

# Consuming Cat.NET outside VisualStudio

The objective is to consume Cat.Net Guis outside VisualStudio.

Note that the current version of this scripts uses the original Cat.NET dlls which have a dependency on the visualStudio DLLs (namely ENVDT.dll)

## Script that opens a report file inside the SummaryView

```
var topPanel = panel.clear().add_Panel();
//var topPanel = "CatNet GUI test".popupWindow();

var summaryView = topPanel.clear().add_Control<SummaryView>();
var listSummary = (ListView)summaryView.field("_lvSummary");
var detailView = (DetailView)summaryView.field("_detailView");

//remove this event since it will use a method with DTE dependencies
listSummary.remove_Event_SelectedIndexChanged();

Func<VsConnect> get_VsConnect =
    ()=>{
        var vsConnect = new VsConnect();
        var rulesSettings = new RulesSettings();
        rulesSettings.Activate();
        vsConnect.invoke("AddDefaultSettingsProvider", new GeneralSettings());
        vsConnect.invoke("AddDefaultSettingsProvider", rulesSettings);
        vsConnect.invoke("AddDefaultSettingsProvider", new TargetsSettings());
        vsConnect.invoke("AddDefaultSettingsProvider", new SuppressionSettings());
        vsConnect.invoke("AddDefaultSettingsProvider", new VectorsSettings());
        var defaultSettings = vsConnect.field("_defaultSettings");
        vsConnect.field("_currentSettings", defaultSettings);

        summaryView.Controller = vsConnect;
        return vsConnect;
    };

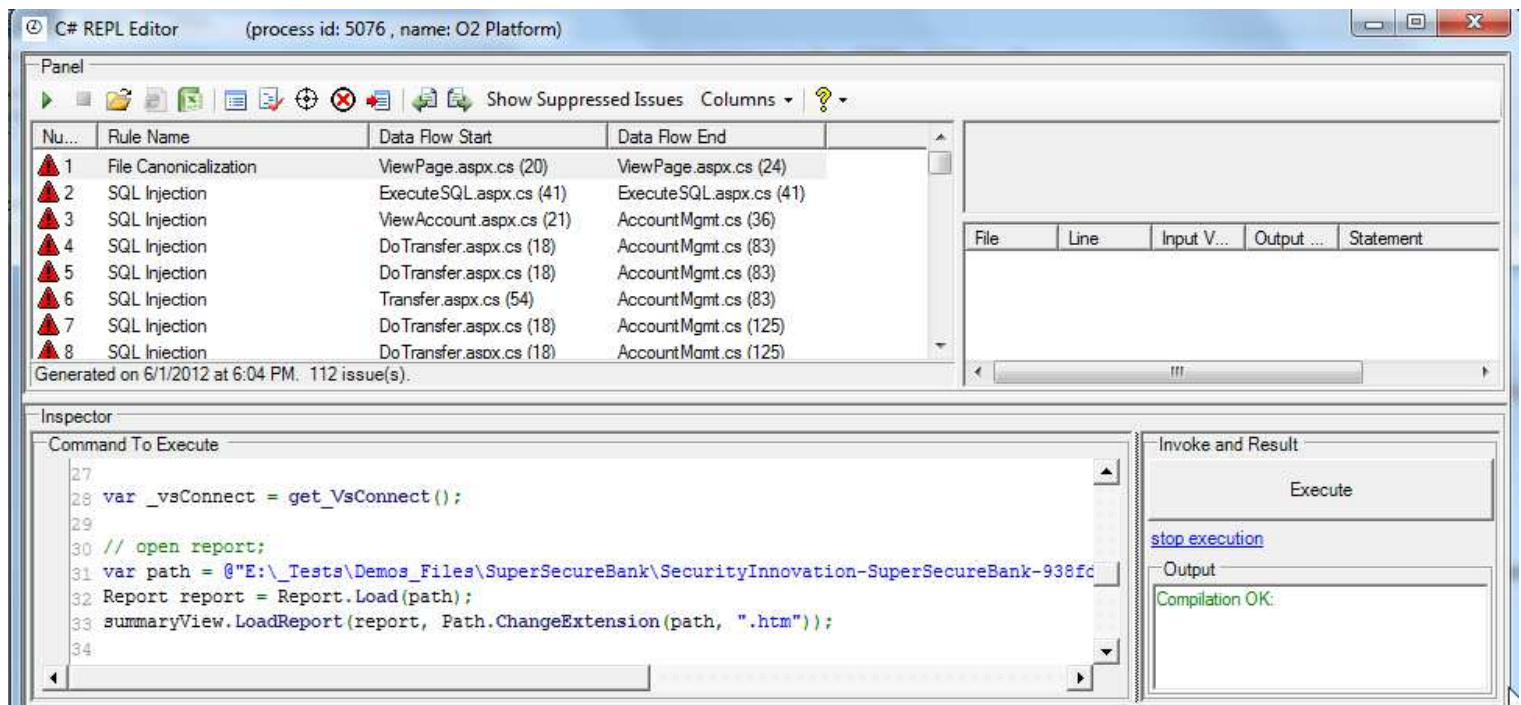
var _vsConnect = get_VsConnect();

// open report;
var path = @"E:\_Tests\Demos_Files\SuperSecureBank\SecurityInnovation-SuperSecureBank-938fde3
\MicrosoftACECodeAnalysisReport.xml";
Report report = Report.Load(path);
summaryView.LoadReport(report, Path.ChangeExtension(path, ".htm"));

return "ok";

//using System.IO
//using Microsoft.ACESec.CATNet.Core
//using Microsoft.ACESec.CATNet.UI
//O2Ref:EnvDTE.dll
//O2Ref:Extensibility.dll
//O2Ref:CatNet_1.1/SourceDir/Microsoft.ACESec.CATNet.Core.dll
//O2Ref:CatNet_1.1/SourceDir/Microsoft.ACESec.CATNet.UI.VSAddIn.dll
```

Note in the code (and screenshot) that we had to remove the listView *SelectedIndexChanged* event which is why there is no data loaded on the right-hand-side cat.net gui



Adding an *SelectedIndexChanged* event handler, replacing the detailview with a propertyGrid to showing the selected ReportItem

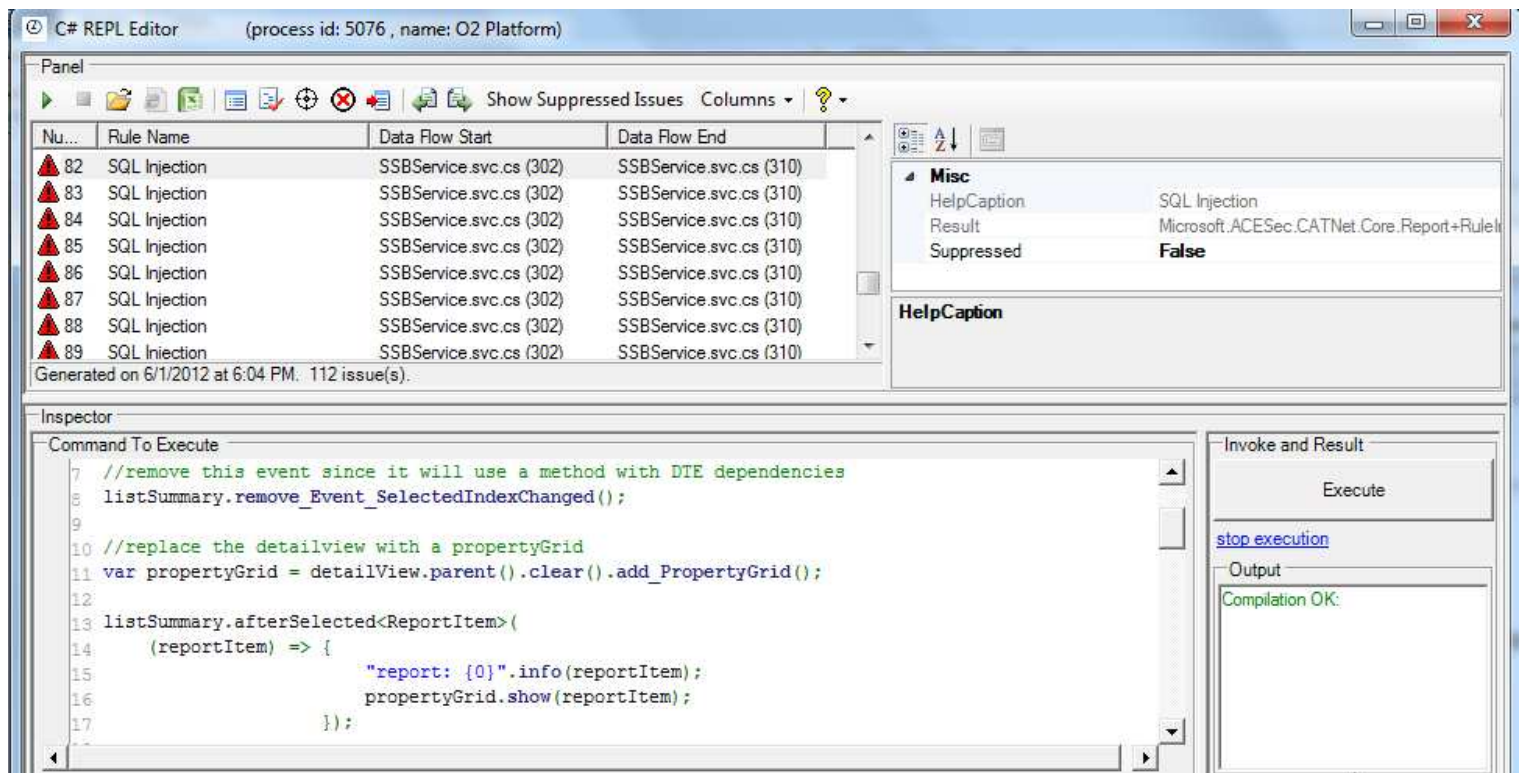
```

var summaryView = topPanel.clear().add_Control<SummaryView>();
var listSummary = (ListView)summaryView.field("_lvSummary");
var detailView = (DetailView)summaryView.field("_detailView");
//remove this event since it will use a method with DTE dependencies
listSummary.remove_Event_SelectedIndexChanged();

//replace the detailview with a propertyGrid
var propertyGrid = detailView.parent().clear().add_PropertyGrid();

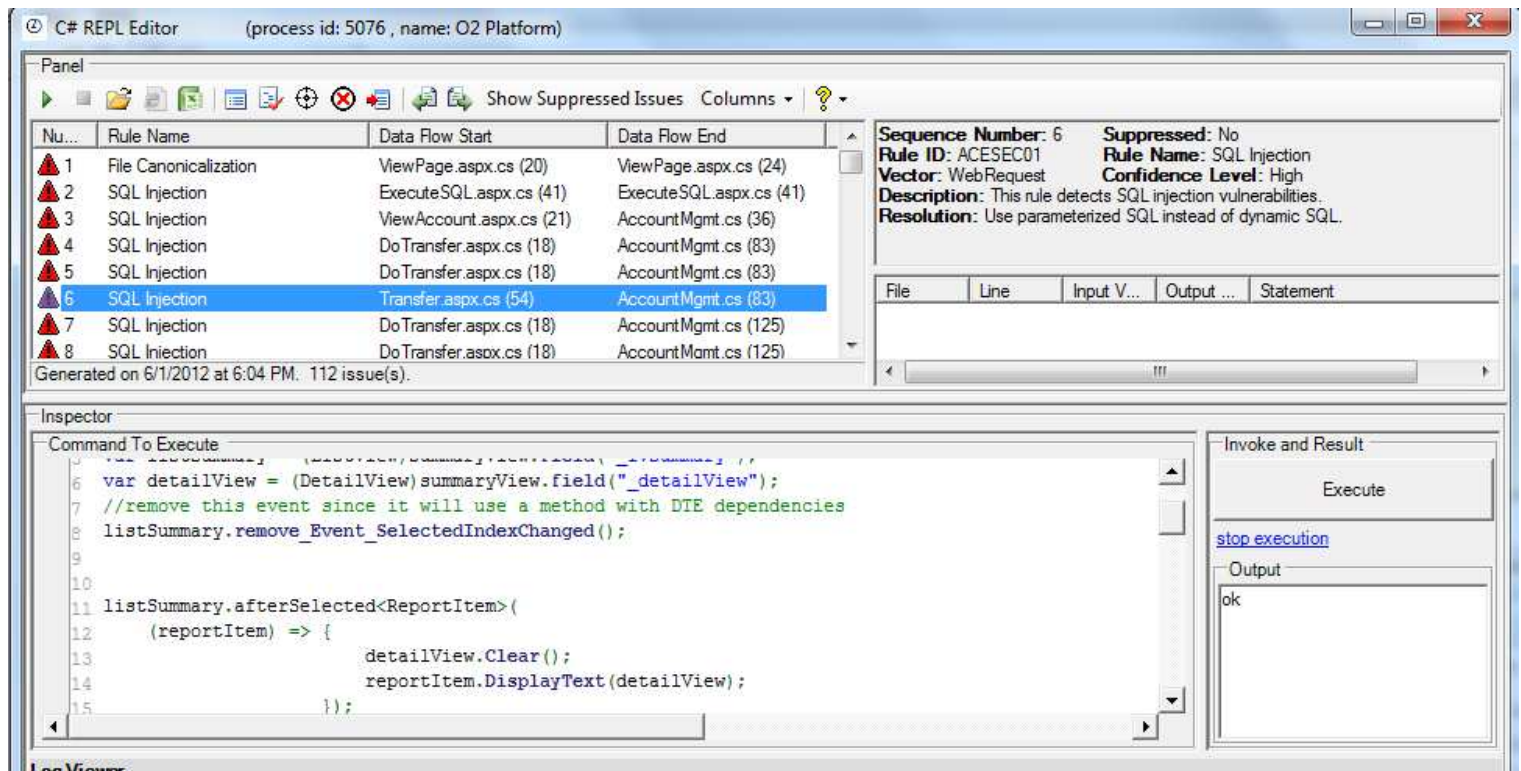
listSummary.afterSelected<ReportItem>(
    (reportItem) => {
        "report: {0}".info(reportItem);
        propertyGrid.show(reportItem);
    });

```



### Show selected Report in DetailView (top right)

```
listSummary.afterSelected<ReportItem>(
    (reportItem) => {
        detailView.Clear();
        reportItem.DisplayText(detailView);
    });
```



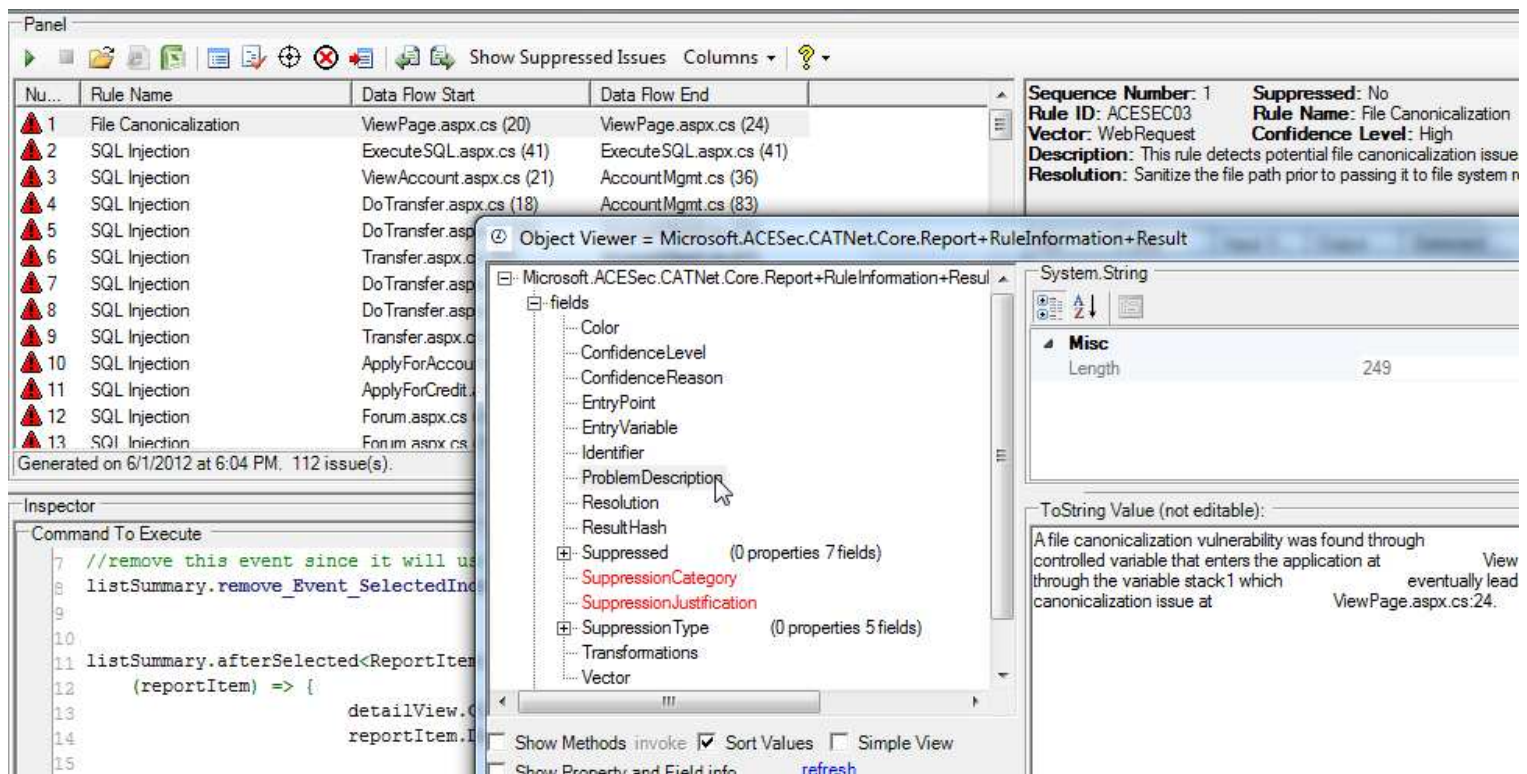
### Viewing details of the \_report value inside the ReportItem object

```
listSummary.afterSelected<ReportItem>(
    (reportItem) => {
```

```

        detailView.Clear();
        reportItem.DisplayText(detailView);
        var result = reportItem._result;
        result.details();
    });

```



## Adding selected finding taint items to listView

```

listSummary.afterSelected<ReportItem>(
    (reportItem) => {
        detailView.Clear();
        reportItem.DisplayText(detailView);
        var lvDataFlow = (ListView)detailView.field("_lvDataFlow");
        var transformations = (ArrayList)reportItem._result.Transformations;
        foreach (DataTransformation dataTransformation in transformations)
        {
            var fileSnippet = (dataTransformation.SourceFile.fileExists())
                ? dataTransformation.SourceFile.fileContents
                : "";
            lvDataFlow.addRow(
                dataTransformation.StatementMethodName,
                dataTransformation.SourceLine.ToString(),
                dataTransformation.InputVariableString,
                dataTransformation.OutputVariableString,
                fileSnippet
            ).tag(dataTransformation);
        }
        detailView.AutoSizeColumns();
    });

```

## Complete Script of working SummaryView GUI outside VisualStudio

```

//var topPanel = panel.clear().add_Panel();
var topPanel = "CatNet OutsideVisualStudio".popupWindow(1000, 600);

var summaryView = topPanel.clear().add_Control<SummaryView>();
var listSummary = (ListView)summaryView.field("_lvSummary");
var detailView = (DetailView)summaryView.field("_detailView");

listSummary.remove_Event_SelectedIndexChanged(); //remove this event since it will use a method with DTE dependencies

```



```

listSummary.afterSelected<ReportItem>(
    (reportItem) => {
        detailView.Clear();
        reportItem.DisplayText(detailView);
        var lvDataFlow = (ListView)detailView.field("_lvDataFlow");
        var transformations = (ArrayList)reportItem._result.Transformations;
        foreach(DataTransformation dataTransformation in transformations)
        {
            var fileSnippet = (dataTransformation.SourceFile.fileExists()
                ? dataTransformation.SourceFile.fileContents
                : "");
            lvDataFlow.addRow( dataTransformation.StatementMethodName,
                                dataTransformation.SourceLine.ToString(),
                                dataTransformation.InputVariableString,
                                dataTransformation.OutputVariableString,
                                fileSnippet)
                .tag(dataTransformation);
        }
        detailView.AutoSizeColumns();
    });
};

Func<VsConnect> get_VsConnect =
    ()=>{
        var vsConnect = new VsConnect();
        var rulesSettings = new RulesSettings();

        vsConnect.invoke("AddDefaultSettingsProvider", new GeneralSettings());
        vsConnect.invoke("AddDefaultSettingsProvider", rulesSettings);
        vsConnect.invoke("AddDefaultSettingsProvider", new TargetsSettings());
        vsConnect.invoke("AddDefaultSettingsProvider", new SuppressionSettings());
        vsConnect.invoke("AddDefaultSettingsProvider", new VectorsSettings());
        var defaultSettings = vsConnect.field("_defaultSettings");
        vsConnect.field("_currentSettings", defaultSettings);

        rulesSettings.Activate();

        summaryView.Controller = vsConnect;
        return vsConnect;
    };

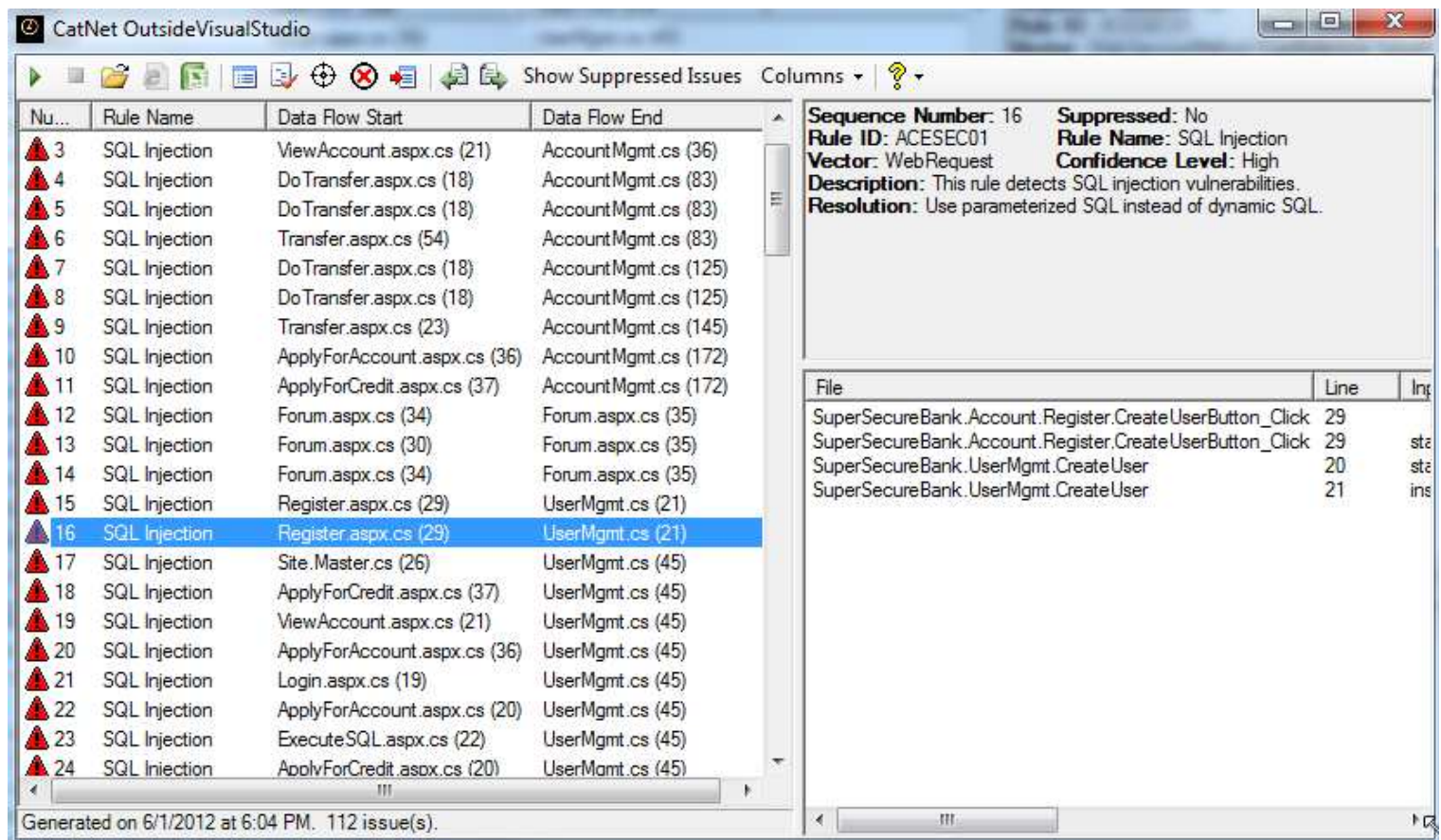
var _vsConnect = get_VsConnect();

// open report;
var path = @"E:\_Tests\Demos_Files\SuperSecureBank\SecurityInnovation-SuperSecureBank-938fde3\MicrosoftACECodeAnalysisReport.xml";
Report report = Report.Load(path);
summaryView.LoadReport(report, Path.ChangeExtension(path, ".htm"));

return "ok";

//using System.IO
//using System.Collections
//using Microsoft.ACESec.CATNet.Core.Analysis
//using Microsoft.ACESec.CATNet.Core
//using Microsoft.ACESec.CATNet.UI
//O2Ref:EnvDTE.dll
//O2Ref:Extensibility.dll
//O2Ref:CatNet_1.1/SourceDir/Microsoft.ACESec.CATNet.Core.dll
//O2Ref:CatNet_1.1/SourceDir/Microsoft.ACESec.CATNet.UI.VSAddIn.dll

```



## Adding some new features

Now that we have the basic Gui working lets add some extra features

**A source code viewer that opens the source file (and line) of of the selected trace**

```
var codeViewer = detailView.insert_Below().add_SourceCodeViewer();

lvDataFlow.afterSelected<DataTransformation>(
    (dataTransformation)=>{
        codeViewer.open(dataTransformation.SourceFile)
        .gotoLine(dataTransformation.SourceLine);
        lvDataFlow.focus();
    });
```

Tool - Cat.Net outside VisualStudio

Show Suppressed Issues Columns ?

Nu...	Rule Name	Data Flow Start	Data Flow End
1	File Canonicalization	ViewPage.aspx.cs (20)	ViewPage.aspx.cs (24)
2	SQL Injection	ExecuteSQL.aspx.cs (41)	ExecuteSQL.aspx.cs (41)
3	SQL Injection	ViewAccount.aspx.cs (21)	AccountMgmt.cs (36)
4	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (83)
5	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (83)
6	SQL Injection	Transfer.aspx.cs (54)	AccountMgmt.cs (83)
7	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (125)
8	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (125)
9	SQL Injection	Transfer.aspx.cs (23)	AccountMgmt.cs (125)
10	SQL Injection	ApplyForAccount.aspx.cs (36)	AccountMgmt.cs (125)
11	SQL Injection	ApplyForCredit.aspx.cs (37)	AccountMgmt.cs (125)
12	SQL Injection	Forum.aspx.cs (34)	Forum.aspx.cs (34)
13	SQL Injection	Forum.aspx.cs (30)	Forum.aspx.cs (30)
14	SQL Injection	Forum.aspx.cs (34)	Forum.aspx.cs (34)
15	SQL Injection	Register.aspx.cs (29)	UserMgmt.cs (29)
16	SQL Injection	Register.aspx.cs (29)	UserMgmt.cs (29)
17	SQL Injection	Site.Master.cs (26)	UserMgmt.cs (26)
18	SQL Injection	ApplyForCredit.aspx.cs (37)	UserMgmt.cs (37)
19	SQL Injection	ViewAccount.aspx.cs (21)	UserMgmt.cs (21)
20	SQL Injection	ApplyForAccount.aspx.cs (36)	UserMgmt.cs (36)
21	SQL Injection	Login.aspx.cs (19)	UserMgmt.cs (19)
22	SQL Injection	ApplyForAccount.aspx.cs (20)	UserMgmt.cs (20)
23	SQL Injection	ExecuteSQL.aspx.cs (22)	UserMgmt.cs (22)
24	SQL Injection	ApplyForCredit.aspx.cs (20)	UserMgmt.cs (20)
25	SQL Injection	Default.aspx.cs (20)	UserMgmt.cs (20)
26	SQL Injection	Forum.aspx.cs (30)	UserMgmt.cs (30)
27	SQL Injection	Forum.aspx.cs (20)	UserMgmt.cs (20)
28	SQL Injection	Transfer.aspx.cs (23)	UserMgmt.cs (23)

Generated on 6/1/2012 at 6:04 PM. 112 issue(s).

Sequence Number: 16 Suppressed: No  
 Rule ID: ACESEC01 Rule Name: SQL Injection  
 Vector: WebRequest Confidence Level: High  
 Description: This rule detects SQL injection vulnerabilities.  
 Resolution: Use parameterized SQL instead of dynamic SQL.

File	Line	Input Variable	Output Variable	State
SuperSecureBank.Account.Register.CreateUserButton_Click	29		stack0	Int64
SuperSecureBank.Account.Register.CreateUserButton_Click	29	stack0	stack0	Int64
SuperSecureBank.UserMgmt.CreateUser	20	stack0	insertUser	insertUser
SuperSecureBank.UserMgmt.CreateUser	21	insertUser	stack0	SqlCommand

```

7 using System.IO;
8
9 namespace SuperSecureBank
10 {
11     public static class UserMgmt
12     {
13         public static Int64 CreateUser(string username, string email)
14         {
15             try
16             {
17                 string insertUser = @"INSERT INTO Users values ('" + username + "', '" + email + "')";
18                 SqlConnection conn = new SqlConnection(ConfigurationManager.ConnectionStrings["ConnectionString"].ConnectionString);
19                 conn.Open();
20                 insertUser = String.Format(insertUser, username, email);
21                 SqlCommand command = new SqlCommand(insertUser, conn);

```

Removing the buttons from the top bar (since none of them are working at the moment) and adding a new one

```

_tsActions.Items.Clear();
_tsActions.add_Button("Open sample report #1");

```

Panel

Open sample report #1

Nu...	Rule Name	Data Flow Start	Data Flow End
1	File Canonicalization	ViewPage.aspx.cs (20)	ViewPage.aspx.cs (24)
2	SQL Injection	ExecuteSQL.aspx.cs (41)	ExecuteSQL.aspx.cs (41)
3	SQL Injection	ViewAccount.aspx.cs (21)	AccountMgmt.cs (36)
4	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (83)
5	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (83)
6	SQL Injection	Transfer.aspx.cs (54)	AccountMgmt.cs (83)
7	SQL Injection	DoTransfer.aspx.cs (18)	AccountMgmt.cs (125)

Generated on 6/1/2012 at 6:04 PM. 112 issue(s).

Inspector

Command To Execute

```

6 var detailView = (DetailView)summaryView.field("_detailView");
7 var lvDataFlow = (ListView)detailView.field("_lvDataFlow");
8 var _tsActions = (ToolStrip)summaryView.field("_tsActions");
9 var codeViewer = detailView.insert_Below().add_SourceCodeViewer();
10
11 _tsActions.Items.Clear();
12 _tsActions.add_Button("Open sample report #1");

```

Refactoring load actions into Lambda method, opening report on button click



```

Action<string> openReport =
    (path)=>{
        Report report = Report.Load(path);
        summaryView.LoadReport(report, Path.ChangeExtension(path, ".htm"));
    };

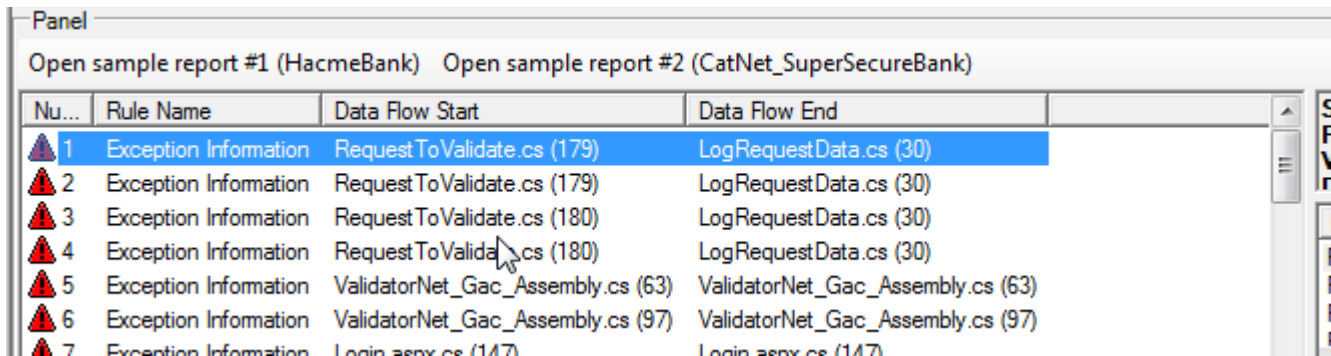
_tsActions.add_Button("Open sample report #1 (HacmeBank)", () => openReport("CatNet_HacmeBank.xml".local
    ())).click();

```

**Note:** files with *FileName.local()* will be tried to be resolved into a file inside the *O2.Platform.Scripts* folder, for example:



**Adding another button to open a 2nd sample report**



**Make the buttons better by reusing the Resources embeded in the SummaryView Control**

```

_tsActions.add_Button("Open sample report #1 (HacmeBank)", () => openReport("CatNet_HacmeBank.xml".local
    ())).click().applyResources("_btOpenReport")
    .add_Button("Open sample report #2 (SuperSecureBank)", () => openReport
    ("CatNet_SuperSecureBank.xml".local()).applyResources("_btAnalyze");

```

**Or more simply:**

```

_tsActions.add_Button("Sample report #1 (HacmeBank)", "_btOpenReport", () => openReport
    ("CatNet_HacmeBank.xml".local()).click()
    .add_Button("Sample report #2 (SuperSecureBank)", "_btAnalyze", () => openReport
    ("CatNet_SuperSecureBank.xml".local()));

```



Panel				
Sample report #1 (HacmeBank) ▶ Sample report #2 (SuperSecureBank)				
Nu...	Rule Name	Data Flow Start	Data Flow End	
1	Exception Information	RequestToValidate.cs (179)	LogRequestData.cs (30)	
2	Exception Information	RequestToValidate.cs (179)	LogRequestData.cs (30)	
3	Exception Information	RequestToValidate.cs (180)	LogRequestData.cs (30)	
4	Exception Information	RequestToValidate.cs (180)	LogRequestData.cs (30)	
5	Exception Information	ValidatorNet_Gac_Assembly.cs (63)	ValidatorNet_Gac_Assembly.cs (63)	
6	Exception Information	ValidatorNet_Gac_Assembly.cs (97)	ValidatorNet_Gac_Assembly.cs (97)	
7	Exception Information	Login.aspx.cs (147)	Login.aspx.cs (147)	

## Open Report on Drop

```
summaryView.onDrop(openReport);
```

## Add ability to scan a assembly

```
Action<string> scanAssembly =
    (file)=>{
        var catNet = new API_CatNet().loadRules();
        var savedReport = catNet.scan(file).savedReport();
        openReport(savedReport);
    };

scanAssembly("SuperSecureBank.dll".local());
```

## Add ability to scan a vs solution

```
Action<string> scanSolution =
    (solutionFile)=>{
        var catNet = new API_CatNet().loadRules();
        var assemblies = solutionFile.compileSolution();
        var savedReport = catNet.scan(assemblies).savedReport();
        openReport(savedReport);
    };
```

## on Drop: scan assembly, scan solution or open report

```
Action<string> handleDrop =
    (file)=>{
        "File Dropped: {0}".info(file);
        switch(file.extension())
        {
            case ".dll":
            case ".exe":
                scanAssembly(file);
                break;
            case ".sln":
                scanSolution(file);
                break;
            case ".xml":
                openReport(file);
                break;
            default:
                "dropped file extension not supported: {0}".error(file.extension
                break;
        }
    };
```