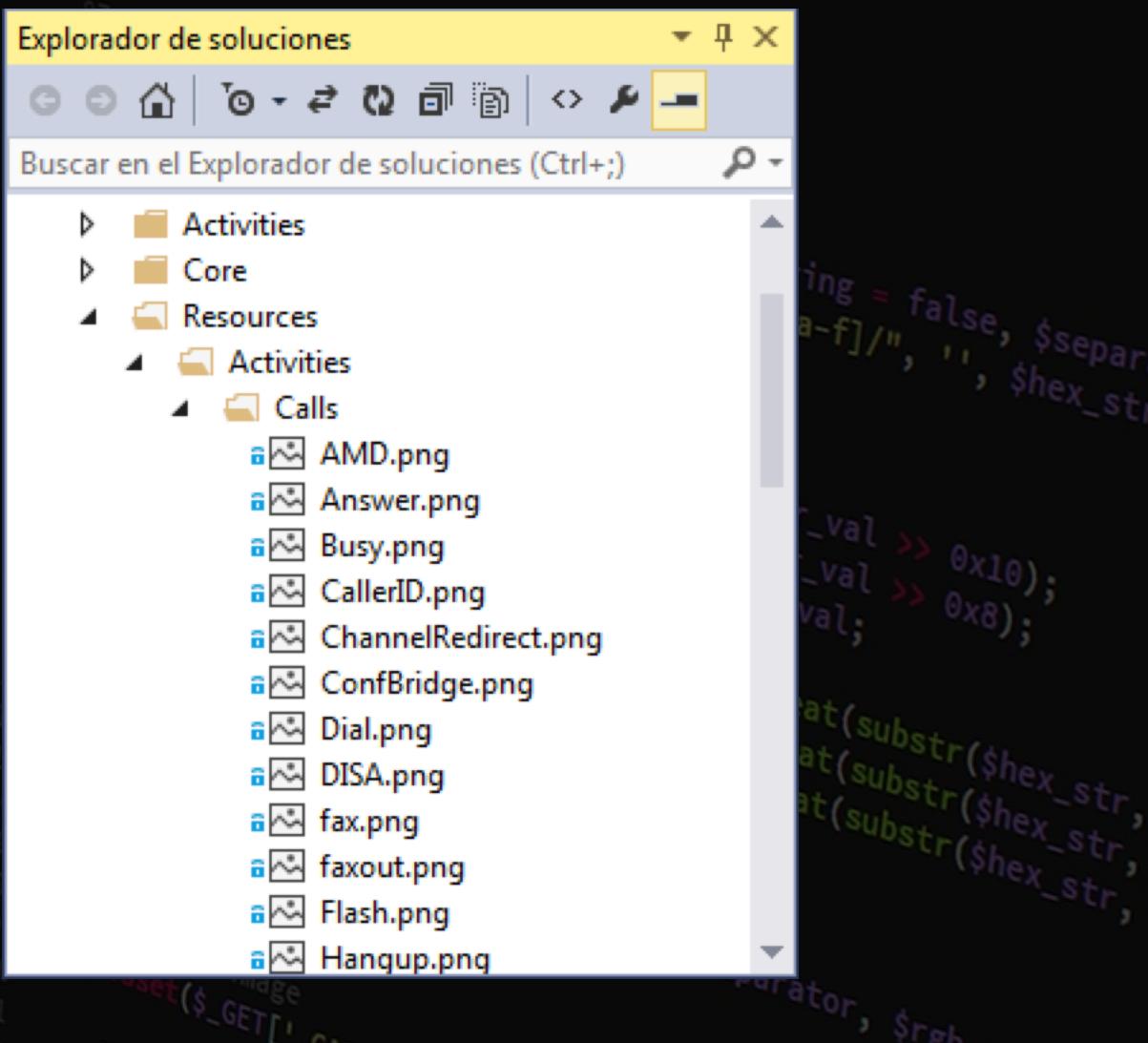
- Drawing Code
- Code Generation

How to add a new activity

STEPS

1. Choose and add an Icon for the Activity
2. Add to the Stencils to show it on the ToolBar
3. Create the Object of the new Activity
4. Create the Properties Form for that Activity
5. Bind the Properties to the Object
6. Ready to use!

How to add a new activity



How to add a new activity

Calls.xaml Dial.cs Window1.xaml

```
<ResourceDictionary xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
    xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
    xmlns:s="clr-namespace:IntegraDesigner"
    xmlns:c="clr-namespace:IntegraDesigner.Controls">

    <s:Toolbox x:Key="Calls" ItemSize="55,55">
        <ItemsControl.Items>
            <Image Source="/Resources/Activities/Calls/Answer.png" ToolTip="{Binding Activity.Description}" Tag="Answer" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Busy.png" ToolTip="{Binding Activity.Description}" Tag="Busy" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Dial.png" ToolTip="{Binding Activity.Description}" Tag="Dial" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Flash.png" ToolTip="{Binding Activity.Description}" Tag="Flash" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Hangup.png" ToolTip="{Binding Activity.Description}" Tag="Hangup" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/MeetMe.png" ToolTip="{Binding Activity.Description}" Tag="MeetMe" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Queue.png" ToolTip="{Binding Activity.Description}" Tag="Queue" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/SetCallerPres.png" ToolTip="{Binding Activity.Description}" Tag="SetCallerPres" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/VoiceMail.png" ToolTip="{Binding Activity.Description}" Tag="VoiceMail" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/VoiceMailMain.png" ToolTip="{Binding Activity.Description}" Tag="VoiceMailMain" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Read.png" ToolTip="{Binding Activity.Description}" Tag="Read" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/fax.png" ToolTip="{Binding Activity.Description}" Tag="ReceiveFAX" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/faxout.png" ToolTip="{Binding Activity.Description}" Tag="SendFAX" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/CallerID.png" ToolTip="{Binding Activity.Description}" Tag="SetCallerID" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/AMD.png" ToolTip="{Binding Activity.Description}" Tag="AMD" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Volume.png" ToolTip="{Binding Activity.Description}" Tag="VOLUME" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Ringing.png" ToolTip="{Binding Activity.Description}" Tag="Ringing" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Transfer.png" ToolTip="{Binding Activity.Description}" Tag="Transfer" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Progress.png" ToolTip="{Binding Activity.Description}" Tag="Progress" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Pickup.png" ToolTip="{Binding Activity.Description}" Tag="Pickup" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/RetryDial.png" ToolTip="{Binding Activity.Description}" Tag="RetryDial" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/SendDTMF.png" ToolTip="{Binding Activity.Description}" Tag="SendDTMF" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Originate.png" ToolTip="{Binding Activity.Description}" Tag="Originate" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/DISA.png" ToolTip="{Binding Activity.Description}" Tag="DISA" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/ChannelRedirect.png" ToolTip="{Binding Activity.Description}" Tag="ChannelRedirect" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/ConfBridge.png" ToolTip="{Binding Activity.Description}" Tag="ConfBridge" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/Page.png" ToolTip="{Binding Activity.Description}" Tag="Page" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/SipAddHeader.png" ToolTip="{Binding Activity.Description}" Tag="SipAddHeader" IsHitTestVisible="false"></Image>
            <Image Source="/Resources/Activities/Calls/SipRemoveHeader.png" ToolTip="{Binding Activity.Description}" Tag="SipRemoveHeader" IsHitTestVisible="false"></Image>
        </ItemsControl.Items>
    </s:Toolbox>
```

How to add a new activity

The screenshot shows a Windows application window with two main panes. The left pane is the 'Explorador de soluciones' (Solution Explorer) showing a tree structure of files and folders. The right pane is a code editor showing C# code for a class named 'Dial'. The code implements the interface 'IActivity' and includes properties for type, identifier, timeout, options, and url, along with a constructor and a ToString() method.

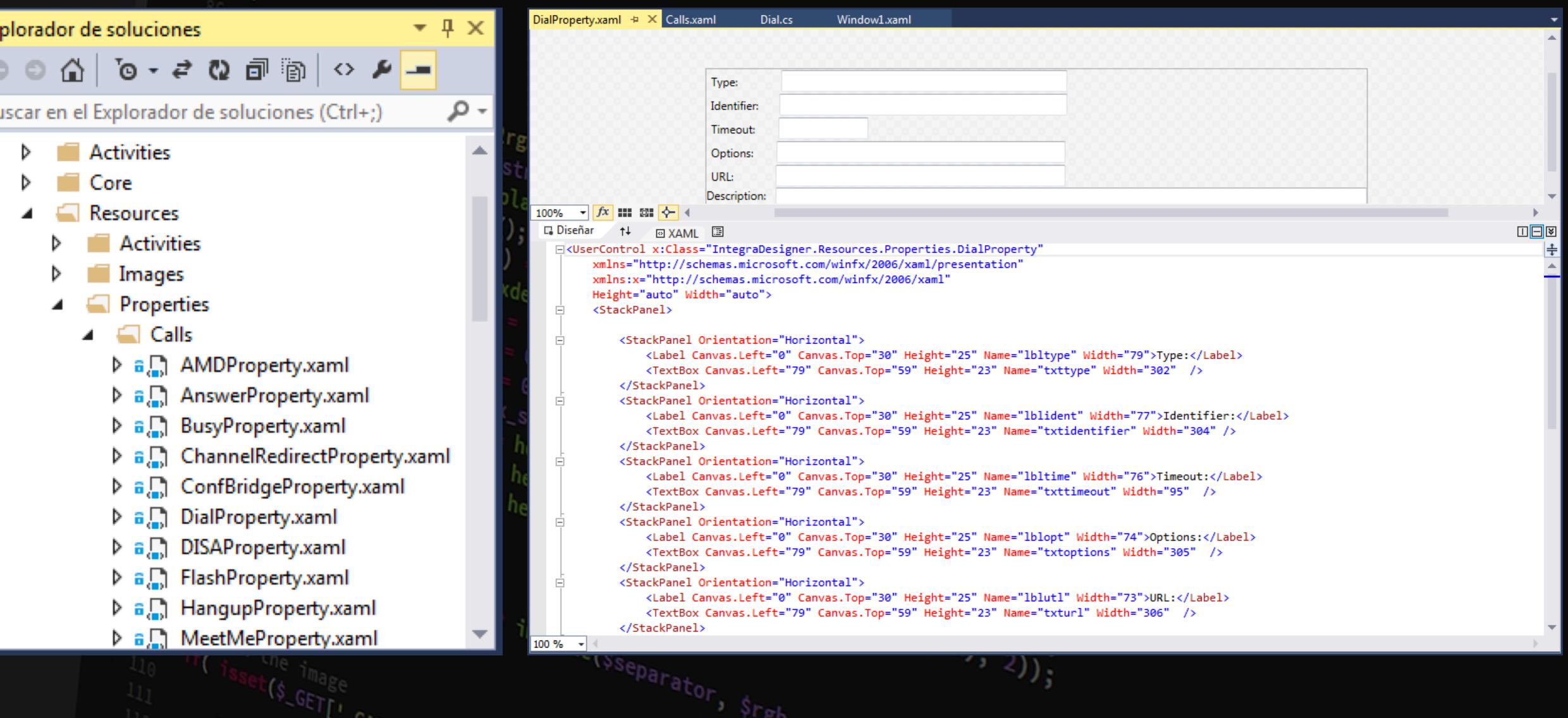
```
Dial.cs  Window1.xaml
IntegraDesigner.Dial
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Windows.Media;
using System.Windows.Shapes;

namespace IntegraDesigner
{
    public class Dial : IActivity
    {
        public string type { get; set; }
        public string identifier { get; set; }
        public int timeout { get; set; }
        public string options { get; set; }
        public string url { get; set; }

        public Dial()
        {
            MaxConnectors = 1;
        }

        public override string ToString()
        {
            return "Dial(" + type + "/" + identifier + "," + timeout + "," + options + "," + url + ")";
        }
    }
}
```

How to add a new activity



How to add a new activity

```
namespace IntegraDesigner.Resources.Properties.DialProperty
{
    /// <summary>
    /// Interaction logic for DialProperty.xaml
    /// </summary>
    public partial class DialProperty : UserControl
    {
        Dial d { get; set; }

        public DialProperty()
        {
            InitializeComponent();
        }

        public override string ToString()
        {
            d = (Dial)base.Tag;

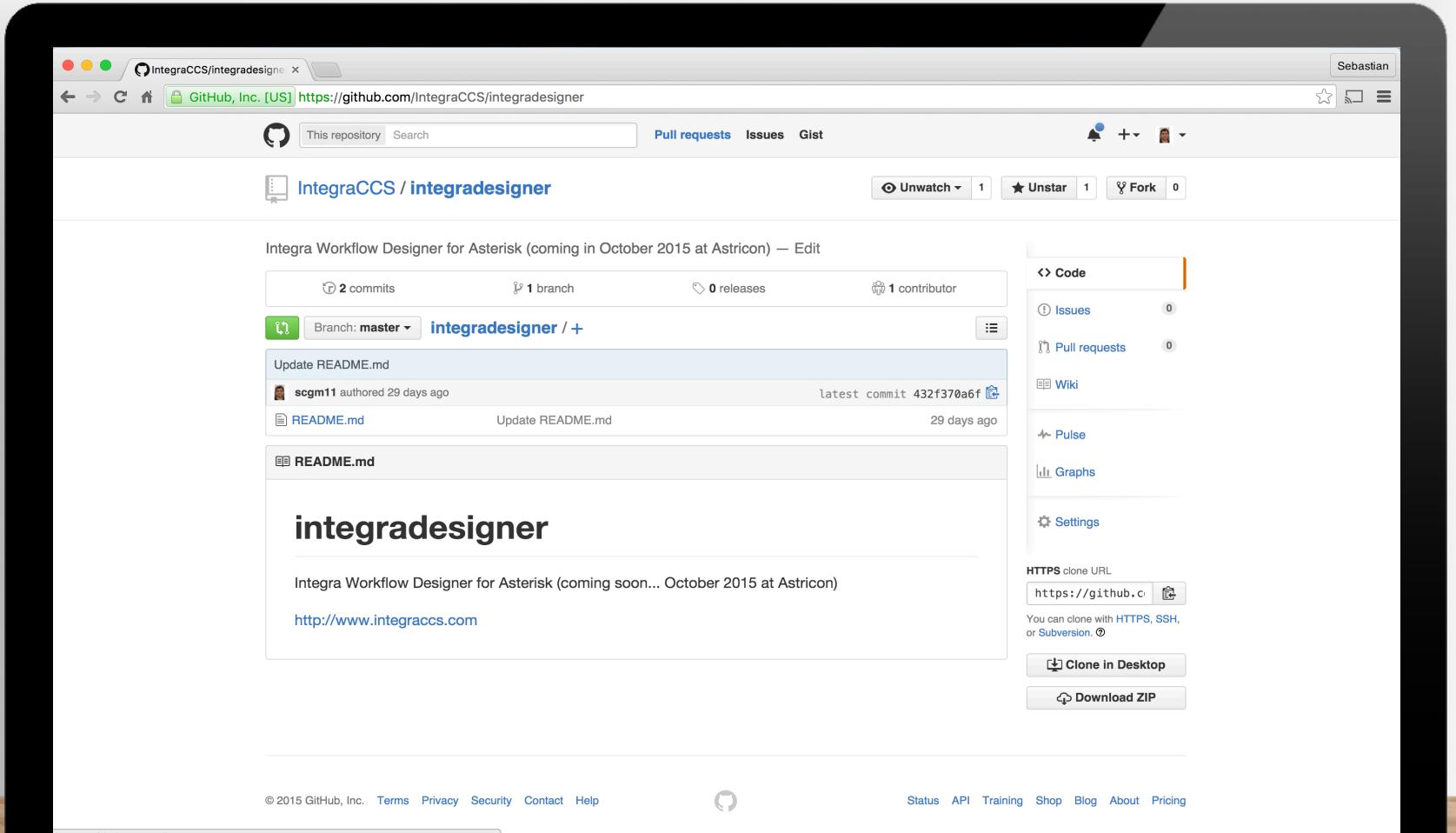
            Binding myBinding = new Binding("type");
            myBinding.Mode = BindingMode.TwoWay;
            myBinding.Source = d;
            txttype.SetBinding(TextBox.TextProperty, myBinding);

            Binding myBinding2 = new Binding("identifier");
            myBinding2.Mode = BindingMode.TwoWay;
            myBinding2.Source = d;
            txtidentifier.SetBinding(TextBox.TextProperty, myBinding2);

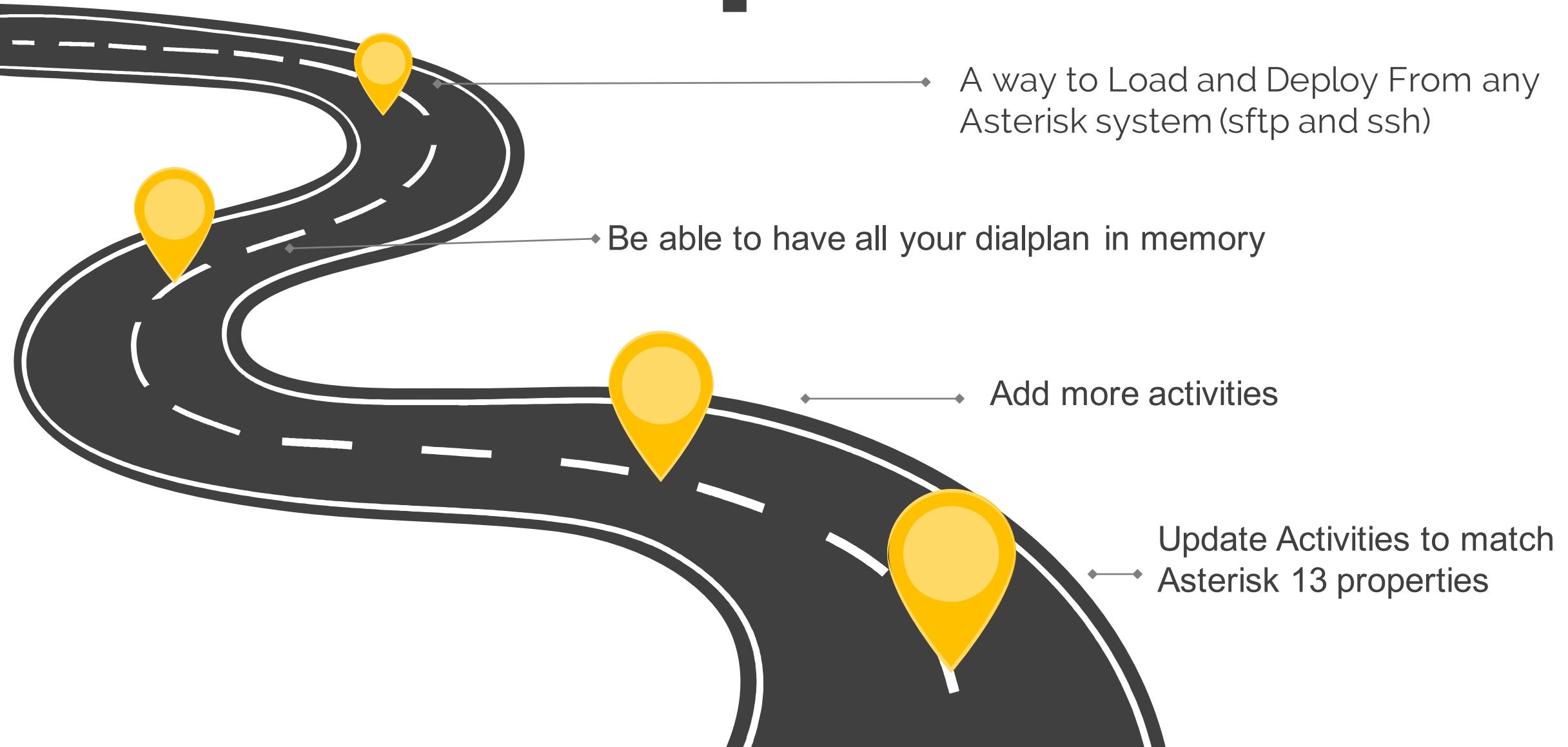
            Binding myBinding3 = new Binding("timeout");
            myBinding3.Mode = BindingMode.TwoWay;
            myBinding3.Source = d;
            txttimeout.SetBinding(TextBox.TextProperty, myBinding3);

            Binding myBinding4 = new Binding("options");
            myBinding4.Mode = BindingMode.TwoWay;
            myBinding4.Source = d;
        }
    }
}
```

open source



roadmap



→ A way to Load and Deploy From any Asterisk system (sftp and ssh)

→ Be able to have all your dialplan in memory

→ Add more activities

→ Update Activities to match Asterisk 13 properties



THANKS!

Questions?

www.integraccs.com

@integraccs



in



git